APPENDIX E

ODOR MODELING METHODOLOGY

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1.0 INTRODUCTION

The odor analysis for the Commercial Waste Management Study (Study) was based on a sampling of odors from selected Transfer Stations that process putrescible waste, combined with dispersion modeling of all identified Transfer Stations that process putrescible waste.

The Consultant selected several Transfer Stations for sampling to obtain estimates of the range of emission factors, expressed as the amounts of odor emitted per unit mass of waste stored. The emission factors were then applied to all Transfer Stations to estimate odor emissions for dispersion model input.

Model results are presented graphically in Volume I, Summary Report to show the predicted extent of effects for worst-case odor emissions and for average odor emissions, within the geographic areas surrounding the groups of Transfer Stations.

2.0 SAMPLING AND ANALYSIS

Four (4) putrescible waste Transfer Stations were selected for sampling according to the criteria provided in the July 16, 2003 Odor Sampling and Impact Analysis Protocol (i.e., Transfer Station must not process DSNY-managed Waste, and must have a relatively high throughput rate, active ventilation/building exhaust system, adequate and identifiable odor capture rate, and active odor control system).

Total facility odor emissions were measured by collecting multiple odor sample sets from all active exhaust vents, with and without the odor control system operating. A sample set consisted of one odor sample collected at each vent during steady process operations (active pile management and simulated transfer activities occurring inside the building, yet no delivery or transfer of waste into/out of the building). Fugitive emissions were minimized (improved capture) in order to most accurately determine the putrescible waste odor generation rate. To effectively comply with United States Environmental Protection Agency (USEPA) Method 204, improved capture was accomplished, largely by operating the building ventilation system, closing various building openings (e.g., doors, windows, etc.) and maintaining a 200 feet per minute (approximate) facial velocity of air into the building through various openings.

Whole air odor samples were collected from the building's exhaust vent(s) using a vacuum chamber system. The vacuum chamber system consisted of a rigid, airtight container with an inlet port connected to an internal Tedlar® bag and an outlet port connected to a portable pump. The sampling location was connected to the inlet port of the vacuum chamber with the shortest length of Teflon® tubing possible. The sampling line and each sample bag were pre-conditioned (filled) with a sample of the odorous air being evaluated and then the air was evacuated from the bag prior to collecting the actual sample. Prior to sampling, most facility doors and windows were closed, facial velocities measured, and simulated waste handling activities initiated. Before each vent was sampled, at least 15 minutes were allowed to pass from when adequate facial velocities were measured. Sampling durations ranged from a few to several minutes for each bag.

Odor samples were collected from the exhaust of each process building roof vent. Several Quality Assurance (QA) samples were also collected using the same sampling equipment and procedures. One field duplicate was collected at a single vent exhaust at each facility for each day of sampling. For each facility, a background sample was collected at a location upwind of the facility, not influenced by transfer operations. Field blanks were collected at an exhaust vent location; however, a charcoal tube was attached to the inlet line to the sampling system.

All samples were delivered to St. Croix Sensory for evaluation the day following sample collection. Detection threshold (DT) and recognition threshold (RT) for each sample were determined by St. Croix's odor panel in accordance with American Society for Testing and Materials (ASTM) Standard Practice E679-91. In addition, odor intensity, including dose-response slope, was determined in accordance with ASTM Standard Practice E544-99.

3.0 CALCULATION OF EMISSION FACTORS

The results of the sampling and laboratory analyses described in the section above were reviewed to assess the effectiveness of emission controls and the most important factors in estimating emission rates. A review of the controlled and uncontrolled odor emissions from the facilities sampled revealed that the controlled Transfer Station emissions were no more than 38% lower than the uncontrolled emissions, and in many cases the controlled emissions were actually higher than the uncontrolled emissions. This is likely due to the addition of fragrant masking agents in the Transfer Station. Odor panelists may have first detected (at high dilutions) unrecognizable odors that may have been due to the masking agent or a combination of the masking agent and the odors from the waste for the "controlled" cases. Therefore, for the dispersion modeling portion of the Study, it was decided that uncontrolled emission factors would be used to model all facilities.

The sampling results were reviewed to determine the most appropriate facility operational criteria for developing emission factors. This review focused primarily on daily and shorter-term (sampling period) waste processing rates, and on total amount of waste stored in piles on the tipping floor of the facility at the time of the sampling. It was determined from the sampling data that the latter criteria -- total putrescible waste stored in piles -- was the best operating factor to use in estimating odor emissions from the Transfer Stations.

The odor emission factors used in this Study are expressed as "odor units" (OU) per second, where one OU is defined as the amount or mass of odor needed to generate a concentration at the detection threshold (DT) in a volume of one cubic meter of air. The laboratory analysis by an odor panel, as identified in Section 2.0 above, provided the concentration of odor for each sample, in multiples of DT. The DT value for a sample was then multiplied by the air exhaust flow rate from the vent sampled, to estimate the OU emission rate for that vent. Where a facility had multiple vents, each of which were sampled, the total OU emission rate (OU/sec) of all vents was divided by the amount of waste stored in piles (tons) to estimate the emission factor for that facility sampling period.

Table 3-1 provides a summary of the estimated odor emission factors based on all odor samples analyzed for this Study. These data show that the emission factors ranged from 1.4 ([OU/sec]/ton stored) to 42.9 ([OU/sec]/ton stored), with a mean value of 19.3 ([OU/sec]/ton stored).

Table 3-1
Summary of Uncontrolled Sampling Results[(1)]

Sampled Facility	Date	Tipping Floor Waste During Sampling (tons)	Transfer Station Emission Rate (OU/sec)[(2)]	Emission Factor ([OU/sec]/ton stored)
Transfer Station #1, Day 1	7/18/2003	66.3	1789	27.0
Transfer Station #1, Day 2	8/11/2003	161	6433	40.1
Transfer Station #1, Day 2	8/11/2003	161	6904	42.9
Transfer Station #2	7/25/2003	435.5	615	1.4
Transfer Station #3	8/13/2003	88	1600	18.2
Transfer Station #4	8/20/2003	35	94	2.7
Transfer Station #4	8/20/2003	30	188	6.3
Transfer Station #4	8/20/2003	30	471	15.7
Average Emission Factor for 8 Samples				19.3
Maximum Emission Factor for 8 Samples				42.9
Minimum Emission Factor for 8 Samples				1.4

Notes:
(1) Uncontrolled means without the odor control system operating.
(2) One odor unit (OU) = equivalent mass of odor represented by a concentration of one odor unit in one cubic meter of air.

4.0 ODOR DISPERSION ANALYSIS

To obtain estimates of maximum expected odor effects, dispersion modeling was performed using the maximum estimated emission factor. For each prototypical facility size analyzed, the potential maximum waste stored amount (on the tipping floor) was multiplied by the average and maximum emission factors, to obtain the respective average (for comparison purposes only) and maximum emission rates. Table 4-1 shows the estimated average and maximum odor emission rates (OU/sec) for each prototype facility size and type analyzed for this Study.

Table 4-1
Estimated Maximum and Average Odor Emission Rates for Each Facility Prototype

Parameter	Prototype Facility Size & Type		
	Small	Medium	Large
Floor 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)

The odor dispersion analysis was accomplished using the USEPA Industrial Source Complex Short Term (ISCST3) dispersion model. Due to the number of facilities studied and the lack of detailed stack/vent design information for each facility in the study group, similar exhaust characteristics were used for all facilities modeled. Each facility's emissions were input to the model as a single point source, located on top of the waste processing building. Each emission point was assumed to be three feet above roof-top elevation, and each exhaust was assumed to have a "cap" that would negate any vertical momentum of the exhaust gases. Thus, the model assumes a plume height of slightly higher than the roof-top.

To account for the enhanced lateral and vertical dispersion caused by building downwash effects on a plume, the appropriate vertical and horizontal building profile input parameters were input to ISCST3, based on data generated by USEPA's Building Profile Input Program (BPIP) pre-processor. Site-specific building dimensions were input to BPIP to develop these dimensions.

The shortest averaging period accommodated by the ISCST3 model is one hour. Because odor can be detected on an instantaneous basis by the human nose, it was necessary to apply a multiplication factor -- referred to as a "peak-to-mean" factor -- to the ISCST3 one-hour concentration predictions. This peak-to-mean factor was set at 2.5, based on data contained in the publication *"Meteorology and Atomic Energy"* (Slade, et. al., 1968). However, because the ISCST3 concentration predictions are proportional to emission rate for a single source, the emission rates shown above in Table 4-1 were simply multiplied by 2.5 for input to the ISCST3 model, so that ISCST3 output concentrations would be adjusted for peak -- rather than one-hour average -- odor effects.

Because the model input emission rates are actually in units of "grams/second" and the output concentrations are in units of "micrograms/cubic meter," one can simply move the decimal point six places to the left in the model emission rates. The peak-to-mean adjustment and decimal place adjustment in emission rates make it possible to have the model output show directly the predicted number of OUs (multiples of the DT) at each receptor location. The ISCST3 model input emission rates to accomplish this are provided in Table 4-2.

Table 4-2
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).

APPENDIX F

ON- AND OFF-SITE NOISE PROTOCOL

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1.0 INTRODUCTION

This protocol for the New York City (City) Department of Sanitation (DSNY) Commercial Waste Management Study (Study) noise analyses is based upon the City Environmental Quality Review (CEQR) Manual, Section R: Noise. The purpose of the noise analysis is to determine if a group of Transfer Stations in close proximity to each other would cause a combined effect on sensitive receptors within a Study Area.

Both mobile (off-site) and stationary (on-site) noise sources related to waste handling activities at Transfer Stations are of interest. All equipment associated with a Transfer Station's operation, including Waste Hauling Vehicles queuing on site at a Transfer Station and immediately off site, and material-handling vehicles, was addressed as a stationary noise source. Waste Hauling Vehicles queuing immediately off site were included in the stationary (on-site) analysis because they are contributing to the noise being emitted from the Transfer Station to the surrounding area, although such noise is excluded from applicable zoning performance standards for noise. For the purpose of this analysis, only Transfer Station-related vehicular traffic (Waste Hauling Vehicles) on local roads was modeled in the mobile (off-site) noise source analysis.

In general, for humans, a noise change is just noticeable when it is changed by 3 dBA or more. For this Study, a cumulative significant contribution of a group of Transfers Stations at a noise-sensitive receptor was present if the background noise level without the Transfer Stations is increased by the operation of the Transfer Stations by 3 dBA or more (Study noise threshold).

2.0 Stationary (On-site) Noise Source Analysis

A stationary noise source analysis was performed for each Study Area. Each Transfer Station (including all equipment associated with its operation, including Waste Hauling Vehicles queuing on site at a Transfer Station and immediately off site, and material-handling vehicles) was considered a point source of the Study Area emitting a specific noise level.

The analysis included a screening-level component to determine if the 55 dBA contour line for a Transfer Station overlapped that of another within a Study Area and if one or more noise-sensitive receptors existed within these overlapping areas. If the 55 dBA contour lines within a Study Area overlapped and a noise-sensitive receptor was located within the overlapped area of the 55 dBA contour lines, a detailed stationary noise source analysis was performed consisting of: (1) background noise monitoring; and (2) an evaluation of the stationary noise effects that are present. This evaluation conservatively assumed the Transfer Stations operated under peak conditions for the permitted operating hours.

The following were considered noise-sensitive receptors:

- Parks/playgrounds and outdoor facilities (requiring serenity);
- Schools and educational facilities;
- Residences, including non-conforming residences;
- Churches and other places of worship;
- Outdoor performance facilities;
- Indoor performance facilities with windows;
- Healthcare facilities; and
- Libraries and community centers.

Sidewalks were not considered noise-sensitive receptors.

2.1 Screening Analysis

Transfer Stations include both stationary and mobile equipment that operate indoors and outdoors; however, each Transfer Station and all related equipment was treated as a stationary source for the purposes of the screening analysis. The Study Areas were screened by plotting the 55 dBA contour line for each Transfer Station within it and determining if: (1) one or more 55 dBA contour lines overlapped; and (2) a noise-sensitive receptor existed within the overlapped area.

Each Transfer Station within each Study Area was categorized as one of the following prototypical types:

- Small Putrescible;
- Medium Putrescible with Baler;
- Large Putrescible with Locomotive;
- Large Putrescible with Baler;
- Non-Putrescible Construction & Demolition (C&D);
- Non-Putrescible C&D with Crusher/Spreader;
- Non-Putrescible Small and Medium Fill; or
- Non-Putrescible Large Fill.

Those putrescible facilities categorized as small handled up to 700 tons per day (tpd), medium facilities with baler handled up to 1,500 tpd and large facilities handled more than 1,500 tpd.

2.1.1 Determining Prototypical Transfer Stations

A "prototypical" facility was defined for each category for analysis purposes. Each category was assigned prototypical equipment based on past experience in the solid waste industry, observations made at the Transfer Stations and the permitted conditions of the Transfer Stations (see Table 2.1.1-1). The lot and processing building sizes for all prototypical transfer stations were determined by averaging the lengths and widths of actual Transfer Stations in each category. All putrescible facilities were assumed to have a processing building within their lots. All non-putrescible facilities were assumed to process waste outside of a building.

Table 2.1.1-1
Equipment List Considered for the On-Site Analysis

Prototypical Transfer Station	
Equipment	Quantity
Small Putrescible	
Inside Processing Building	
Wheel Loader (200 horsepower [hp])	2
Fans	2
Delivery Waste Hauling Vehicles	2
Long-Haul Waste Hauling Vehicle	1
Outside Processing Building	
Fans	2
Delivery Waste Hauling Vehicles	3
Long-Haul Waste Hauling Vehicle	1
Immediately Off Site	
Delivery Waste Hauling Vehicles	5
Long-Haul Waste Hauling Vehicle	2
Medium Putrescible with Baler	
Inside Processing Building	
Wheel Loader (200 hp)	1
Wheel Loader (250 hp)	1
Excavator	1
Forklift	1
Baler with Conveyor	1
Fans	5
Delivery Waste Hauling Vehicles	2
Long-Haul Waste Hauling Vehicle	1
Outside Processing Building	
Fans	5
Delivery Waste Hauling Vehicles	3
Long Haul Waste Hauling Vehicle	1
Immediately Off Site	
Delivery Waste Hauling Vehicles	5
Long-Haul Waste Hauling Vehicle	2

Table 2.1.1-1 (Continued)
Equipment List Considered for the On-Site Analysis

Prototypical Transfer Station	
Equipment	Quantity
Large Putrescible with Baler	
Inside Processing Building	
Wheel Loader (200 hp)	1
Wheel Loader (250 hp)	1
Excavator	1
Forklift	2
Baler with Conveyors	2
Fans	10
Delivery Waste Hauling Vehicles	4
Long-Haul Waste Hauling Vehicle	1
Outside Processing Building	
Fans	10
Sweeper	1
Delivery Waste Hauling Vehicles	7
Long-Haul Waste Hauling Vehicle	1
Immediately Off-site	
Delivery Waste Hauling Vehicles	3
Long Haul Waste Hauling Vehicle	2
Large Putrescible with Locomotive	
Inside Processing Building	
Wheel Loader (200 hp)	1
Wheel Loader (250 hp)	1
Excavator	1
Forklift	2
Inside Railcars	4
Fans	10
Delivery Waste Hauling Vehicles	4
Long-Haul Waste Hauling Vehicle	1
Outside Processing Building	
Fans	10
Delivery Waste Hauling Vehicles	7
Long-Haul Waste Hauling Vehicle	1
Sweeper	1
Locomotive	1
Immediately Off Site	
Delivery Waste Hauling Vehicles	3
Long-Haul Waste Hauling Vehicle	2

Table 2.1.1-1 (Continued)
Equipment List Considered for the On-Site Analysis

Prototypical Transfer Station	
Equipment	Quantity
Non-Putrescible C&D	
On Site	
Track Loader	1
Excavator	1
Waste Hauling Vehicle (loading)	1
Waste Hauling Vehicle	4
Immediately Off Site	
Waste Hauling Vehicle	6
Non-Putrescible C&D with Crusher/Spreader	
On Site	
Track Loader	
Wheel Loader	1
Excavator	1
Crusher/Grinder	1
Screener	1
Generator	1
Waste Hauling Vehicle (loading)	1
Waste Hauling Vehicle	1
Immediately Off Site	3
Waste Hauling Vehicle	
	12
Non-Putrescible Small/Medium Fill	
On Site	
Wheel Loader	1
Excavator	1
Crusher/Grinder	1
Generator	1
Waste Hauling Vehicle (loading)	1
Waste Hauling Vehicle	1
Immediately Off Site	
Waste Hauling Vehicle	3

Table 2.1.1-1 (Continued)
Equipment List Considered for the On-Site Analysis

Prototypical Transfer Station	
Equipment	Quantity
Non-Putrescible Large Fill	
On Site	
Wheel Loader	1
Excavator	1
Crusher/Grinder	1
Screener	1
Generator	1
Waste Hauling Vehicle (loading)	1
Waste Hauling Vehicle	3
Immediately Off Site	
Waste Hauling Vehicle	2

2.1.2 Establishing 55 dBA Contour Lines

The 55 dBA contour lines were generated utilizing a C++ program for each of the eight prototypical transfer station categories. The input file was comprised of: (1) the predicted noise level outside the plant building at a reference distance of 50 meters from each wall of the plant building (applicable to putrescible facilities only since non-putrescible operation is assumed to not occur within a building); (2) the noise reference level of the outside equipment at a reference distance of 15 meters; (3) the utilization factor; and (4) the X and Y coordinates (based on an arbitrary origin within the property boundary) for each of the four plant building walls and for the outside equipment.

Determining the predicted noise level at a reference distance of 50 meters from each exterior wall of the prototypical putrescible transfer station processing building was done by first performing the following steps for each piece of inside equipment:

a) Establish Sound Power Level (SWL);
b) Calculate Sound Pressure Level (SPL) at the inside of the building wall;
c) Determine transmission loss through the wall; and
d) Determine the SWL at each outside wall.

To determine cumulative noise levels from each exterior wall, the SWLs from each piece of equipment for each wall were added logarithmically. Next, the appropriate distance correction factor (50 meters) was applied to the projected total SWLs for the four exterior walls. This analysis assumed a drop-off rate of 6 dBA/distance doubled.

The noise reference level, at a reference distance of 15 meters, for most equipment operated indoors and outside was obtained directly from the manufacturers. However, if noise emissions data were not available for specific equipment, they were collected from other similar projects or determined by following the general procedures listed below. All noise reference level data or equipment measurements used are provided in Table 2.1.2-1.

1. All noise levels were reported in units of dBA.
2. Sound levels were measured utilizing a Sound Level Meter/Real Time Analyzer (SLM/RTA), to collect spectral data.
3. Spectral noise data were monitored for each piece of equipment for a period of 20 minutes or the duration necessary for the equipment to complete one cycle.
4. The maximum sound level (L_{max}) calculated by the SLM/RTA was obtained and propagated to the reference distance of 50 feet, by using the following equation: $SPL_d=SPL_{50}-20*\log (50/d)$, which assumed a 6 dBA drop-off rate, where d is the distance from the SLM/RTA to the equipment.

Table 2.1.2-1 Equipment List
Noise Levels at 15 Meters

Type of Equipment	Noise Level	Unit
Wheel Loader (250 hp)	80.0	SPL
Wheel Loader (200 hp)	75.0	SPL
Track Loader	76.8	SPL
Screener	84.0	SPL
Excavator (250 hp)	75.0	SPL
Transfer Trailer	80.0	SPL
Crusher/Grinder	69.0	SPL
Generator	89.8	SPL
Fork Lift	85.6	SPL
Baler	82.0	SPL
Sweeper	83.0	SPL
Inside Dump Truck	74.0	SPL
Outside Dump Truck	68.0	SPL
Fan	70.0	SPL

Since current conditions at all non-putrescible facilities include a 10-foot opaque fence surrounding the Transfer Station, a 5 dBA transmission loss was applied to the equipment noise levels provided in Table 2.1.2-1 for all equipment operating inside the Transfer Station, which does not include any Waste Hauling Vehicles queuing immediately off site. However, a 5 dBA transmission loss was also applied to the Waste Hauling Vehicles queuing immediately off site in the direction where the noise from the immediately off-site Waste Hauling Vehicle would be partially shielded by the 10-foot opaque fence surrounding the Transfer Station.

The C++ program generated an output file consisting of the value of the angle (in degrees) and the distance (in meters) from the axis origin to the selected isocontour. As specified in the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM), the shielding effects of intervening buildings was accounted for by applying 5 dBA of shielding for a row of buildings that provided 65% to 90% coverage (of the line of sight), with a 10 decibel limit. A 10 decibel attenuation was used for buildings providing complete coverage. Therefore, the shielding provided by on-site and off-site structures was taken into account by selecting the 60 or 65 dBA contour for the 55 dBA contour in the case of a 5 or 10 dBA noise attenuation in the direction of the structure.

If the 55 dBA contour lines within a Study Area did not overlap or if they did overlap but no sensitive receptor was within the overlapped area, the Study Area was screened from further analysis and a qualitative discussion of the screening results is provided in the Study.

2.2 Detailed Stationary Noise Analysis

If the 55 dBA contour lines within a Study Area overlap, a representative noise-sensitive receptor in the overlapped contour area was identified for each overlapping contour area, and a detailed stationary noise source analysis was performed. The detailed stationary noise source analysis consisted of noise monitoring and modeling to predict noise levels. Noise monitoring was performed to determine the existing background noise level at the nearest sensitive receptor. Because the Transfer Stations were currently operating, the noise levels monitored included background noise levels and the noise being emitted from the Transfer Stations. The background

noise levels were calculated by logarithmically subtracting the modeled noise level from the monitored noise level. The background noise level, modeled noise level and monitored noise level were used to determine if noise effects exist at the receptors by comparing these noise levels to the Study noise threshold summarized above in Section 1.0, and reported in a tabular format in the Study.

2.2.1 Stationary Noise Monitoring

Noise monitoring was conducted during the Transfer Stations' peak hour(s) to establish the existing noise level at the noise-sensitive receptors that were located within overlapping 55 dBA contours. If the Transfer Stations were permitted to operate during the nighttime hours (10:00 p.m. to 7:00 a.m.), a nighttime noise monitoring event was also conducted at the noise-sensitive receptor.

Noise levels at the noise-sensitive receptors were monitored in accordance with the following:

1. All noise levels were reported in units of dBA.
2. A Type I or II meter with a windscreen (measures overall sound levels) was used.
3. Noise monitoring was conducted for a duration of one hour to obtain the 1-hour equivalent sound level (L_{eq}), or, at a minimum, for 20 minutes, to represent the 1-hour L_{eq}.
4. Slow meter response was selected.
5. Hourly metrics of: L_{eq}, 10^{th}, 50^{th} and 90^{th} percentile noise levels (L_{10}, L_{50}, L_{90}), and minimum and maximum noise levels (L_{min} and L_{max}) were recorded (at a minimum).
6. The meter was calibrated before each monitoring event. Microphone placement was approximately 5 feet or more above the ground and at least 3 feet to 4 feet from the nearest reflective surface.
7. Prior to monitoring, the DSNY Consultant researched the wind speed and temperature data for the period during the short-term monitoring events. Noise monitoring did not occur during periods in which the wind speed was greater than 15 miles per hour (mph) (per CEQR) or if there was precipitation.
8. Upon arrival at the site, the DSNY Consultant toured the perimeter of the area, listened to the characteristic noise emissions at the site and noted dominant noise emission sources.
9. The locations of the noise-sensitive receptors were field-verified.

2.2.2 Stationary Noise Modeling

A detailed stationary noise model was created for each prototypical transfer station category to assign a total noise level. The steps involved in creating the detailed stationary noise model were as follows:

Step 1: Calculate noise levels at the property line for all equipment located inside the prototypical transfer station processing building. Using the wall SWL calculated for each piece of equipment in the screening analysis, the wall SWL was converted to SPL at selected property line locations, taking into account multiple pieces of the same type of equipment, shielding from structures within the prototypical transfer station, and the equipment utilization factor. (When equipment utilization was 100% during 1-hour, the SPL was equivalent to L_{eq} 1-hour.)

To determine the total projected noise levels at the selected property line locations from all equipment inside the prototypical transfer station building, the SPL contributions from each piece of indoor equipment were logarithmically added.

Step 2: Calculate cumulative prototypical transfer station-related noise levels at the property line locations due to all of the outside equipment in operation. For each piece of equipment:

a) SPL was established at 50 feet from the noise source; and
b) SPL (50 feet) was converted to SPL at distances to the selected property line locations taking into account multiple pieces of the same type of equipment, shielding from structures within the prototypical transfer station and the equipment utilization factor (when equipment utilization was 100% during 1-hour, the SPL was equivalent to L_{eq}[1-hour]).

Step 3: Calculate the Total L_{eq} at the selected property line locations by logarithmically adding the L_{eq} contributions from prototypical transfer station equipment operating indoors and outdoors, including collection vehicles queuing on site and immediately off site.

Step 4: Calculate SWL at the center of the prototypical transfer station for each of the total L_{eq} at the selected property line locations.

Step 5: Calculate the total SWL at the center of the prototypical transfer station by obtaining the arithmetic average of the SWLs calculated in Step 4.

This analysis assumed a drop-off rate of -6 dBA/distance doubled.

Each Transfer Station was assigned a total SWL depending on its category. For each noise-sensitive receptor identified in an overlapped 55 dBA contour area within a Study Area, the following steps were followed for each Transfer Station whose 55 dBA contour is overlapping the receptor:

Step 1: Calculate the predicted total SPL at the receptor from the Transfer Station using the total SWL;

Step 2: Logarithmically combine the predicted total SPL at the receptor for each Transfer Station to determine the predicted overall SPL at the receptor from the Transfer Stations.

Step 3: Calculate the background noise level (the noise level that would exist if the Transfer Station was not in operation) at the receptor by logarithmically subtracting the monitored existing noise level at the receptor from the predicted overall SPL at the receptor.

Step 4: Compare the predicted overall SPL, monitored existing noise level and the calculated background noise level at the receptor to the Study noise threshold summarized in Section 1.0.

The shielding effects of intervening buildings were accounted for by applying 5 dBA of shielding for a row of buildings that provided 70% to 90% coverage (of the line of sight), with a 10 decibel limit. A 10 decibel attenuation was used for buildings providing complete coverage. In addition, for all non-putrescible categories, an additional 5 dBA noise reduction was applied for the shielding effect of a 10-foot high opaque fence currently surrounding the non-putrescible Transfer Stations.

2.3 Reduction of Noise Effects

If significant effects were identified at a receptor as a result of the detailed stationary noise modeling, three individual noise attenuation measures were evaluated by applying scenarios to the prototypical facilities to avoid, lessen or reduce the effects. The scenarios are as follows:

- Reduction Scenario 1 – Non-putrescible C&D operations occurring within a processing building.
- Reduction Scenario 2 – No off-site queuing of Waste Hauling Vehicles.
- Reduction Scenario 3 – The construction of a 15-foot high concrete wall surrounding the Transfer Station lot to perform as a noise barrier, therefore allowing up to a 15 dBA noise attenuation.

3.0 MOBILE (OFF-SITE) NOISE SOURCE ANALYSIS

The mobile noise source analysis was performed to evaluate the traffic noise effects from Waste Hauling Vehicles en route to and from the Transfer Stations. This analysis included a screening-level component to determine if the Waste Hauling Vehicles resulted in a doubling of passenger car equivalent (PCE) values during any of the hours during which the largest change in noise levels was expected (when the difference between traffic noise levels and background levels was greatest). If results showed that such a doubling did occur, a detailed noise analysis was performed, consisting of: (1) background noise monitoring; and (2) an evaluation of the mobile noise effects during those hour(s) when the largest change in noise levels was expected due to the existence of the Transfer Stations.

3.1. Screening Analysis

The CEQR Manual includes guidelines for a screening-level analysis of mobile sources to determine if additional refined analyses are required. The only mobile sources for the Transfer Stations were Waste Hauling Vehicles on local roads en route to and from the Transfer Stations.

Noise screening was performed at representative major convergence areas along Waste Hauling Vehicle routes in which noise-sensitive receptors exist. Automatic traffic recorders (ATRs) were placed along these routes to measure traffic volumes for 24-hour periods. For each roadway being screened, these data were used to determine the existing traffic volume (including the existing Waste Hauling Vehicles). The number of Waste Hauling Vehicles (determined from Transfer Station operations) was removed from this existing traffic volume to determine the background traffic volume.

Noise screening was performed via a two-level process. The first level consisted of converting the background traffic volume and the Waste Hauling Vehicle volumes to PCEs. The background traffic volume was converted to PCEs using New York State Department of Transportation (NYSDOT) site-specific axle factors, which categorized the traffic volume into two classes: (1) Automobile/Light Truck/Medium Truck/Bus; and (2) Heavy Trucks. A conservative PCE factor of 1 was used for Class 1, and a PCE factor of 47 was used for Class 2. The Waste Hauling Vehicle volume was converted to PCEs using a PCE factor of 47 for Heavy Trucks. The two PCE values (background and Waste Hauling Vehicles) were then compared. If

the Waste Hauling Vehicle PCEs were equal to or more than the background PCEs, the Waste Hauling Vehicles were causing a doubling of PCEs and therefore effects resulting in the need to perform the second-level screening.

For the second-level screening, the hour for which the greatest ratio of Waste Hauling Vehicle PCEs plus background traffic PCEs to background traffic PCEs was analyzed for each roadway that resulted in a doubling of PCEs. If the first-level screening resulted in noise effects during the daytime (7:00 a.m. to 10:00 p.m.), as well as the nighttime (10:00 p.m. to 7:00 a.m.), both the hour with the greatest ratio from the daytime and the hour with the greatest ratio in the nighttime were further analyzed in the second-level screening.

Similar to the first-level screening, the Waste Hauling Vehicle volume was converted to PCEs using a PCE factor of 47 for Heavy Trucks for this level. However, for this level, background traffic volume PCEs were calculated using: (1) the actual vehicle classification count for the hour(s) being screened or a vehicle classification count representative of the vehicle distribution expected during that time of the day; and (2) the following conversion factors:

- Each Automobile or Light Truck: 1 PCE;
- Each Medium Truck (gross vehicle weight from 9,900 pounds to 26,400 pounds): 13 PCEs;
- Each Bus: 18 PCEs; and
- Each Heavy Truck (gross vehicle weight more than 26,400 pounds): 47 PCEs.

If the PCEs doubled along a roadway at any time because of Waste Hauling Vehicles (again, meaning if Waste Hauling Vehicle PCEs were equal to or more than background PCEs), then a detailed noise analysis was required per CEQR, Section R 311.1.

3.2 Detailed Mobile Noise Source Analysis

The detailed mobile noise source analysis consisted of noise monitoring and modeling. Noise monitoring was performed to determine the existing noise levels at the representative nearest sensitive receptors for each roadway in which PCEs doubled, based on the second-level screening. For each of these roadways, TNM modeling was performed to predict the noise level

for each of the following traffic conditions at the nearest noise sensitive receptor: (1) the existing traffic, which includes background traffic and the Waste Hauling Vehicles; and (2) the background traffic. The predicted noise levels for these two conditions, along with the monitored existing noise level at the nearest sensitive receptor along a roadway, were used to determine the effect the Waste Hauling Vehicles were causing on the sensitive receptor based on the Study noise thresholds.

3.2.1 Mobile Noise Monitoring

Existing traffic noise was monitored using 1-hour noise measurements taken at representative noise-sensitive receptors along a roadway within the Study Area during the worst hour(s) in which a possible effect may occur, as determined by the second-level screening process. A traffic count and vehicle classification count were conducted simultaneously with the noise measurements. Existing traffic noise levels were monitored in accordance with the procedures described in Section 2.2.1 above.

3.2.2 Mobile Noise Modeling

At roadways in which the TNM model was used, sensitive receptors within 200 feet with unobstructed views of the roadway were identified and modeled to determine the predicted traffic noise levels. This limited the analysis to the first row of buildings along a roadway.

TNM was used to model the existing traffic volumes (background traffic plus Waste Hauling Vehicles) at a roadway, utilizing the traffic count obtained during the mobile noise monitoring, to predict the existing noise levels at the nearest noise-sensitive receptor (where mobile noise monitoring was performed). Because the TNM model predicts only the noise level from the traffic going through the roadway and ignores the surrounding noise from other activities and the surrounding traffic, this TNM-predicted noise level at the receptor was logarithmically subtracted from the monitored noise level at the receptor to determine the additional background noise level that was not attributable to traffic. TNM was then used to determine the predicted noise level at the receptor due to only the background traffic volume. This noise level was then

combined with the calculated additional background noise level to determine the predicted noise level that would exist at the receptor without the Waste Hauling Vehicles. The difference between the monitored noise level (including the Waste Hauling Vehicles) and the noise level that would exist without the Waste Hauling Vehicles was compared with the CEQR Manual's noise impact thresholds.

3.3 Reduction of Effects

If significant noise effects were identified, then noise attenuation measures would have been explored and evaluated to identify measures that would avoid, lessen or reduce the effects. However, no significant mobile noise effects were identified.

APPENDIX G

WATER QUALITY ASSESSMENT SUMMARY

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1.0 INTRODUCTION

The Commercial Waste Management Study (Study) water quality analysis evaluated the potential impact that a Transfer Station or group of Transfer Stations in a Study Area would have on surface water quality. A total of 43 Transfer Stations were included in the 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 Transfer Stations were identified as not being near or adjacent to surface water and were dropped from further evaluation. The remaining 14 Transfer Stations were included in the water quality assessment. Table 1-1 presents the list of the 43 Transfer Stations, their addresses and types of waste handled. The 14 Transfer Stations included in the water quality assessment are highlighted in Table 1-1. None of these 14 are located within the Jamaica, Queens CD #12 Study Area.

Table 1-1
Commercial Waste Transfer Stations[1]

Name	Address	Type	Study Area[2]
A.J. Recycling	325 Faile Street	Non-Putrescible	Hunts Point
Bronx City Recycling	1390 Viele Avenue	Fill	Hunts Point
G.M. Transfer	216-222 Manida Avenue	Non-Putrescible	Hunts Point
IESI NY Corp.	325 Casanova Street	Putrescible	Hunts Point
John Danna and Sons	318 Bryant Avenue	Non-Putrescible	Hunts Point
Kids Waterfront Corp.	1264 Viele Avenue	Non-Putrescible	Hunts Point
Paper Fibers Corp.	960 Bronx River Avenue	Putrescible	Hunts Point
Metropolitan Transfer Station	287 Halleck Street	Putrescible	Hunts Point
Waste Management of NY	620 Truxton Street	Non-Putrescible	Hunts Point
Waste Management of NY	315 Baretto Street	Non-Putrescible	Hunts Point
Waste Management of NY	Oak Point & Barry Avenue	Putrescible (Intermodal)	Hunts Point
Bronx County Recycling	475 Exterior Street	Fill	Port Morris
Felix Equities	290 East 132nd Street	Fill	Port Morris
Tilcon NY	980 East 149th Street	Fill	Port Morris
USA Waste Services of NY (Waste Management)	98 Lincoln Avenue	Putrescible	Port Morris
USA Waste Services of NY (Waste Management)	132nd Street & Saint Ann's Avenue	Putrescible (Intermodal)	Port Morris
Waste Services of NY	920 East 132nd Street	Putrescible	Port Morris
Point Recycling Ltd.	686 Morgan Avenue	Non-Putrescible	Brooklyn
Waste Management of NY	75 Thomas Avenue	Non-Putrescible	Brooklyn
Waste Management of NY	232 Gardner Avenue	Non-Putrescible	Brooklyn
Waste Management of NY	215 Varick Avenue	Putrescible	Brooklyn
Waste Management of NY	123 Varick Avenue	Non-Putrescible	Brooklyn
Waste Management of NY	485 Scott Avenue	Putrescible	Brooklyn
Maspeth Recycling	58-08 48th Street	Fill	Brooklyn
IESI NY Corp.	548 Varick Avenue	Non–Putrescible	Brooklyn
Astoria Carting Company	538-545 Stewart Avenue	Non–Putrescible	Brooklyn
City Recycling Corp.	151 Anthony Street	Non–Putrescible	Brooklyn
Cooper Tank and Welding	222 Maspeth Avenue	Non–Putrescible	Brooklyn
Pebble Lane Associates	57-00 47th Street	Fill	Brooklyn
Keyspan Energy	287 Maspeth Avenue	Fill	Brooklyn
New Style Recycling Corp.	49-10 Grand Avenue	Putrescible	Brooklyn
New Style Recycling Corp.	49-10 Grand Avenue	Non-Putrescible	Brooklyn
BFI Waste Systems of NJ	598-636 Scholes Street	Putrescible	Brooklyn
BFI Waste Systems of NJ	594 Scholes Street	Non-Putrescible	Brooklyn
BFI Waste Systems of NJ	575 Scholes Street	Non-Putrescible	Brooklyn
BFI Waste Systems of NJ	115 Thames Street	Putrescible	Brooklyn
Hi-Tech Resource Recovery	130 Varick Avenue	Putrescible	Brooklyn
American Recycling Management	172-33 Douglas Avenue	Putrescible	Jamaica
American Recycling Management	172-33 Douglas Avenue	Non-Putrescible	Jamaica
Regal Recycling	172-06 Douglas Avenue	Putrescible	Jamaica
Regal Recycling	172-06 Douglas Avenue	Non-Putrescible	Jamaica
T. Novelli	94-07 Merrick Avenue	Fill	Jamaica
T. Novelli	94-20 Merrick Avenue	Non-Putrescible	Jamaica

Notes:

(1) Shaded Transfer Stations are included in analysis.

(2) Hunts Point = Hunts Point, Bronx CDs #2 and #9 Study Area.
Port Morris = Port Morris, Bronx CD #1 Study Area.
Brooklyn = Brooklyn CD #1 Study Area.
Jamaica = Jamaica, Queens CD #12 Study Area.

2.0 METHODOLOGY

2.1 Introduction

The water quality analysis evaluates the effects that the Transfer Stations would have on surface water. For each Transfer Station or Study Area, current conditions and potential effects were evaluated, and recent water quality data in the vicinity of each Study Area were summarized and compared to local water quality standards. The water quality Study Area includes the receiving water body that is adjacent to each specific site or as close as possible. A mathematical model of New York Harbor was used to predict the potential effects of the Transfer Stations on future water quality conditions.

As part of the New York City Department of Environmental Protection (NYCDEP) Harbor Survey program, the NYCDEP has designated monitoring stations throughout New York Harbor, including the Hudson River and the East River, that are sampled routinely. Water samples are typically analyzed for conventional pollutants and additional water quality parameters. In addition, ambient metals concentration data are available from sampling conducted in 1991 for Region 2 of the United States Environmental Protection Agency (USEPA) by Battelle Ocean Sciences.

For each Transfer Station, data from the nearest monitoring station(s) were compiled and summarized to develop a profile of baseline existing water quality conditions. These data were then compared to the corresponding New York State Department of Environmental Conservation (NYSDEC) water quality standards and guidance values. In addition, NYSDEC information on existing permitted discharges in the vicinity of each Transfer Station or Study Area were investigated.

2.2 Pollutant Loadings

Pollutant loadings were calculated for each Transfer Station and Study Area. The runoff flow was calculated using the equation:

$$Q_R = CIA$$

Where:

Q_R = runoff flow (cfs)

C = the runoff coefficient

I = the average intensity (in/hr)

A = site area (acres)

The site areas (A) were determined from aerial photographs and are listed in Table 3-1. It was conservatively assumed that the entire area at each Transfer Station was impervious, so a runoff coefficient (C) of 1.0 was used. An average rainfall intensity (I) per storm of 0.06 inches per hour (in/hr), which was based on statistics of duration and intensity of storm events measured at Central Park between 1969 and 2002, was used to estimate the flow used in the pollutant loading calculations. It was further assumed that runoff from each Transfer Station flowed directly to surface waters rather than to the New York City (City) sewer system.

Average concentrations for fecal coliform, biochemical oxygen demand (BOD), copper, lead and zinc from the Nationwide Urban Runoff Program (NURP) and additional stormwater databases were calculated. The additional databases included studies funded by the Washington Council of Governments, the Federal Highway Administration (FHWA) and Santa Clara County, California. Studies in Jamaica Bay (Jamaica Bay Combined Sewer Overflow Facility Planning Project, O'Brien and Gere, 1994), Alley Creek (East River Combined Sewer Overflow Facility Planning Project, URS Consultants and Lawler, Matusky & Skelly, 1996), and the Outer Harbor areas of the City (Outer Harbor CSO Facility Planning Project, Hazen and Sawyer and HydroQual, 1993), provided additional stormwater runoff data for the City. The average concentrations from these programs, presented in Table 2.2-1, were used as representative concentrations of stormwater from the Transfer Stations.

Table 2.2-1
Stormwater Runoff Quality for Various Studies

Pollutant	National Stormwater Data				New York City Stormwater Data			Average
	I[1]	II[2]	III[3]	IV[4]	V[5]	VI[6]	VII[7]	
Conventional Pollutants (mg/L)[10]								
BOD[9]	9	5	14	8	12	10	18	11
Coliform Bacteria (MPN/100ml)[11]								
Fecal Coliform	21,000	--	--	2,000	37,000	20,000	92,000	34,000
Heavy Metals (µg/L)[12]								
Copper	34	–	39	31	–	–	–	35
Lead	144	18	234	37	–	–	–	28[8]
Zinc	160	37	217	200	–	–	–	154

Notes:

(1) USEPA, 1983. Final Report of the Nationwide Urban Runoff Program. USEPA Water Planning Division, Washington, D.C.

(2) T.R. Schueler, 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs. Metropolitan Washington Council of Governments, Washington D.C.

(3) E.D. Driscoll, 1990 Pollutant Loadings and Impacts from Highway Storm Water Runoff. Volume III: Analytical Investigation and Research Report. Federal Highway Administration, McLean, VA.

(4) Loads Assessment Report, Santa Clara County Urban Runoff Program, Woodward Clyde Consultants, 1991.

(5) Jamaica Bay Combined Sewer Overflow Facility Planning Project. O'Brien & Gere Engineers, Inc., 1993.

(6) Outer Harbor CSO Facility Planning Project. Hazen and Sawyer, P.C. and HydroQual, Inc., 1993.

(7) East River Combined Sewer Overflow Facility Planning Project. URS Consultants, Inc. & Lawler, Matusky & Skelly Engineers, 1996.

(8) Lead concentrations monitored in the 1970s and early 1980s reflect leaded gasoline use. As a result, stormwater data for II and IV were used to develop average concentrations.

(9) BOD = Biochemical oxygen demand.

(10) mg/L = milligrams per liter.

(11) MPN/100ml = most probable number per 100 milliliters.

(12) µg/L = micrograms per liter.

2.3 Modeling Evaluation

The potential impact of the stormwater pollutant loadings on surface water quality was evaluated using the New York Harbor Seasonal Steady State Water Quality 208 Model (208 Model). This model was developed under Section 208 of the Clean Water Act to help state and local water quality management agencies integrate water quality activities and goals. The 208 Model was used to predict the incremental changes in BOD, fecal coliform, copper, zinc and lead that resulted from the stormwater loadings from the 14 Transfer Stations and the Port Morris, Bronx CD #1; Hunts Point, Bronx CDs #2 and #9; and Brooklyn CD #1 Study Areas. The application of the 208 Model to heavy metals is considered to be conservative because only dispersion is considered in determining concentrations. The resulting change in surface water concentrations were compared to applicable NYSDEC water quality standards and guidance values.

2.4 Existing Water Quality Data

Water quality data presented includes data collected at stations sampled as part of the USEPA Battelle 1991 survey and data collected from the NYCDEP Harbor Survey program from 1992 to 2002 at the sampling stations that were closest to each of the 14 Transfer Stations. These data are presented in Tables 2.4-1, 2.4-2 and 2.4-3 for Transfer Stations in the Port Morris, Bronx CD #1; Hunts Point, Bronx CDs #2 and #9; and Brooklyn CD #1 Study Areas, respectively.

The existing water quality data in the vicinity of the Port Morris, Bronx CD #1 Study Area generally met the NYSDEC Class I standards and guidance values for the pollutants shown on Table 2.4-1, with the following exceptions:

- The minimum dissolved oxygen between June 1 and September 30, 2002 for stations E-4 and H-3 did not meet the water quality standard for dissolved oxygen.
- The minimum dissolved oxygen between June 1 and September 30, 1992 for station H-4 did not meet the water quality standard for dissolved oxygen.
- The mercury concentration for Battelle Ambient Survey Stations E-4B and E-4T exceeded the water quality guidance value.

Table 2.4-1
Existing Water Quality Conditions and Standards
Sampling Stations Closest to Transfer Stations in the Port Morris, Bronx CD #1 Study Area

Average Concentration								
Parameter	**Units[25]**	**Station E4 [1]**	**Station E5 [2]**	**Station H3 [3]**	**Station H4[4]**	**Station E4T[5]**	**Station E4B[6]**	**New York State Class I Standards**
Dissolved Oxygen (surface/minimum)	mg/L	6.3[7]/3.3[8]	5.2[9]/4.2[10]	6.2[7]/3.3[8]	6.9[11]/3.4[12]	-------	-------	4.0
Dissolved Oxygen (bottom/minimum)	mg/L	5.0[7]/2.9[8]	5.2[9]/4.1[10]	5.6[7]/3.1[8]	7.1[11]/3.5[12]	-------	-------	4.0
BOD (surface)[21]	mg/L	3.0[13]	3.2[13]	2.32[13]	2.98[13]	-------	-------	-------
BOD (bottom)[21]	mg/L	3.0[13]	3.2[13]	2.12[13]	2.75[13]	-------	-------	-------
Total Coliform (surface)	MPN/100 ml	877[14]	874[14]	1355[14]	606[14]	-------	-------	10,000
Total Coliform (bottom)	MPN/100 ml	694[14]	548[14]	1244[14]	912[14]	-------	-------	10,000
Fecal Coliform (top)	MF	100	30	83	72	-------	-------	2,000
Fecal Coliform (bottom)	MF	36[15]	384[15]	52[15]	73	-------	-------	2,000
Total Suspended Solids (surface)	mg/L	21	6	29	15	-------	-------	-------
Total Suspended Solids (bottom)	mg/L	22	10	26	19	-------	-------	-------
NH_3-N[22]	mg/L	0.461	0.41	0.30	0.35	-------	-------	-------
$(NO_3 + NO_2)$[23]	mg/L	0.421	0.318	0.51	0.44	-------	-------	-------
Total Phosphorous	mg/L	0.391[16]	0.364[16]	0.14[17]	0.19[17]	-------	-------	-------
Dissolved PO_4[24]	mg/L	-------	-------	-------	-------	-------	-------	-------
Chlorophyll-a	µg/L	3.6	2.7	2.4	3.5	-------	-------	-------
Arsenic	µg/L	-------	-------	-------	-------	-------	-------	36[18,19]
Cadmium	µg/L	-------	-------	-------	-------	0.07[18]	0.06[18]	7.7[18,19]
Chromium	µg/L	-------	-------	-------	-------	-------	-------	------
Copper	µg/L	-------	-------	-------	-------	1.83[18]	1.83[20]	5.6[19,20]
Lead	µg/L	-------	-------	-------	-------	0.20[18]	0.19[20]	8.0[18,19]
Mercury	µg/L	-------	-------	-------	-------	0.0028[18]	0.0029[18]	0.0026[18,19]
Nickel	µg/L	-------	-------	-------	-------	1.50[18]	1.46[18]	8.2[18,19]
Silver	µg/L	-------	-------	-------	-------	0.0083[18]	0.0078[18]	-------
Zinc	µg/L	-------	-------	-------	-------	5.32[18]	5.11[18]	66[18,19]
Cyanide	µg/L	-------	-------	-------	-------	-----	-----	1.0[19]

Notes for Table 2.4-1:

(1) Average concentrations for 2002 NYCDEP Harbor Survey Station E-4, located at Hell Gate in the East River.
(2) Average concentrations for 2000 NYCDEP Harbor Survey Station E-5, located at Barretto Point, in the East River.
(3) Average concentrations for 2002 NYCDEP Harbor Survey Station H-3, located at 155th Street in the Harlem River.
(4) Average concentrations for 1999 NYCDEP Harbor Survey Station H-4, located at Willis Avenue in the Harlem River.
(5) Average concentrations for 1991 Battelle Ambient Survey Station E-4T, located off Hunts Point on the surface of the East River.
(6) Average concentrations for 1991 Battelle Ambient Survey Station E-4B, located off Hunts Point on the bottom of the East River.
(7) Represents average between January and December 2002.
(8) Minimum between June 1, 2002 and September 30, 2002.
(9) Represents average between January and December 2000.
(10) Minimum between June 1, 2000 and September 30, 2000.
(11) Represents average between January and December 1992.
(12) Minimum between June 1, 1992 and September 30, 1992.
(13) Latest available data 1997.
(14) Latest available data 1996.
(15) Latest available data 1999.
(16) Latest available data 1998.
(17) Latest available data 1992.
(18) Guidance values and data for dissolved metals.
(19) NYSDEC Guidance Value (NYSDEC TOGS 1.1.1, June 1998, errata sheet 1999 and addendum April 2000).
(20) Site-specific chronic and acute criteria for dissolved copper in NY/NJ Harbor.
(21) BOD = Biochemical oxygen demand.
(22) NH_3-N = Ammonia.
(23) NO_3 = Nitrate; NO_2 = Nitrite.
(24) PO_4 = Phosphate.
(25) mg/L = milligrams per liter.
MPN/100 ml = most probable number per 100 milliliters.
MF = membrane filter.
mg/L = milligrams per liter.
µg/L = micrograms per liter.

Table 2.4-2
Existing Water Quality Conditions and Standards
Sampling Stations Closest to Transfer Station in the Hunts Point, Bronx CDs #2 and #9 Study Area

Average Concentration					
Parameter	**Units[17]**	**Station E5[1]**	**Station E4T[2]**	**Station E4B[3]**	**New York State Class I Standards**
Dissolved Oxygen (surface/minimum)	mg/L	5.24 [4]/4.2 [5]	-------	-------	4.0
Dissolved Oxygen (bottom/minimum)	mg/L	5.2 [4]/4.1 [5]	-------	-------	4.0
BOD (surface)[13]	mg/L	3.2 [6]	-------	-------	-------
BOD (bottom)[13]	mg/L	3.2 [6]	-------	-------	-------
Total Coliform (surface)	MPN/100 ml	874 [7]	-------	-------	10,000
Total Coliform (bottom)	MPN/100 ml	548 [7]	-------	-------	10,000
Fecal Coliform (top)	MF	30	-------	-------	2,000
Fecal Coliform (bottom)	MF	38 [8]4	-------	-------	2,000
Total Suspended Solids (surface)	mg/L	6	-------	-------	-------
Total Suspended Solids (bottom)	mg/L	10	-------	-------	-------
NH_3-N[14]	mg/L	0.41	-------	-------	-------
(NO_3 + NO_2)[15]	mg/L	0.318	-------	-------	-------
Total Phosphorous	mg/L	0.364 [9]	-------	-------	-------
Dissolved PO_4[16]	mg/L	-------	-------	-------	-------
Chlorophyll-a	µg/L	2.7	-------	-------	-------
Arsenic	µg/L	-------	-------	-------	36 [10,11]
Cadmium	µg/L	-------	0.07 [10]	0.06[10]	7.7 [10,11]
Chromium	µg/L	-------	-------	-------	-------
Copper	µg/L	-------	1.83 [10]	1.83[12]	5.6 [11,12]
Lead	µg/L	-------	0.20 [10]	0.19[12]	8.0 [10,11]
Mercury	µg/L	-------	0.0028[10]	0.0029[10]	0.0026 [10,11]
Nickel	µg/L	-------	1.50 [10]	1.46[10]	8.2 [10,11]
Silver	µg/L	-------	0.0083 [10]	0.0078[10]	-------
Zinc	µg/L	-------	5.32 [10]	5.11[10]	66 [10,11]
Cyanide	µg/L	-------		-----	1.0 [11]

Notes:

[1] Average concentrations for 2000 NYCDEP Harbor Survey Station E-5, located at Barretto Point.

[2] Average concentrations for 1991 Battelle Ambient Survey Station E-4T, located off Hunts Point on the surface of the East River.

[3] Average concentrations for 1991 Battelle Ambient Survey Station E-4B, located off Hunts Point on the bottom of the East River.

[4] Represents average between May and September 2000.

[5] Minimum between June 1, 2000 and September 30, 2000.

[6] Latest available data 1997.

[7] Latest available data 1996.

[8] Latest available data 1999.

[9] Latest available data 1998.

[10] Guidance values and data are for dissolved metals.

[11] NYSDEC Guidance Value (NYSDEC TOGS 1.1.1, June 1998, errata sheet January 1999 and addendum April 2000).

[12] Site-specific chronic and acute criteria for dissolved copper in New York/New Jersey Harbor.

Notes for Table 2.4-2 Continued:

(13) BOD – Biochemical oxygen demand.

(14) NH_3-N = Ammonia.

(15) NO_3 = Nitrate; NO_2 = Nitrite.

(16) PO_4 = Phosphate.

(17) mg/L = milligrams per liter.
MPN/100 ml = most probable number per 100 milliliters.
MF = membrane filter.
mg/L = milligrams per liter.
µg/L = micrograms per liter.

Table 2.4-3
Existing Water Quality Conditions and Standards
Sampling Stations Closest to Transfer Stations in the Brooklyn CD #1 Study Area

Average Concentration				
Parameter	**Units[16]**	**Station E2A[1]**	**Station E1[2]**	**New York State Class SD Standards**
Dissolved Oxygen (surface/minimum)	mg/L	7.1[3] / 3.3[4]	-------	3.0
Dissolved Oxygen (bottom/minimum)	mg/L	6.7[3] / 3.4[4]	-------	3.0
BOD (surface)[12]	mg/L	2.4[5]	-------	-------
BOD (bottom)[12]	mg/L	2.4[5]	-------	-------
Total Coliform (surface)	MPN/100 ml	2,579[6]	-------	-------
Total Coliform (bottom)	MPN/100 ml	1,982[6]	-------	-------
Fecal Coliform (top)	MF	384	-------	-------
Fecal Coliform (bottom)	MF	35	-------	-------
Total Suspended Solids (surface)	mg/L	10	-------	-------
Total Suspended Solids (bottom)	mg/L	19	-------	-------
NH_3-N[13]	mg/L	0.429	-------	-------
(NO_3 + NO_2)[14]	mg/L	0.363	-------	-------
Total Phosphorous	mg/L	0.433[7]	-------	-------
Dissolved PO_4[15]	mg/L	-------	-------	-------
Chlorophyll-a	µg/L	11.4	-------	-------
Arsenic	µg/L	-------	-------	120[8,9]
Cadmium	µg/L	-------	0.06[8]	21[8,9]
Chromium	µg/L	-------	-------	-------
Copper	µg/L	-------	1.93[10]	7.9[9,10]
Lead	µg/L	-------	0.27[8]	204[8,9]
Mercury	µg/L	-------	0.0048[8]	0.0026[8,9]
Nickel	µg/L	-------	1.60[8]	74[8,9]
Silver	µg/L	-------	0.0566[11]	2.3[8,11]
Zinc	µg/L	-------	7.40[8]	95[8,9]
Cyanide	µg/L	-------	-----	1.0[9]

Notes:

(1) Average concentrations for 1999 NYCDEP Harbor Survey Station E-2A located at Newtown Creek in Newtown Creek.
(2) Average concentrations for 1991 Battelle Ambient Survey Station E-1 located at the lower East River.
(3) Represents average between March and December 1999.
(4) Minimum between June 1, 1999 and September 30, 1999.
(5) Latest available data 1997.
(6) Latest available data 1996.
(7) Latest available data 1998.
(8) Guidance values and data are for dissolved metals.
(9) NYSDEC Guidance Value (NYSDEC TOGS 1.1.1, June 1998, errata sheet January 1999 and addendum April 2000).
(10) Site-specific chronic and acute criteria for dissolved copper in NY/NJ Harbor.
(11) Guidance values and data are for acid-soluble metal.
(12) BOD = Biochemical oxygen demand.
(13) NH_3-N = Ammonia.
(14) NO_3 = Nitrate; NO_2 = Nitrite.
(15) PO_4 = Phosphate.

Notes for Table 2.4-3 Continued:

(16) mg/L = milligrams per liter.
MPN/100 ml = most probable number per 100 milliliters.
MF = membrane filter.
mg/L = milligrams per liter.
µg/L = micrograms per liter.

The existing water quality data in the vicinity of the Hunts Point, Bronx CDs #2 and #9 Study Area met the NYSDEC Class I standards and guidance values for the pollutants shown on Table 2.4-2 with the exception of mercury. The mercury concentration for Battelle Ambient Survey Stations E-4B and E-4T exceeded the water quality guidance value.

The existing water quality data in the vicinity of the Brooklyn CD #1 Study Area met the NYSDEC Class SD standards and guidance values for the pollutants shown on Table 2.4-3 with the exception of mercury -- the mercury concentration for Battelle Ambient Survey Station E-1 exceeded the water quality guidance value.

2.5 Permitted Discharges

The location of all permitted discharges were identified for the Port Morris, Bronx CD #1; Hunts Point, Bronx CDs #2 and #9; and Brooklyn CD #1 Study Areas based on a review of the most recently available NYSDEC and USEPA databases. There are 28 permitted discharges in the vicinity of the Port Morris, Bronx CD #1 Study Area -- 26 combined sewer overflows (CSOs) and 2 industrial discharges (Table 2.5-1 and Figure 2.5-1); 7 permitted discharges in the vicinity of the Hunts Point, Bronx CDs #2 and #9 Study Area -- 6 CSOs and 1 industrial discharge (Table 2.5-2 and Figure 2.5-2); and 11 permitted discharges in the vicinity of the Brooklyn CD #1 Study Area -- 7 CSOs and 4 industrial discharges (Table 2.5-3 and Figure 2.5-3).

Table 2.5-1
Existing Permitted Discharges
Port Morris, Bronx CD #1 Study Area

Combined Sewer Overflows (CSOs)			
Outfall Location/ Water Pollution Control Plant (WPCP)	**Permit Number**	**County**	**Receiving Water Body**
E. 149th Street/Wards Island	NY0026131-064	Bronx	Harlem River
E. 149th Street/Wards Island	NY0026131-072	Bronx	East River
E. 138th Street/Wards Island	NY0026131-071	Bronx	East River
E. 133rd Street/Wards Island	NY0026131-070	Bronx	East River
E. 129th Street/Wards Island	NY0026131-036	New York	Harlem River
St. Anns Avenue/Wards Island	NY0026131-073	Bronx	Bronx Kills
Brook Avenue/Wards Island	NY0026131-068	Bronx	Bronx Kills
E. 119th Street/Wards Island	NY0026131-030	New York	Harlem River
E. 120th Street/Wards Island	NY0026131-031	New York	Harlem River
E. 121st Street/Wards Island	NY0026131-032	New York	Harlem River
E. 122nd Street/Wards Island	NY0026131-033	New York	Harlem River
E. 124th Street/Wards Island	NY0026131-034	New York	Harlem River
E. 125th Street/Wards Island	NY0026131-035	New York	Harlem River
Lincoln Avenue/Wards Island	NY0026131-067	Bronx	Harlem River
E. 130th Street/Wards Island	NY0026131-037	New York	Harlem River
3rd Avenue/Wards Island	NY0026131-066	Bronx	Harlem River
Canal Place/Wards Island	NY0026131-065	Bronx	Harlem River
E. 135th Street/Wards Island	NY0026131-038	Bronx	Harlem River
E. 138th Street/Wards Island	NY0026131-075	Bronx	Harlem River
W. 139th Street/Wards Island	NY0026131-039	New York	Harlem River
W. 140th Street/Wards Island	NY0026131-040	New York	Harlem River
W. 142nd Street/Wards Island	NY0026131-041	New York	Harlem River
W. 143rd Street/Wards Island	NY0026131-042	New York	Harlem River
W. 145th Street/Wards Island	NY0026131-044	New York	Harlem River
E. 149th Street/Wards Island	NY0026131-064	Bronx	Harlem River
W. 147th Street/Wards Island	NY0026131-045	New York	Harlem River
Point Sources/Industrial Sites			
Company Name	**Permit Number**	**County**	**Receiving Water Body**
Stuyvesant Terminal Corp.	NY0007650	Bronx	East River
Castle Pt. Morris Terminal	NY0007668	Bronx	East River

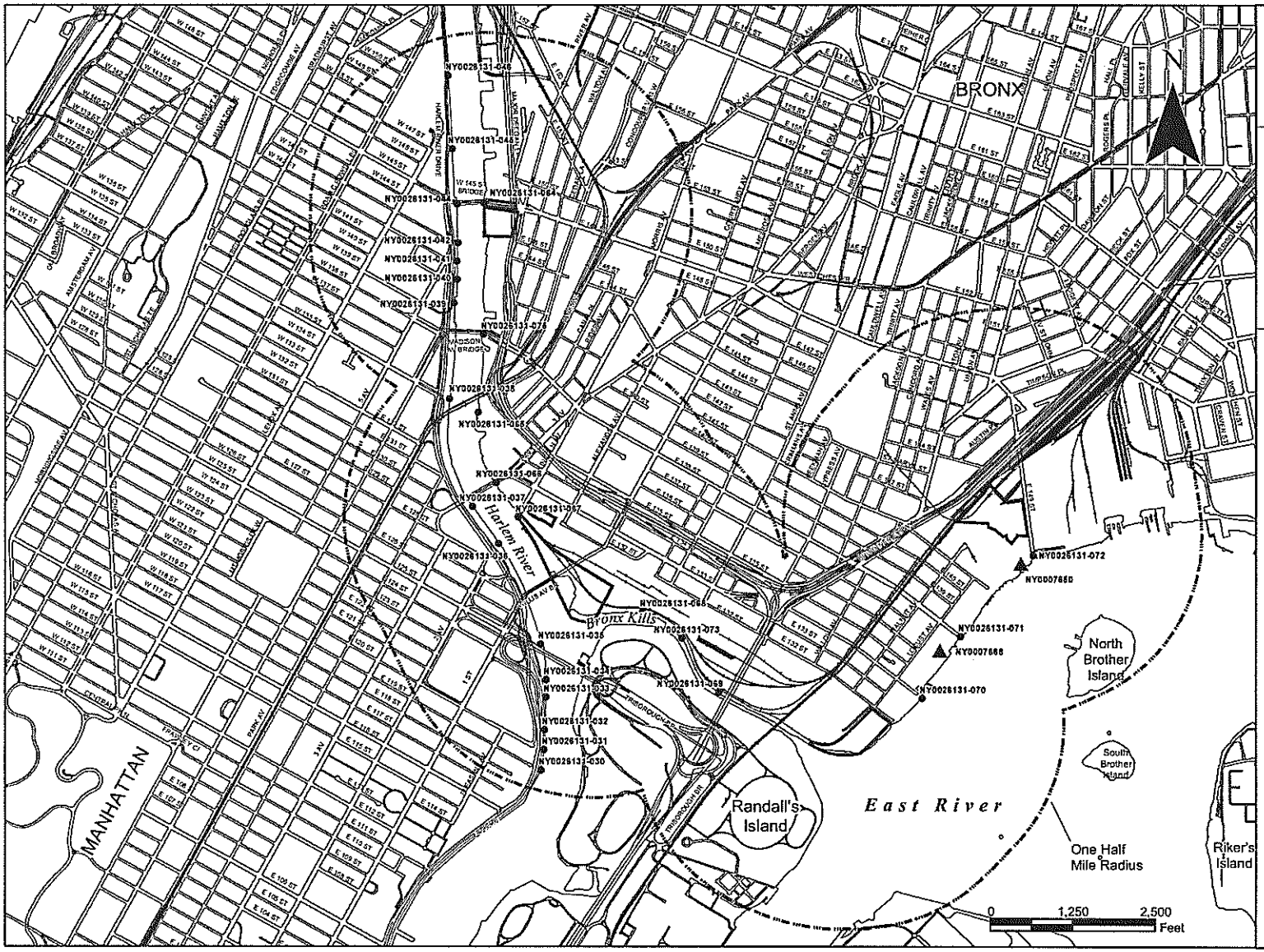

Figure 2.5-1
Permitted Outfalls
and CSO Locations
Port Morris, Bronx CD #1 Study Area

City of New York
Department of Sanitation

Legend

- CSO Outfalls
- SPDES Discharges

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

Table 2.5-2
Existing Permitted Discharges
Hunts Point, Bronx CDs #2 and #9 Study Area

Combined Sewer Overflows (CSOs)			
Outfall Location/ Water Pollution Control Plant (WPCP)	**Permit Number**	**County**	**Receiving Waters**
Lafayette Avenue/Hunts Point	NY0026191-008	Bronx	Bronx River
Farragut Street/Hunts Point	NY0026191-003	Bronx	East River
E. 138th Street/Wards Island	NY0026131-071	Bronx	East River
Tiffany Street/Hunts Point	NY0026191-002	Bronx	East River
Truxton Street/Hunts Point	NY0026191-025	Bronx	East River
E. 149th Street/Wards Island	NY0026131-072	Bronx	East River
Point Sources/Industrial Sites			
Company Name	**Permit Number**	**County**	**Receiving Water Body**
NYCDEP – Hunts Point WPCP	NY00236191	Bronx	East River

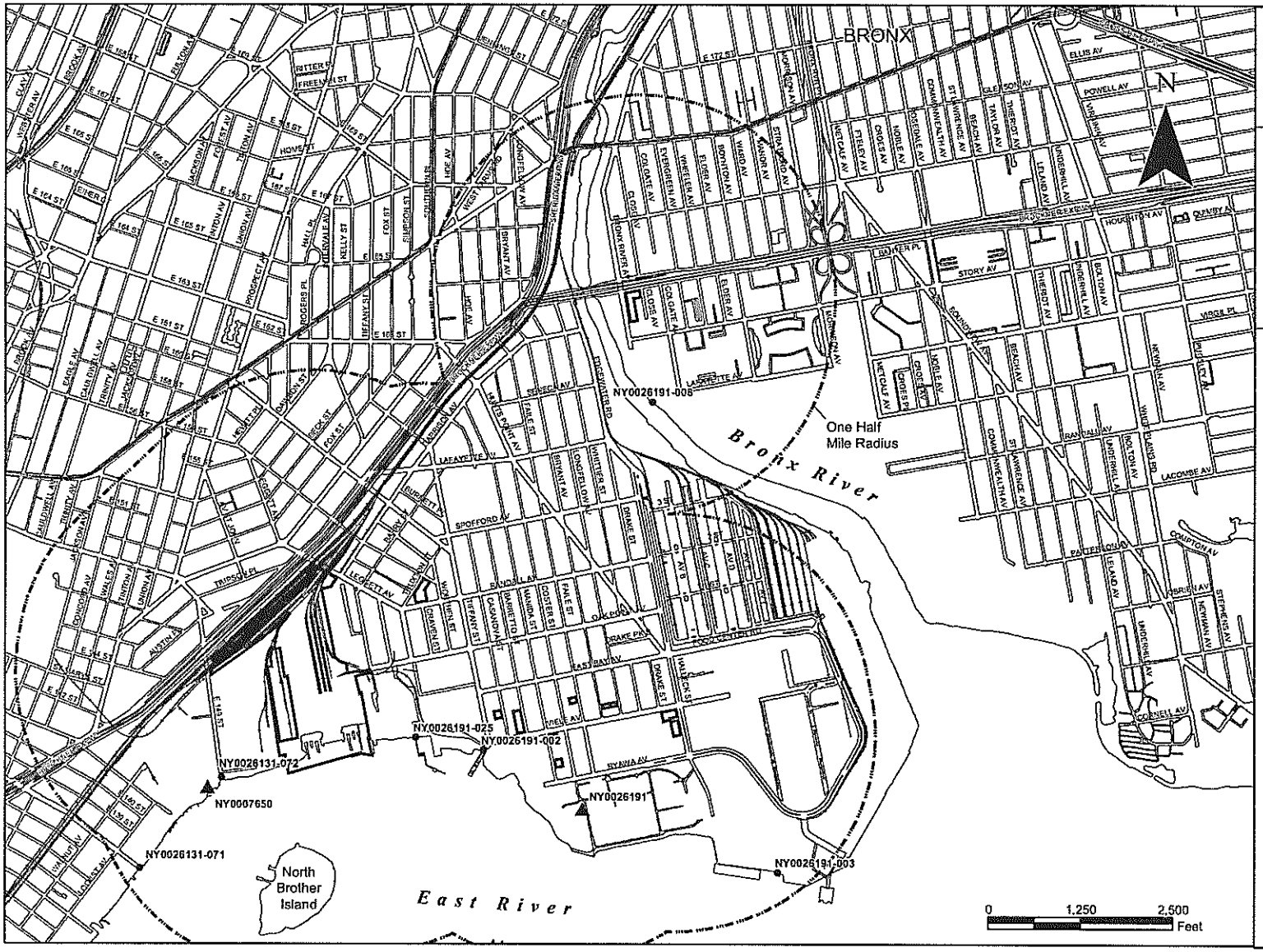

Figure 2.5-2
Permitted Outfalls
and CSO Locations
Hunts Point, Bronx CDs #2 and #9
Study Area

City of New York
Department of Sanitation

Legend

- CSO Outfalls
- SPDES Discharges

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

Table 2.5-3
Existing Permitted Discharges
Brooklyn CD #1 Study Area

Combined Sewer Overflows (CSOs)			
Outfall Location/ Water Pollution Control Plant (WPCP)	**Permit Number**	**County**	**Receiving Water Body**
35th Street/Bowery Bay	NY0026158-012	Queens	Newtown Creek
Greenpoint Avenue/Bowery Bay	NY0026158-011	Queens	Newtown Creek
43rd Street/Newtown Creek	NY0026204-029	Queens	Newtown Creek
49th Street/Newtown Creek	NY0026204-077	Queens	Maspeth Creek
Metropolitan Avenue/Newtown Creek	NY0026204-019	Queens	Newtown Creek
Metropolitan Avenue/Newtown Creek	NY0026204-083	Queens	Newtown Creek
Johnson Avenue/Newtown Creek	NY0026204-015	Kings	English Kills
Point Sources/Industrial Sites			
Company Name	**Permit Number**	**County**	**Receiving Water Body**
Metro Terminals Corp.	NY0007676	Kings	Newtown Creek
Amoco Oil Company	NY0004596	Kings	Newtown Creek
Exxon Mobil Oil Corp.	NY0004995	Kings	Newtown Creek
Terminnalle	NY0005789	Kings	English Kills

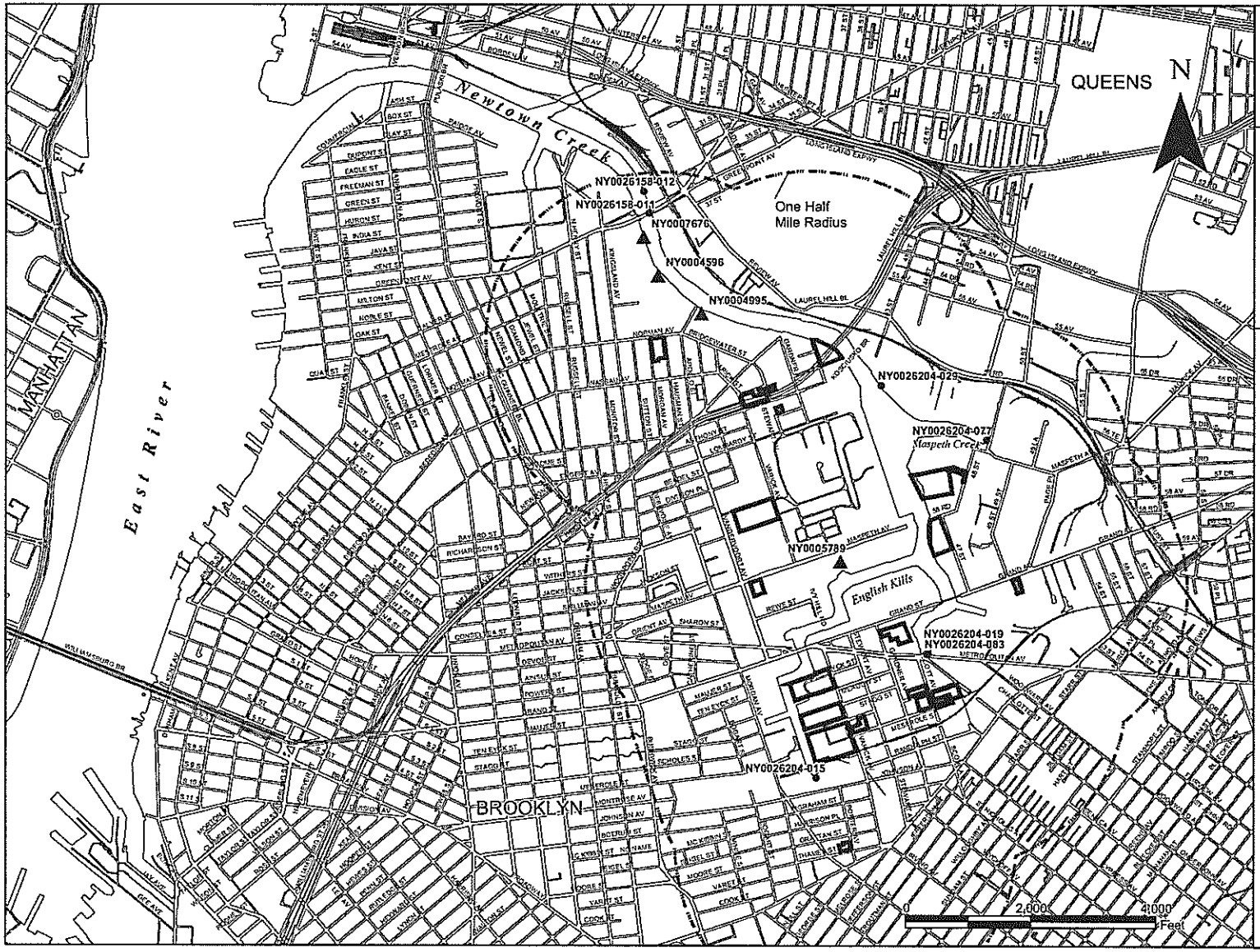

Figure 2.5-3
Permitted Outfalls
and CSO Locations
Brooklyn CD #1 Study Area

City of New York
Department of Sanitation

Legend

- CSO Outfalls
- SPDES Discharges

HDR

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

3.0 RESULTS

The impervious area, runoff flow, fecal coliform, BOD, copper, lead and zinc loading for each Transfer Station are presented in Table 3-1.

The 208 Model predicted no significant impact on existing surface water quality due to fecal coliform, BOD, copper, zinc and lead loadings from any of the Transfer Stations or Study Areas. Stormwater runoff from the Transfer Stations or Study Areas would not result in any further violation of water quality standards or guidance values beyond existing violations.

The 208 Model was also run for the three Study Areas evaluated. The loadings from the individual Transfer Stations in each Study Area were input into the model simultaneously, and the incremental change in water quality due to the impact of the runoff loads calculated. Table 3-2 presents the existing water quality concentrations for fecal coliform, BOD, copper, zinc and lead in each Study Area, the impact of the runoff loadings on the existing concentrations and the applicable water quality standards or guidance values.

As shown in this table, there was no significant impact on water quality due to loadings from the Port Morris, Bronx CD #1; Hunts Point, Bronx CDs #2 and #9; and Brooklyn CD #1 Study Areas. All predicted concentrations, which include the impact of the stormwater loadings, were less than the applicable water quality standards or guidance values. No significant further exacerbation of water quality standards or guidance value occurs due to the loadings for the Study Areas.

Table 3-1
Impervious Areas, Runoff Flows and Stormwater Loadings for Individual Transfer Stations

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

Notes:

(1) For the purposes of this analysis, the Waste Management of NY facilities at 98 Lincoln Avenue, and 132nd Street and St 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.

Table 3-2
Comparison of Predicted Water Quality Concentrations to Water Quality Guidance Values and Standards

Parameter	Hunts Point, Bronx CDs #2 & #9 Study Area		Port Morris, Bronx CD #1 Study Area		Brooklyn CD #1 Study Area		
	Existing Concentration[1]	Existing Concentration Plus Impact of Runoff Loads	Existing Concentration[1]	Existing Concentration Plus Impact of Runoff Loads	Existing Concentration[1]	Existing Concentration Plus Impact of Runoff Loads	Guidance Values/ Standards[2]
Fecal Coliform (MF)[7]	30	31	72	76	38	39	2000
BOD (mg/L)[6][8]	3.23	3.23	2.82	2.83	2.42	2.42	NA[5]
Copper (µg/L)[3][9]	2.41	2.41	2.55	2.55	1.93	1.93	5.8
Zinc (µg/L)[4][9]	15.43	15.43	16.25	16.25	7.4	7.4	66
Lead (µg/L)[4][9]	0.23	0.23	0.19	0.19	0.27	0.27	8

Notes:
(1) Fecal Coliform and BOD average concentrations from Harbor Survey Program (1996 and 1997); Metals from Battelle Ambient Water Quality Survey (1991).
(2) NYSDEC Guidance Values (NYSDEC TOGS 1.1.1, updated June 1998) for copper, zinc and lead; Class I Standard for coliform.
(3) Guidance value and data for total recoverable metal.
(4) Guidance value and data for acid-soluble metal.
(5) NA = Not Applicable.
(6) BOD = Biochemical oxygen demand.
(7) MF = membrane filter.
(8) mg/L = milligrams per liter.
(9) µg/L = micrograms per liter.

APPENDIX H

TRAFFIC PROTOCOL

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

The purpose of the traffic and transportation analyses for the Commercial Waste Management Study (Study) is to determine if traffic generated by Transfer Stations located in geographical proximity to each other within Study Areas around New York City (City) is resulting in adverse traffic operations. The results of the analysis were also used in determining effects on air quality, noise quality, socioeconomic conditions, neighborhood character, community facilities and open space and parklands. Analyses were performed similar to the *2001 City Environmental Quality Review (CEQR) Technical Manual* guidelines to quantify what effects, if any, the Transfer Stations have upon current conditions.

Current conditions are defined as the existing traffic operating conditions at the Study intersections. Current conditions without Waste Hauling Vehicles are defined as the existing traffic operating conditions at Study intersections with existing Transfer Station vehicle trips removed from the traffic volumes. Replacement trip generation (RTG) is defined as traffic operating conditions at Study intersections with replacement industry vehicle trips added to the traffic volumes of the current conditions without Waste Hauling Vehicles (see Section 3.2, Replacement Trip Generation, for detailed explanation of a "replacement industry").

The approach taken was to:

- Select analysis intersections in the Study Areas where commercial vehicle traffic generated from Transfer Stations is concentrated and likely to have an effect on the intersections' operations;
- Define current conditions at Study intersections in the Study Areas;
- Identify for further analysis intersections among the Study group that demonstrate operations below a specified threshold;
- Quantify vehicle trips generated by Transfer Stations at the Study intersections in each Study Area;
- Define current conditions without Waste Hauling Vehicles at Study intersections that were identified for further analysis;
- Quantify the volume of traffic for RTG, based on zoning and lot size of the existing Transfer Stations, that pass through Study intersections that were identified for further analysis;
- Define RTG at Study intersections that were identified for further analysis; and
- Evaluate if the degraded operations at intersections can be attributed to vehicle trips generated by Transfer Stations in each Study Area.

2.0 BACKGROUND

Operation of Transfer Stations generates vehicle trips related to employees traveling to and from work, commercial waste collection vehicles transporting waste to the Transfer Stations, and transfer trailers transporting waste from the Transfer Stations to disposal locations. Transfer Stations that export waste via barge or rail do not generate transfer trailer vehicle trips.

Vehicle trips generated by the Transfer Stations could be the cause of deterioration in the level of service (LOS) at intersections along the facility access routes within the Study Area. LOS levels are based upon the average stopped delay per vehicle calculated for an intersection and are defined in Section 7.0, Analysis. The assessment evaluated the effects of the Transfer Stations on the traffic operations in each Study Area as compared to effects from replacement industry trip generation from the Transfer Station locations.

3.0 OPERATIONAL ASSUMPTIONS

3.1 Existing Commercial Waste Transfer Station Operations

The existing Transfer Stations operate based on conditions specified in permits obtained from the City and the State of New York. Permit conditions set constraints on the types of waste, quantities of waste and hours of operation for individual Transfer Stations in each Study Area. One-day counts were performed at each of the Transfer Stations to quantify the volume of vehicle trips generated by each facility in the Study Areas. These counts are described in Section 5.0, Data Collection.

3.2 Replacement Trip Generation

It is assumed that if the existing Transfer Stations did not exist, the sites where they are located would be occupied by other M-zone land uses, typical of current conditions in the Study Area. Light industrial uses (e.g., printing plants, laboratories, power stations) were selected as the replacement industry for the Transfer Stations because of their low trip generation, which would represent the greatest difference between current conditions and RTG, and is thus conservative. Trip generation rates were taken from *Trip Generation, 6th Edition* published by the Institute of Transportation Engineers. Table 3.2-1 shows the trip generation rates used at each of the Transfer Stations.

Replacement industry automobile trips were assigned manually based on existing traffic patterns in each Study Area. Replacement industry trucks would be expected to follow City Department of Transportation (NYCDOT) truck routes and were assumed to follow similar distribution patterns to existing commercial trucks in the Study Areas. Based on this assumption, ratios were developed at each intersection for the assignment of the replacement industry trucks based upon the aggregate trip generation of the Transfer Stations in comparison to the aggregate trip generation of the replacement industries. Table 3.2-2 shows the percentage of Waste Hauling Vehicles and the percentage of replacement industry vehicles as a percentage of total vehicles for current conditions and RTG, respectively, by Study Area.

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Table 3.2-1
Replacement Trip Generation

Facility	Lot Size (SF)	Replacement Trip Generation														
		Total Trips			Truck Trips											
					Daily			Weekday AM Peak - Adjacent Street			Weekday PM Peak - Adjacent Street			Weekday - Site Peak Hour -Trucks		
		AM Peak	PM Peak	Saturday	2&3 Axle	4&5 Axle	Total Trucks	2&3 Axle	4&5 Axle	Total Trucks	2&3 Axle	4&5 Axle	Total Trucks	2&3 Axle	4&5 Axle	Total Trucks
Generation Rate per 1000 SF of Gross Floor Area		**1.01**	**1.08**	**0.14**	**0.33**	**0.27**	**0.60**	**0.03**	**0.02**	**0.05**	**0.01**	**0.00**	**0.01**	**0.03**	**0.02**	**0.05**
Jamaica, Queens CD #12																
American Recycling	84,603	85	91	12	28	23	51	3	2	4	1	0	1	3	2	4
Regal Recycling	48,609	49	52	7	16	13	29	1	1	2	0	0	0	1	1	2
Thomas Novelli Contract Corporation	Refer to Assumed Lot Sizes # 4 Below															
Thomas Novelli Contract Corporation	Refer to Assumed Lot Sizes # 6 Below															
Brooklyn CD #1																
Astoria Carting (Brooklyn Recycling)	21,824	22	24	3	7	6	13	1	0	1	0	0	0	1	0	1
BFI - Scott Avenue	66,841	68	72	9	22	18	40	2	1	3	1	0	1	2	1	3
BFI - Scholes Street	52,468	53	57	7	17	14	31	2	1	3	1	0	1	2	1	3
BFI - Thames Street	37,938	38	41	5	13	10	23	1	1	2	0	0	0	1	1	2
City Recycling Corp	Refer to Assumed Lot Sizes # 4 Below															
Cooper Tank and Welding	40,585	41	44	6	13	11	24	1	1	2	0	0	0	1	1	2
Hi-Tech Resource Recovery	34,634	35	37	5	11	9	21	1	1	2	0	0	0	1	1	2
IESI - 548 Varick	49,777	50	54	7	16	13	30	1	1	2	0	0	0	1	1	2
Keyspan	227,654	230	246	32	75	61	137	7	5	11	2	0	2	7	5	11
New Style Recycling	18,779	19	20	3	6	5	11	1	0	1	0	0	0	1	0	1
Pebble Lane	48,730	49	53	7	16	13	29	1	1	2	0	0	0	1	1	2
Point Recycling	Refer to Assumed Lot Sizes # 5 Below															
WM of NY - 232 Gardner	77,275	78	83	11	26	21	46	2	2	4	1	0	1	2	2	4
WM of NY - 75 Thomas	36,845	37	40	5	12	10	22	1	1	2	0	0	0	1	1	2
WM of NY - 123 Varick	532,958	538	576	75	176	144	320	16	11	27	5	0	5	16	11	27
WM of NY - 215 Varick	212,414	215	229	30	70	57	127	6	4	11	2	0	2	6	4	11
Hunts Point, Bronx CDs #2 and #9 and Port Morris, Bronx CD #1																
AJ Recycling	Refer to Assumed Lot Sizes # 5 Below															
Bronx City Recycling	20,099	20	22	3	7	5	12	1	0	1	0	0	0	1	0	1
Bronx County Recycling	165192	167	178	23	55	45	99	5	3	8	2	0	2	5	3	8
Felix Equities	47,614	48	51	7	16	13	29	1	1	2	0	0	0	1	1	2
GM Transfer	Refer to Assumed Lot Sizes # 4 Below															
IESI - 325 Casanova	Refer to Assumed Lot Sizes # 1 Below															
John Danna & Sons	Refer to Assumed Lot Sizes # 5 Below															
Kids Waterfront Corp	Refer to Assumed Lot Sizes # 4 Below															
Metropolitan	45,072	46	49	6	15	12	27	1	1	2	0	0	0	1	1	2
Paper Fibers	Refer to Assumed Lot Sizes # 1 Below															
Tilcon	451,285	456	487	63	149	122	271	14	9	23	5	0	5	14	9	23
Waste Services of NY - 920 East 132nd	485,444	490	524	68	160	131	291	15	10	24	5	0	5	15	10	24
WM of NY - (Harlem River Yard)	679,681	686	734	95	224	184	408	20	14	34	7	0	7	20	14	34
WM of NY - 315 Baretto	Refer to Assumed Lot Sizes # 5 Below															
WM of NY - 620 Truxton	70,951	72	77	10	23	19	43	2	1	4	1	0	1	2	1	4
Assumed Lot Sizes																
1. Putrescible Waste - Small	22,184	22	24	3	7	6	13	1	0	1	0	0	0	1	0	1
2. Putrescible Waste - Medium w/ Bailer	62,282	63	67	9	21	17	37	2	1	3	1	0	1	2	1	3
3. Putrescible Waste - Large	364,416	368	394	51	120	98	219	11	7	18	4	0	4	11	7	18
4. Non-Putrescible Waste - Construction and Demolition	26,240	27	28	4	9	7	16	1	1	1	0	0	0	1	1	1
5. Non-Putrescible Waste - Construction and Demolition w/ Crusher	38,332	39	41	5	13	10	23	1	1	2	0	0	0	1	1	2
6. Non-Putrescible Waste - Fill - Small/Medium	28,875	29	31	4	10	8	17	1	1	1	0	0	0	1	1	1
7. Non-Putrescible Waste - Fill - Large	256,800	259	277	36	85	69	154	8	5	13	3	0	3	8	5	13

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Table 3.2-2
Average Percent of Total Vehicles at Intersections

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

4.0 INTERSECTION SCREENING METHODOLOGY

A field survey was conducted in each of the Study Areas to identify critical intersections for study. The following criteria were used to select intersections:

- Background turning movement volumes;
- Special geometric conditions at the intersection;
- Mapped truck routes in the Study Area;
- Intersecting truck routes;
- Most direct route from major access roads to the Transfer Stations;
- Potential for truck route violations; and
- Proximity to Transfer Stations in the Study Area.

Additional intersections were selected for data collection based on air quality and noise quality screening at intersections in the Study Areas. Table 4-1 lists the intersections by Study Area used for the traffic and transportation analyses.

Table 4-1
List of Study Intersections by Study Area

Jamaica, Queens CD #12 Study Area Traffic Study Intersections
Highland Avenue & 166th Street
Highland Avenue & 168th Street
Hillside Avenue & 163rd Street
Hillside Avenue & 164th Street
Hillside Avenue & 166th Street
Hillside Avenue & 168th Street
Hillside Avenue & 169th Street
Jamaica Avenue & 163rd Street/ Guy Brewer Boulevard
Jamaica Avenue & Merrick Boulevard
Jamaica Avenue & 168th Street
Jamaica Avenue & 169th Street
Liberty Avenue & Guy Brewer Boulevard
Liberty Avenue & Merrick Boulevard
Liberty Avenue & 170th Street
Liberty Avenue & 173rd Street
107th Street & Merrick Boulevard
Brooklyn CD #1 Study Area Traffic Study Intersections
Meeker Avenue & Vandervoort Avenue
Meeker Avenue & Union Avenue
Conselyea Street & Humboldt Street
Conselyea Street & Woodpoint Road
Maspeth & Woodpoint Road
Metropolitan Avenue & Marcy Avenue
Metropolitan Avenue & Meeker Avenue/ Rodney Street
Metropolitan Avenue & Union Avenue
Metropolitan Avenue & Manhattan Avenue
Metropolitan Avenue & Humboldt Street
Metropolitan Avenue & Bushwick Avenue/ Woodpoint Avenue
Metropolitan Avenue & Morgan Avenue
Metropolitan Avenue & Vandervoort Avenue
Metropolitan Avenue & Stewart Avenue
Metropolitan Avenue & Scott Avenue
Metropolitan Avenue & Flushing Avenue
Grand Street & Manhattan Avenue
Grand Street & Humboldt Street
Grand Street & Bushwick Avenue
Grand Street & Morgan Avenue
Grand Street & Vandervoort Avenue
Grand Street & Stewart Avenue
Flushing Avenue & Varick Avenue
Flushing Avenue & Wycoff Avenue
Melrose Street & Varick Avenue
Melrose Street & Irving Avenue

Table 4-1 (Continued)
List of Study Intersections by Study Area

Port Morris, Bronx CD #1 Study Area Traffic Study Intersections
East 135th Street & Lincoln Avenue
East 135th Street & Willis Avenue
East 135th Street & Brook Avenue
Bruckner Boulevard & Lincoln Avenue
Bruckner Boulevard & Alexander Avenue
Bruckner Boulevard & Willis Avenue Bridge Ramp
Hunts Point, Bronx CDs #2 and #9 Study Area Traffic Study Intersections
Bruckner Boulevard & Leggett Avenue
Bruckner Boulevard & Longwood Avenue
Bruckner Boulevard & Hunt's Point Avenue
Leggett Avenue & Garrison Avenue
Leggett Avenue & Barry Street
Randall Avenue & Tiffany Street
Randall Avenue & Halleck Street
Oak Point Avenue & Tiffany Street
East Bay Avenue & Hunt's Point Avenue
East Bay Avenue & Halleck Street

5.0 DATA COLLECTION

The following data were obtained for intersections identified for analysis:

- Traffic data available from prior studies (within a three-year period) conducted for the City Department of Sanitation (DSNY) or submitted to and/or conducted by the NYCDOT; and
- Signal timing and phasing, and intersection as-built drawings of signalized intersections from the NYCDOT. The timing and phasing of each intersection was then field-verified.

Where recent data were unavailable or unusable, the following data were obtained in the field:

- One- or three-day turning movement counts, depending upon the specific Study Area, schedule and weather constraints. If one-day turning movement counts were obtained, they were adjusted for a three-day average using automatic traffic recorder (ATR) counts.
  - Time periods: 6:00 a.m. to 7:00 p.m. (data collection times may vary from site to site but are consistent for all intersections studied for a particular site.);
  - Vehicle classifications: Commercial waste collection vehicles, DSNY municipal waste collection vehicles, long-haul waste transfer trailers, non-waste-related trucks, autos, and buses (3 or more axles); and
  - Inventories: Full physical inventories and intersection operations observation.
- Travel time surveys:
  - Time periods: 6:00 a.m. to 7:00 p.m.;
  - Coverage: Six to nine runs per direction per time period; and
  - Procedure: Checkpoints at each signalized intersection that record stopped delay and delays due to other causes.
- ATR counts:
  - Duration: Seven consecutive 24-hour days (i.e., Sunday through Saturday).
- One-day Transfer Station site counts:
  - Time period: 24-hour period or up to two hours before and two hours after permit operation times at Transfer Station with operational time restrictions;

  - Vehicle classifications: Commercial waste collection vehicles, DSNY municipal waste collection vehicles, long-haul waste transfer trailers, non-waste-related trucks, autos, and buses (3 or more axles); and
  - Inventories: Full physical inventories of streets at entrances and exits to each Transfer Station.

- Vehicle queuing counts on the street in front of each Transfer Station.

Intersection diagrams are presented in the traffic technical backup submitted as part of the Study.

6.0 DATA COMPILATION

Existing traffic volumes were derived for the average weekday at each intersection. The manual turning movement counts, in conjunction with the ATR counts, were used to develop the existing traffic flow networks for the AM, midday, and PM peak hours. ATR data were used to adjust the manual turning movement counts to obtain a more representative measure of the existing hourly traffic volume at each intersection.

At intersections selected for further analysis (the screening process for selecting intersections for further analysis is described in Section 7.0, Analysis), current conditions without Waste Hauling Vehicles were derived by removing all Transfer Station-related traffic volumes from the intersection volume data. Replacement trip generations were derived at intersections selected for further analysis by adding replacement industry traffic volumes to the current conditions without Waste Hauling Vehicles traffic volumes. Traffic volumes for RTG were derived using the methods described in Section 3.2, Replacement Trip Generation.

7.0 ANALYSIS

Three time periods were selected for analysis based upon the vehicle trips generated by the existing operations at the Transfer Stations in each Study Area:

- The AM peak hour (a.m. combined facilities peak hour);
- The midday peak hour (midday background peak hour); and
- The PM peak hour (p.m. combined facilities peak hour);

The AM and PM peak hours were selected based on the peak hour trip generation from all facilities as opposed to the peak hours of individual facilities. The midday peak hour was selected based on the peak hour of background traffic between the hours of 10:00 a.m. and 4:00 p.m. The analysis time periods remained constant for all intersections analyzed in a Study Area. They may have differed, however, from Study Area to Study Area.

The primary measure of intersection traffic operation is LOS. The *2000 Highway Capacity Manual* (HCM) defines LOS as "a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience."

For all intersections, the 2000 HCM specifies six levels of service: LOS A through LOS F. LOS A generally describes an intersection where there is little or no delay time and progression is extremely favorable. LOS F generally describes poor progression and long delay times and also indicates oversaturation of the intersection. (The 2000 HCM defines delay as "the additional travel time experienced by a driver, passenger or pedestrian.") For signalized intersections, LOS is characterized by average control delay in a lane group, by approach, or for the intersection as a whole. For unsignalized intersections, LOS is characterized by stopped delay in a lane group, by approach, or for the intersection as a whole.

Table 7-1 illustrates the average control delay and stopped delay for signalized and unsignalized intersections, respectively, as specified by the 2000 HCM, to characterize each of the six levels of service.

Table 7-1
Level of Service Criteria for Signalized and Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (seconds)	Stopped Delay per Vehicle (seconds)
	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	> 10 or ≤ 20	> 10 or ≤ 15
C	> 20 or ≤ 35	> 15 or ≤ 25
D	> 35 or ≤ 55	> 25 or ≤ 35
E	> 55 or ≤ 80	> 35 or ≤ 50
F	> 80	> 50

Intersections were screened for further analysis based on the LOS determined for current conditions at each intersection. If analysis indicated an LOS mid-D or better for all approaches, no further analysis was performed at that intersection during that time period. For intersections with an LOS below mid-D on any approach, additional analyses were performed, first for current conditions without Waste Hauling Vehicles, and then for replacement trip generations. Mid-D LOS corresponds with a delay time of 45 seconds for signalized intersections and 30 seconds for unsignalized intersections. Mid-D is the minimum LOS that an intersection must be reduced to under CEQR guidelines if an effect is found at that intersection due to traffic generated by a proposed project. Table 7-2 shows the results of the Highway Capacity Software (HCS) analyses performed at all intersections in each Study Area.

Table 7-2
HCS Analysis – Current Conditions
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Metropolitan Ave & Bushwick Ave/Woodpoint Ave						
EB	24.0	C	22.7	C	26.9	C
WB	26.4	C	28.1	C	36.2	D
NB	34.0	C	32.3	C	56.9	E
SB	20.9	C	20.8	C	22.5	C
Overall	26.7	C	26.2	C	33.3	C
Metropolitan Ave & Marcy Ave						
EB	5.5	A	5.9	A	5.6	A
WB	17.5	B	21.1	C	38.1	D
Overall	14.3	B	16.1	B	29.7	C
Metropolitan Ave & Union Ave						
EB	5.3	A	5.5	A	5.7	A
WB	6.6	A	5.8	A	6.0	A
NB	71.7	E	78.4	E	83.5	F
SB	40.9	D	46.1	D	50.3	D
Overall	27.2	C	30.1	C	29.7	C
Meeker Ave (South) & Union Ave						
EB	28.2	C	27.8	C	29.9	C
NB	55.1	E	53.7	D	52.6	D
SB	19.2	B	19.1	B	20.3	C
Overall	33.0	C	32.4	C	31.4	C
Meeker Ave (North from ramp) & Union Ave						
WB	55.1	E	81.0	F	95.5	F
NB	40.1	D	36.6	D	39.2	D
SB	48.0	D	42.8	D	56.3	E
Overall	49.2	D	60.9	E	74.3	E
Meeker Ave (North) & Union Ave						
WB	27.6	C	29.0	C	31.7	C
NB	40.1	D	36.6	D	39.2	D
SB	48.0	D	42.8	D	56.3	E
Overall	37.7	D	34.2	D	39.6	D
Maspeth Ave & Vandervoort Ave						
EB	26.4	C	24.6	C	33.1	C
WB	36.8	D	24.9	C	23.7	C
NB	10.2	B	9.0	A	8.7	A
SB	10.3	B	8.7	A	10.3	B
Overall	16.7	B	13.1	B	17.4	B
Metropolitan Ave & Manhattan Ave						
EB	3.5	A	3.5	A	1.8	A
WB	8.1	A	3.7	A	3.3	A
NB	88.9	F	99.4	F	76.8	E
Overall	21.6	C	25.4	C	17.4	B

Table 7-2 (Continued)
HCS Analysis – Current Conditions
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Metropolitan Ave & Humboldt St						
EB	5.6	A	4.4	A	2.2	A
WB	2.1	A	1.7	A	1.9	A
SB	45.0	D	45.7	D	53.2	D
Overall	11.4	B	13.4	B	14.7	B
Metropolitan Ave & Morgan Ave						
EB	16.0	B	19.3	B	13.3	B
WB	33.6	C	12.9	B	13.6	B
NB	53.0	D	62.6	E	36.3	D
SB	35.8	D	44.6	D	39.6	D
Overall	35.6	D	35.2	D	23.5	C
Metropolitan Ave & Vandervoort Ave						
EB	16.7	B	16.5	B	19.3	B
WB	17.4	B	10.3	B	11.4	B
NB	27.8	C	28.3	C	34.8	C
SB	33.5	C	34.4	C	43.4	D
Overall	20.9	C	19.5	B	24.9	C
Metropolitan Ave & Stewart Ave						
EB	18.0	B	9.1	A	12.1	B
WB	11.9	B	8.3	A	8.4	A
NB	84.1	F	48.2	D	44.6	D
SB	29.3	C	27.7	C	28.1	C
Overall	24.2	C	14.4	B	14.7	B
Grand St & Manhattan Ave						
EB	20.8	C	19.0	B	24.0	C
WB	20.9	C	20.2	C	18.2	B
NB	42.3	D	40.7	D	43.6	D
Overall	25.7	C	24.5	C	26.8	C
Grand St & Humboldt St						
EB	18.1	B	17.7	B	20.4	C
WB	26.0	C	19.0	B	19.3	B
SB	31.2	C	32.5	C	39.7	D
Overall	24.3	C	21.5	C	25.4	C
Grand St & Morgan Ave						
EB	11.8	B	12.8	B	14.1	B
WB	14.3	B	13.7	B	15.7	B
NB	55.9	E	45.4	D	53.4	D
SB	43.6	D	55.7	E	52.0	D
Overall	26.6	C	30.7	C	30.1	C
Grand St & Vandervoort Ave						
EB	25.2	C	22.4	C	27.1	C
WB	23.4	C	21.0	C	21.4	C
SB	43.2	D	53.7	D	32.4	C
Overall	31.1	C	36.2	D	28.3	C

Table 7-2 (Continued)
HCS Analysis – Current Conditions
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Grand St & Stewart Ave						
EB	10.6	B	10.9	B	11.5	B
WB	21.3	C	13.6	B	15.5	B
NB	36.4	D	37.0	D	35.9	D
Overall	24.6	C	22.2	C	19.8	B
Grand St & Bushwick Ave						
EB	40.6	D	30.1	C	63.9	E
WB	32.1	C	28.3	C	64.1	E
NB	20.0	C	49.7	D	32.5	C
SB	20.6	C	28.2	C	38.0	D
Overall	27.1	C	34.9	C	48.3	D
Metropolitan Ave & Meeker Ave (North)						
EB	20.2	C	20.5	C	20.9	C
WB	28.6	C	24.2	C	26.6	C
SB	19.8	B	20.1	C	21.8	C
Overall	24.4	C	21.9	C	23.5	C
Metropolitan Ave & Meeker Ave (South)/ Rodney St						
EB	24.2	C	24.8	C	26.4	C
WB	25.2	C	30.9	C	33.0	C
NB	25.3	C	23.4	C	28.8	C
Overall	25.1	C	26.2	C	29.6	C
Meeker Ave (North) & Vandervoort Ave						
WB	23.1	C	24.2	C	25.8	C
NB	21.7	C	19.5	B	20.7	C
SB	44.9	D	36.0	D	40.3	D
Overall	27.2	C	25.4	C	27.9	C
Meeker Ave (South) & Vandervoort Ave						
EB	23.2	C	23.5	C	22.5	C
NB	58.0	E	38.0	D	45.4	D
SB	22.9	C	16.9	B	17.4	B
Overall	32.9	C	25.0	C	27.9	C
Flushing Ave & Wyckoff Ave						
EB	18.4	B	19.7	B	21.9	C
WB	23.2	C	18.5	B	29.4	C
NB	19.6	B	18.5	B	18.3	B
Overall	21.1	C	18.9	B	24.4	C
Flushing Ave/ Melrose St & Varick Ave / Irving Ave						
EB	30.8	C	42.8	D	70.8	E
WB	41.4	D	44.3	D	44.1	D
SB	39.1	D	41.7	D	57.0	E
Overall	37.8	D	47.3	D	57.9	E

Table 7-2 (Continued)
HCS Analysis – Current Conditions
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Melrose St & Irving Ave						
EB	26.5	C	26.9	C	28.2	C
WB	36.7	D	36.7	D	29.7	C
SB	39.1	D	41.7	D	57.0	E
Overall	36.9	D	37.6	D	39.2	D
Metropolitan Ave & Flushing Ave						
EB	9.4	A	9.1	A	13.5	B
WB	36.4	D	11.3	B	10.7	B
NB	30.9	C	41.6	D	57.7	E
SB	44.9	D	29.0	C	37.9	D
Overall	35.1	D	21.4	C	27.7	C
UNSIGNALIZED INTERSECTIONS						
Maspeth Ave & Woodpoint Rd						
EB	15.5	C	13.3	B	20.2	C
WB	29.9	D	18.6	C	44.1	E
SB	8.8	A	8.2	A	8.4	A
Conselyea St & Woodpoint Rd						
WB	29.6	D	16.7	C	29.6	D
NB	8.0	A	7.9	A	8.4	A
Conselyea St & Humboldt St						
WB	15.3	C	12.4	B	16.4	C
SB	7.2	A	7.2	A	7.2	A
Meserole St & Varick Ave						
EB	19.4	C	15.8	C	21.5	C
WB	17.1	C	13.5	B	25.6	D
SB	9.3	A	8.1	A	8.6	A
Metropolitan Ave & Scott Ave						
WB	8.8	A	10.7	B	10.6	B
NB	16.7	C	20.2	C	24.1	C

Table 7-2 (Continued)
HCS Analysis – Current Conditions without Waste Hauling Vehicles
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Metropolitan Ave & Bushwick Ave/Woodpoint Ave						
EB					26.7	C
WB					35.6	D
NB					56.9	E
SB					22.5	C
Overall					33.1	C
Metropolitan Ave & Union Ave						
EB	5.3	A	5.5	A	5.7	A
WB	6.6	A	5.7	A	6.0	A
NB	71.7	E	78.4	E	83.5	F
SB	40.9	D	46.1	D	50.3	D
Overall	27.2	C	30.4	C	29.9	C
Meeker Ave (South) & Union Ave						
EB	28.2	C	27.8	C	29.9	C
NB	55.1	E	53.7	D	52.6	D
SB	19.2	B	19.1	B	20.3	C
Overall	33.0	C	32.4	C	31.4	C
Meeker Ave (North from ramp) & Union Ave						
WB	55.1	E	81.0	F	95.5	F
NB	40.1	D	36.6	D	39.2	D
SB	48.0	D	42.8	D	56.3	E
Overall	49.2	D	60.9	E	74.3	E
Meeker Ave (North) & Union Ave						
WB	27.6	C	29.0	C	31.7	C
NB	40.1	D	36.6	D	39.2	D
SB	48.0	D	42.8	D	56.3	E
Overall	37.7	D	34.2	C	39.6	D
Metropolitan Ave & Manhattan Ave						
EB	3.4	A	3.4	A	1.8	A
WB	7.8	A	3.6	A	3.2	A
NB	88.9	F	99.4	F	76.8	E
Overall	21.7	C	25.7	C	17.6	B
Metropolitan Ave & Humboldt St						
EB	5.4	A	4.3	A	2.2	A
WB	2.1	A	1.6	A	1.9	A
SB	45.0	D	45.7	D	53.2	D
Overall	11.4	B	13.5	B	14.7	B
Metropolitan Ave & Morgan Ave						
EB	15.7	B	18.9	B		
WB	32.4	C	12.9	B		
NB	53.0	D	62.6	E		
SB	35.8	D	44.6	D		
Overall	35.6	D	35.3	D		

Table 7-2 (Continued)
HCS Analysis – Current Conditions without Waste Hauling Vehicles
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Metropolitan Ave & Stewart Ave						
EB	16.4	B	8.9	A		
WB	11.9	B	8.3	A		
NB	69.2	E	61.5	E		
SB	29.2	C	27.6	C		
Overall	21.2	C	17.2	B		
Grand St & Morgan Ave						
EB	11.7	B	12.7	B	14.1	B
WB	13.9	B	13.2	B	15.3	B
NB	51.5	D	42.7	D	51.0	D
SB	43.4	D	53.5	D	51.2	D
Overall	25.4	C	29.5	C	29.3	C
Grand St & Vandervoort Ave						
EB			21.8	C		
WB			20.9	C		
SB			47.9	D		
Overall			33.5	C		
Grand St & Bushwick Ave						
EB			29.7	C	62.5	E
WB			27.9	C	62.5	E
NB			50.3	D	32.5	C
SB			27.8	C	38.0	D
Overall			34.9	C	47.6	D
Meeker Ave (South) & Vandervoort Ave						
EB	22.6	C			22.1	C
NB	52.6	D			43.5	D
SB	22.3	C			17.4	B
Overall	30.8	C			25.7	C
Flushing Ave/ Melrose St & Varick Ave / Irving Ave						
EB					70.8	E
WB					44.1	D
SB					57.0	E
Overall					57.9	E
Melrose St & Irving Ave						
EB					28.2	C
WB					29.7	C
SB					57.0	E
Overall					39.2	D
Metropolitan Ave & Flushing Ave						
EB					13.5	B
WB					10.7	B
NB					57.4	E
SB					37.9	D
Overall					27.6	C

Table 7-2 (Continued)
HCS Analysis – Current Conditions without Waste Hauling Vehicles
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
UNSIGNALIZED INTERSECTIONS						
Maspeth Ave & Woodpoint Rd						
EB					20.2	C
WB					44.1	E
SB					8.4	A

Table 7-2 (Continued)
HCS Analysis – Replacement Trip Generation
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Metropolitan Ave & Bushwick Ave/Woodpoint Ave						
EB					27.9	C
WB					69.7	E
NB					64.5	E
SB					22.8	C
Overall					44.8	D
Metropolitan Ave & Union Ave						
EB	5.9	A	5.8	A	5.8	A
WB	6.7	A	6.0	A	6.8	A
NB	72.7	E	85.6	F	104.5	F
SB	41.2	D	48.9	D	59.2	E
Overall	25.2	C	30.3	C	33.4	C
Meeker Ave (South) & Union Ave						
EB	28.2	C	27.8	C	29.9	C
NB	55.1	E	53.7	D	52.6	D
SB	19.2	B	19.1	B	20.3	C
Overall	33.0	C	32.4	C	31.4	C
Meeker Ave (North from ramp) & Union Ave						
WB	55.1	E	81.0	F	95.5	F
NB	40.1	D	36.6	D	39.2	D
SB	48.0	D	42.8	D	56.3	E
Overall	49.2	D	60.9	E	74.3	E
Meeker Ave (North) & Union Ave						
WB	27.6	C	29.0	C	31.7	C
NB	40.1	D	36.6	D	39.2	D
SB	48.0	D	42.8	D	56.3	E
Overall	37.7	D	34.2	C	39.6	D
Metropolitan Ave & Manhattan Ave						
EB	7.4	A	4.4	A	1.9	A
WB	8.6	A	4.6	A	5.1	A
NB	129.5	F	110.7	F	80.3	F
Overall	29.0	C	26.4	C	17.2	B
Metropolitan Ave & Humboldt St.						
EB	48.1	D	7.4	A	2.4	A
WB	2.2	A	1.8	A	2.2	A
SB	45.0	D	45.7	D	53.2	D
Overall	28.7	C	13.5	B	13.4	B
Metropolitan Ave & Morgan Ave						
EB	21.7	C	22.4	C		
WB	35.3	D	13.4	B		
NB	85.0	F	115.0	F		
SB	38.3	D	53.7	D		
Overall	45.0	D	52.4	D		

Table 7-2 (Continued)
HCS Analysis – Replacement Trip Generation
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Metropolitan Ave & Stewart Ave						
EB	44.2	D	9.6	A		
WB	12.7	B	8.8	A		
NB	165.9	F	176.6	F		
SB	32.6	C	29.3	C		
Overall	43.2	D	42.3	D		
Grand St. & Morgan Ave						
EB	13.7	B	13.3	B	14.3	B
WB	14.8	B	13.6	B	16.4	B
NB	72.6	E	49.7	D	94.0	F
SB	55.4	E	85.4	F	121.2	F
Overall	33.4	C	39.6	D	56.5	E
Grand St & Vandervoort Ave						
EB			22.5	C		
WB			21.2	C		
SB			108.0	F		
Overall			63.7	E		
Grand St & Bushwick Ave						
EB			32.2	C	75.6	E
WB			31.5	C	179.2	F
NB			55.5	E	34.3	C
SB			28.4	C	42.2	D
Overall			37.8	D	80.9	F
Meeker Ave (South) & Vandervoort Ave						
EB	22.9	C			22.7	C
NB	65.9	E			186.8	F
SB	20.3	C			22.2	C
Overall	33.8	C			72.3	E
Flushing Ave/ Melrose St & Varick Ave / Irving Ave						
EB					70.8	E
WB					44.1	D
SB					57.0	E
Overall					57.9	E
Melrose St & Irving Ave						
EB					28.2	C
WB					29.7	C
SB					57.0	E
Overall					39.2	D
Metropolitan Ave & Flushing Ave						
EB					15.7	B
WB					11.3	B
NB					68.3	E
SB					37.9	D
Overall					30.1	C

Table 7-2 (Continued)
HCS Analysis – Replacement Trip Generation
Brooklyn CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
UNSIGNALIZED INTERSECTIONS						
Maspeth Ave & Woodpoint Rd						
EB					22.2	C
WB					55.4	F
SB					8.4	A

Table 7-2 (Continued)
HCS Analysis – Current Conditions
Jamaica, Queens CD #12

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Highland Ave & 168th St						
EB	13.2	B	12.1	B	14.4	B
WB	11.5	B	11.5	B	11.2	B
NB	12.5	B	11.6	B	11.5	B
SB	13.3	B	11.9	B	12.8	B
Overall	12.6	B	11.8	B	12.8	B
Hillside Ave & 163rd St						
EB	5.7	A	10.9	B	12.8	B
WB	1.5	A	5.5	A	5.5	A
NB	49.9	D	47.6	D	59.9	E
Overall	12.7	B	16.8	B	20.0	B
Hillside Ave & 164th St						
EB	4.1	A	4.5	A	3.2	A
WB	10.1	B	8.8	A	8.8	A
SB	39.6	D	41.0	D	40.5	D
Overall	9.0	A	9.0	A	7.1	A
Hillside Ave & 166th St						
EB	8.1	A	7.8	A	9.9	A
WB	11.7	B	7.1	A	15.2	B
NB	10.9	B	10.5	B	11.6	B
Overall	10.2	B	7.5	A	12.1	B
Hillside Ave & 168th St						
EB	9.1	A	8.2	A	11.1	B
WB	12.6	B	9.0	A	9.4	A
NB	55.6	E	45.6	D	46.6	D
Overall	19.9	B	15.3	B	15.6	B
Hillside Ave & 169th St						
EB	10.7	B	8.3	A	11.9	B
WB	13.4	B	8.8	A	11.6	B
SB	45.6	D	44.6	D	46.5	D
Overall	18.0	B	15.5	B	18.2	B
Jamaica Ave & 163rd St/Guy R Brewer Blvd						
EB	9.7	A	8.9	A	9.4	A
WB	11.5	B	9.2	A	9.6	A
NB	65.4	E	46.1	D	48.5	D
Overall	20.0	C	14.4	B	15.5	B
Jamaica Ave & Merrick Blvd						
EB	27.5	C	24.1	C	26.8	C
WB	72.6	E	30.8	C	39.3	D
SB	27.4	C	26.8	C	28.6	C
Overall	47.6	D	27.2	C	31.5	C

Table 7-2 (Continued)
HCS Analysis – CurrentConditions
Jamaica, Queens CD #12

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Jamaica Ave & 168th St						
EB	8.7	A	16.1	B	8.2	A
WB	15.6	B	18.2	B	9.8	A
NB	48.6	D	28.9	C	45.4	D
Overall	24.0	C	20.9	C	21.0	C
Jamaica Ave & 169th St						
EB	8.5	A	8.3	A	8.5	A
WB	10.0	B	8.4	A	8.4	A
SB	41.0	D	42.9	D	45.2	D
Overall	15.3	B	17.9	B	19.5	B
Liberty Ave & Guy R Brewer Blvd						
EB	20.5	C	17.3	B	20.0	B
WB	17.1	B	10.6	B	14.8	B
NB	17.8	B	12.7	B	13.9	B
SB	11.1	B	11.3	B	12.5	B
Overall	17.9	B	14.2	B	16.3	B
Liberty Ave & Merrick Blvd (SB)						
EB	29.1	C	25.4	C	27.5	C
WB	54.2	D	24.9	C	36.4	D
SB	11.5	B	10.9	B	12.0	B
Overall	35.7	D	20.7	C	26.4	C
Liberty Ave & Merrick Blvd (NB)						
EB	32.9	C	25.7	C	28.2	C
WB	27.2	C	23.0	C	24.3	C
NB	12.2	B	10.2	B	11.3	B
Overall	22.7	C	19.4	B	21.0	C
Liberty Ave & 170th St						
EB	18.5	B	8.5	A	10.6	B
WB	11.5	B	7.3	A	8.4	A
SB	16.1	B	15.8	B	19.4	B
Overall	14.6	B	8.9	A	11.1	B
Liberty Ave & 173rd St						
EB	11.1	B	10.0	B	11.0	B
WB	13.8	B	10.3	B	11.1	B
NB	14.6	B	14.3	B	14.2	B
Overall	12.8	B	10.3	B	11.2	B
Merrick Blvd & 107th St						
EB	25.5	C	26.9	C	25.7	C
NB	11.3	B	9.4	A	12.1	B
SB	10.3	B	10.5	B	12.0	B
Overall	11.3	B	10.7	B	12.5	B

Table 7-2 (Continued)
HCS Analysis – Current Conditions without Waste Hauling Vehicles
Jamaica, Queens CD #12

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Hillside Ave & 163rd St						
EB	5.7	A	10.9	B	12.8	B
WB	1.5	A	5.5	A	5.5	A
NB	49.9	D	47.6	D	59.9	E
Overall	12.7	B	16.8	B	20.0	B
Hillside Ave & 164th St						
EB	4.1	A	4.5	A	3.2	A
WB	10.1	B	8.8	A	8.8	A
SB	39.6	D	41.0	D	40.5	D
Overall	9.0	A	9.0	A	7.1	A
Hillside Ave & 168th St						
EB	9.1	A	8.2	A	11.1	B
WB	12.6	B	9.0	A	9.4	A
NB	55.5	E	45.4	D	46.5	D
Overall	19.9	B	15.2	B	15.5	B
Hillside Ave & 169th St						
EB	10.7	B			11.9	B
WB	13.4	B			11.6	B
SB	45.6	D			46.5	D
Overall	18.0	B			18.2	B
Jamaica Ave & 163rd St/Guy R Brewer Blvd						
EB	9.7	A	8.9	A	9.4	A
WB	11.5	B	9.2	A	9.6	A
NB	65.4	E	46.1	D	48.5	D
Overall	20.0	C	14.4	B	15.5	B
Jamaica Ave & Merrick Blvd						
EB	27.5	C				
WB	72.6	E				
SB	27.3	C				
Overall	47.6	D				
Jamaica Ave & 168th St						
EB	8.7	A			8.2	A
WB	15.6	B			9.8	A
NB	48.5	D			45.3	D
Overall	24.0	C			21.0	C
Jamaica Ave & 169th St						
EB					8.5	A
WB					8.4	A
SB					45.2	D
Overall					19.5	B

Table 7-2 (Continued)
HCS Analysis – Current Conditions without Waste Hauling Vehicles
Jamaica, Queens CD #12

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Liberty Ave & Merrick Blvd (SB)						
EB	28.9	C				
WB	52.2	D				
SB	11.5	B				
Overall	34.7	C				

Table 7-2 (Continued)
HCS Analysis – Replacement Trip Generation
Jamaica, Queens CD #12

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Hillside Ave & 163rd St						
EB	5.8	A	10.9	B	12.8	B
WB	1.5	A	5.5	A	5.6	A
NB	49.9	D	47.6	D	59.9	E
Overall	12.7	B	16.8	B	19.9	B
Hillside Ave & 164th St						
EB	4.0	A	4.5	A	3.2	A
WB	10.1	B	8.9	A	8.8	A
SB	39.6	D	41.0	D	40.5	D
Overall	8.9	A	9.0	A	7.1	A
Hillside Ave & 168th St						
EB	9.1	A	8.2	A	11.1	B
WB	13.0	B	9.1	A	9.4	A
NB	57.3	E	47.4	D	53.8	D
Overall	20.5	C	16.1	B	17.9	B
Hillside Ave & 169th St						
EB	10.9	B			11.9	B
WB	13.6	B			12.1	B
SB	46.7	D			46.7	D
Overall	18.6	B			18.4	B
Jamaica Ave & 163rd St/Guy R Brewer Blvd						
EB	9.9	A	9.0	A	9.5	A
WB	11.6	B	9.3	A	9.8	A
NB	65.4	E	46.1	D	48.5	D
Overall	19.9	B	14.4	B	15.5	B
Jamaica Ave & Merrick Blvd						
EB	30.8	C				
WB	78.1	E				
SB	27.8	C				
Overall	50.3	D				
Jamaica Ave & 168th St						
EB	8.7	A			8.2	A
WB	16.0	B			9.8	A
NB	49.4	D			51.9	D
Overall	24.5	C			25.0	C
Jamaica Ave & 169th St						
EB					8.6	A
WB					8.4	A
SB					45.5	D
Overall					19.6	B

Table 7-2 (Continued)
HCS Analysis – Replacement Trip Generation
Jamaica, Queens CD #12

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Liberty Ave & Merrick Blvd (SB)						
EB	29.4	C				
WB	54.8	D				
SB	11.6	B				
Overall	35.9	D				

Table 7-2 (Continued)
HCS Analysis – Current Conditions
Port Morris, Bronx CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
East 135th St & Lincoln Ave						
WB	18.4	B	13.9	B	12.3	B
NB	14.1	B	14.8	B	14.3	B
SB	15.6	B	15.2	B	14.9	B
Overall	18.2	B	14.1	B	12.5	B
East 135th St & Willis Ave						
WB	8.0	D	7.7	A	7.3	A
NB	48.9	D	49.2	D	53.8	D
SB	48.0	A	44.1	D	42.9	D
Overall	20.3	C	19.1	B	21.6	C
East 135th St & Brook Ave						
WB	24.9	C	21.2	C	20.4	C
SB	5.7	A	5.8	A	5.7	A
Overall	18.9	B	15.0	B	14.3	B
Bruckner Blvd & Willis Ave Bridge Ramp						
EB	44.4	D	48.4	D	47.0	D
WB	7.9	A	6.9	A	6.7	A
NB	15.0	B	17.4	B	20.5	C
Overall	13.6	B	16.6	B	18.7	B
Bruckner Blvd & Alexander Ave						
EB	9.7	A	9.9	A	9.7	A
WB	59.1	E	21.3	C	22.3	C
NB	31.0	C	31.2	C	34.5	C
SB	65.8	E	45.2	D	64.5	E
Overall	58.6	E	25.4	C	31.5	C
Bruckner Blvd & Lincoln Ave						
EB	6.8	A	7.1	A	7.2	A
WB	53.3	D	24.7	C	28.6	C
NB	49.0	D	47.6	D	44.7	D
SB	69.3	E	48.3	D	53.2	D
Overall	54.8	D	24.9	C	32.7	C

Table 7-2 (Continued)
HCS Analysis – Current Conditions without Waste Hauling Vehicles
Port Morris, Bronx CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
East 135th St & Willis Ave						
WB	7.9	A	7.7	A	7.2	A
NB	48.9	D	48.9	D	53.3	D
SB	48.0	D	44.1	D	42.9	D
Overall	20.3	C	19.0	B	21.5	C
Bruckner Blvd & Willis Ave Bridge Ramp						
EB	43.6	D	47.6	D	46.0	D
WB	7.5	A	6.8	A	6.5	A
NB	14.8	B	15.6	B	19.1	B
Overall	13.3	B	15.3	B	17.6	B
Bruckner Blvd & Alexander Ave						
EB	9.5	A	9.8	A	9.6	A
WB	34.3	C	20.1	C	21.5	C
NB	28.9	C	31.2	C	34.2	C
SB	56.5	E	43.8	D	63.8	E
Overall	38.1	D	24.4	C	31.0	C
Bruckner Blvd & Lincoln Ave						
EB	6.8	A	7.1	A	7.1	A
WB	44.0	D	20.7	C	22.7	C
NB	38.1	D	40.8	D	40.1	D
SB	69.8	E	44.8	D	54.0	D
Overall	46.9	D	24.9	C	27.5	C

Table 7-2 (Continued)
HCS Analysis – Replacement Trip Generation
Port Morris, Bronx CD #1

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
East 135th St & Willis Ave						
WB	8.9	A	8.3	A	8.0	A
NB	48.9	D	48.9	D	53.4	D
SB	49.5	D	44.5	D	43.0	D
Overall	20.2	C	18.8	B	20.9	C
Bruckner Blvd & Willis Ave Bridge Ramp						
EB	44.4	D	54.9	D	109.3	F
WB	7.8	A	7.1	A	7.2	A
NB	23.9	C	19.2	B	20.6	C
Overall	19.4	B	19.9	B	34.0	C
Bruckner Blvd & Alexander Ave						
EB	10.4	B	10.4	B	10.8	B
WB	118.1	F	26.5	C	33.4	C
NB	31.1	C	37.6	D	262.9	F
SB	126.4	F	57.0	E	279.7	F
Overall	111.0	F	31.7	C	118.5	F
Bruckner Blvd & Lincoln Ave						
EB	8.1	A	7.8	A	7.4	A
WB	83.2	F	43.4	D	45.1	D
NB	150.4	F	579.2	F	919.2	F
SB	62.4	E	66.1	E	51.8	D
Overall	78.8	E	96.2	F	343.7	F

Table 7-2 (Continued)
HCS Analysis – Current Conditions
Hunts Point, Bronx CDs #2 and #9

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Leggett Ave & Garrison St						
EB	9.6	A	10.2	B	8.3	A
WB	11.2	B	9.4	A	8.3	A
SB	18.1	B	17.9	B	17.8	B
Overall	11.4	B	10.8	B	9.9	A
Leggett Ave & Barry St						
EB	11.1	B	15.8	B	9.0	A
WB	10.4	B	9.1	A	7.9	A
NB	16.2	B	19.5	B	17.0	B
SB	14.5	B	14.1	B	13.9	B
Overall	11.4	B	14.2	B	10.3	B
Tiffany St & Randall Ave						
EB	19.1	B	18.1	B	15.6	B
WB	17.9	B	16.7	B	14.7	B
NB	10.5	B	11.1	B	9.1	A
SB	10.5	B	11.3	B	9.3	A
Overall	14.6	B	14.0	B	11.6	B
Tiffany St & Oak Point Ave						
EB	9.9	A	9.6	A	8.9	A
WB	9.2	A	9.2	A	8.9	A
NB	17.8	B	17.6	B	14.5	B
SB	15.8	B	16.6	B	16.2	B
Overall	13.4	B	13.7	B	12.9	B
East Bay Ave and Halleck St						
EB	23.2	C	23.0	C	24.0	C
WB	17.2	B	20.0	C	15.3	B
NB	17.3	C	17.6	B	17.6	B
SB	22.2	C	18.9	B	18.0	B
Overall	18.9	B	19.7	B	16.8	B
East Bay Ave and Hunts Point Ave						
EB	23.1	C	23.0	C	24.0	C
WB	17.2	B	20.0	C	15.3	B
SB	36.9	D	37.4	D	35.6	D
Overall	21.7	C	22.8	C	19.0	B
Hunts Point Ave & Bruckner Blvd NB (middle lanes)						
EB	39.3	D	59.9	E	71.5	E
WB	38.9	D	39.6	D	48.0	D
NB	32.5	C	31.4	C	85.5	F
Overall	36.0	D	43.9	D	72.8	E

Table 7-2 (Continued)
HCS Analysis – Current Conditions
Hunts Point, Bronx CDs #2 and #9

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)		Delay (sec/veh)	LOS	Delay (sec/veh)	
SIGNALIZED INTERSECTIONS						
Hunts Point Ave & Bruckner Blvd NB (service road)						
EB	39.3	D	59.9	E	71.1	E
WB	38.9	D	39.6	D	48.0	D
NB	40.7	D	34.3	C	44.5	D
Overall	39.9	D	45.2	D	53.0	D
Hunts Point Ave & Bruckner Blvd SB (middle lanes)						
EB	37.8	D	42.3	D	43.7	D
WB	30.7	C	31.0	C	34.0	C
SB	17.8	B	13.8	B	14.0	B
Overall	22.9	C	26.4	C	27.9	C
Hunts Point Ave & Bruckner Blvd SB (service road)						
EB	37.8	D	42.3	D	43.7	D
WB	30.7	C	31.0	C	34.0	C
SB	23.8	C	13.5	B	32.5	C
Overall	27.5	C	28.5	C	31.5	C
Longwood Ave & Bruckner Blvd (middle lane)						
EB	44.2	D	35.3	D	42.5	D
WB	72.3	E	33.1	C	32.7	C
NB	45.7	D	39.0	D	50.6	D
SB	28.0	C	26.5	C	47.3	D
Overall	43.7	D	32.2	C	46.5	D
Longwood Ave & Bruckner Blvd (service road)						
EB	38.7	D	35.4	D	39.0	D
WB	51.5	D	42.8	D	35.8	D
NB	54.8	D	47.4	D	40.6	D
SB	64.7	E	32.5	C	88.3	F
Overall	55.8	E	38.0	D	55.5	E
Leggett Ave & Bruckner Blvd (middle lane)						
WB	70.5	E	49.9	D	44.4	D
NB	32.0	C	29.0	C	25.8	C
SB	45.0	D	32.4	C	21.4	C
Overall	49.7	D	37.5	D	28.4	C
Leggett Ave & Bruckner Blvd (service road)						
WB	47.2	D	43.9	D	42.5	D
NB	50.2	D	42.6	D	27.9	C
SB	31.7	C	28.1	C	19.0	B
Overall	43.4	D	39.2	D	29.0	C
UNSIGNALIZED INTERSECTIONS						
Halleck St & Randall Ave						
EB	8.7	A	19.6	B	15.2	B
NB	19.9	C	8.5	C	7.6	A
Overall	19.9	C	19.6	B	15.2	B

Table 7-2 (Continued)
HCS Analysis – Current Conditions without Waste Hauling Vehicles
Hunts Point, Bronx CDs #2 and #9

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Hunts Point Ave & Bruckner Blvd NB (middle lanes)						
EB			59.9	E	71.5	E
WB			39.6	D	48.0	D
NB			30.8	C	79.0	E
Overall			43.8	D	69.4	E
Hunts Point Ave & Bruckner Blvd NB (service road)						
EB			59.9	E	71.1	E
WB			39.6	D	48.0	D
NB			33.9	C	44.5	D
Overall			45.2	D	53.0	D
Hunts Point Ave & Bruckner Blvd SB (middle lanes)						
EB			42.3	D	43.7	D
WB			31.0	C	34.0	C
SB			13.7	B	13.9	B
Overall			26.5	C	27.9	C
Hunts Point Ave & Bruckner Blvd SB (service road)						
EB			42.3	D	43.7	D
WB			31.0	C	34.0	C
SB			13.5	B	12.5	B
Overall			28.5	C	31.5	C
Longwood Ave & Bruckner Blvd (middle lane)						
EB	43.4	D	35.3	D	42.5	D
WB	70.9	E	32.9	C	32.7	C
NB	45.2	D	38.6	D	49.1	D
SB	26.8	C	26.2	C	47.1	D
Overall	43.3	D	32.0	C	45.8	D
Longwood Ave & Bruckner Blvd (service road)						
EB	38.4	D	35.4	C	39.0	D
WB	48.9	D	42.2	D	35.2	D
NB	53.5	D	47.2	D	40.6	D
SB	64.1	E	32.5	C	88.3	F
Overall	54.8	D	37.8	D	55.5	E
Leggett Ave & Bruckner Blvd (middle lane)						
WB	62.1	E	47.9	D		
NB	32.1	C	28.7	C		
SB	42.3	D	32.3	C		
Overall	45.9	D	36.7	D		
Leggett Ave & Bruckner Blvd (service road)						
WB	43.6	D	42.7	D		
NB	44.5	D	40.3	D		
SB	31.2	C	28.1	C		
Overall	39.8	D	37.8	D		

Table 7-2 (Continued)
HCS Analysis – Replacement Trip Generation
Hunts Point, Bronx CDs #2 and #9

Lane Group	AM Peak Hour		MD Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SIGNALIZED INTERSECTIONS						
Hunts Point Ave & Bruckner Blvd NB (middle lanes)						
EB			69.3	E	67.4	E
WB			41.4	D	74.9	E
NB			36.5	D	254.0	F
Overall			48.2	D	175.2	F
Hunts Point Ave & Bruckner Blvd NB (service road)						
EB			69.3	E	67.0	E
WB			41.4	D	74.9	E
NB			34.5	C	44.8	D
Overall			49.0	D	60.6	E
Hunts Point Ave & Bruckner Blvd SB (middle lanes)						
EB			42.5	D	43.8	D
WB			31.9	C	39.4	D
SB			14.5	B	14.2	B
Overall			26.1	C	28.9	C
Hunts Point Ave & Bruckner Blvd SB (service road)						
EB			42.5	D	43.8	D
WB			31.9	C	40.1	D
SB			13.5	B	12.5	B
Overall			28.8	C	33.1	C
Longwood Ave & Bruckner Blvd (middle lane)						
EB	44.8	D	35.8	D	45.1	D
WB	75.7	E	34.3	C	34.1	C
NB	47.7	D	43.8	D	240.7	F
SB	29.0	C	28.0	C	50.2	D
Overall	44.6	D	34.6	C	150.0	F
Longwood Ave & Bruckner Blvd (service road)						
EB	40.2	D	36.1	D	39.5	D
WB	50.9	D	43.0	D	36.6	D
NB	56.5	E	47.7	D	40.8	D
SB	98.2	F	32.6	C	91.4	F
Overall	73.2	E	38.3	D	56.5	E
Leggett Ave & Bruckner Blvd (middle lane)						
WB	67.5	E	50.2	D		
NB	30.9	C	30.8	C		
SB	46.5	D	33.6	C		
Overall	48.6	D	37.0	D		
Leggett Ave & Bruckner Blvd (service road)						
WB	45.0	D	44.0	D		
NB	57.5	E	43.6	D		
SB	34.2	C	28.1	C		
Overall	46.2	D	39.8	D		

Notes for Table 7-2:
sec/veh = seconds per vehicle; EB = eastbound; WB = westbound; SB = southbound; NB = northbound.

8.0 ASSESSMENT OF EFFECTS

At intersections that operate at LOS mid-D or better by approach under current conditions, it is assumed that vehicles attributed to Transfer Stations have no adverse effect because the LOS is within an acceptable range. At intersections that operate at less than LOS mid-D by approach under current conditions, LOS and delay time for current conditions were compared to LOS and delay time for current conditions without Waste Hauling Vehicles and Replacement Trip Generation. This comparison was used to determine whether unacceptable LOS at an intersection could be attributed to Transfer Station operation.

APPENDIX I

PUBLIC HEALTH EVALUATION OF MULTI-FACILITY EFFECTS

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

In this section of the Commercial Waste Management Study (Study), the implications of the results of air and odor analyses for public health are considered. This section also addresses the disease asthma, which is a significant medical problem. The purpose of the Study Area analyses is to assess the combined effects of multiple commercial waste Transfer Stations operating in geographical proximity to each other, not to assess the effects of individual facilities. An analysis suggesting that combined effects are (or are not) significant from a regulatory or public health standpoint does not necessarily apply to all possible effects of the individual facilities.

2.0 AIR QUALITY

Outdoor (ambient) air quality in urban areas is affected by numerous sources of pollutants. Local sources in any urban environment include industrial activity, construction activity, traffic emissions and power generation. In the Northeast, local air quality is also greatly affected by pollutants arriving from far-off sources, such as coal-fired power plants in the Midwest. Urban air pollutants include not only materials directly emitted by sources, but transformation products, such as ozone, formed in the air from precursor chemicals.

2.1 Review of Results

In this Study of commercial waste Transfer Stations, releases of certain pollutants from on-site sources (such as the machinery operating at a facility, the trucks driving on the facility property or queuing just outside the facility, and fugitive dust) and off-site sources (namely, trucks passing through specific intersections on their way to facilities within the Study Area) were separately analyzed for each Study Area (see Volume I, Summary Report of this Study). The pollutants of concern are "criteria pollutants" as defined by the United States Environmental Protection Agency (USEPA), and include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$). For these criteria pollutants, USEPA has established National Ambient Air Quality Standards (NAAQS) based on established or possible health effects. By law, NAAQS must be set to protect public health with an ample margin of safety.

In the case of CO, SO_2, NO_2 and PM_{10}, the maximum concentrations of these pollutants, due to the combined emissions from on-site sources at the multiple facilities, or due to the emissions from facility-related truck traffic, were calculated and added to the measured existing concentrations in air.[1] In all of the Study Areas -- Hunts Point, Bronx Community Districts (CDs) #2 and #9; Port Morris, Bronx CD #1; Brooklyn CD #1; and Jamaica, Queens CD #12 -- combined emissions of these criteria pollutants are not predicted to cause exceedance of the NAAQS. Current air quality, already affected by these existing, operating Transfer Stations, is well within the health-based standards for these pollutants, based on data from the nearest air quality monitoring sites.

[1] Note that this procedure overestimates concentrations of pollutants in air, since the facilities are already operating. In the intersections analyses, only CO and PM_{10} were evaluated.

In the case of $PM_{2.5}$, the analysis is somewhat different, since the compliance status of New York City's (City's) boroughs with the $PM_{2.5}$ NAAQS has not yet been determined officially by New York State or USEPA. Thus, estimated $PM_{2.5}$ contributions by Study Area Transfer Stations are not added to background (or existing) concentrations in the air quality analyses.

The contributions to existing $PM_{2.5}$ concentrations in the Study Areas due to simultaneous operation of multiple facilities were modeled and compared to the latest year of monitored concentration at the monitor site closest to each Study Area. The values of monitored concentrations are comparable to NAAQS. The Consultant evaluated the percent contribution to background $PM_{2.5}$ that the combined operations of the facilities might contribute. The worst-case estimates of $PM_{2.5}$ contributions ranged from 12% of the 24-hour monitored concentration in the Point Morris, Bronx CD #1 Study Area to 29% in the Hunts Point, Bronx CDs #2 and #9 Study Area, and from 1% of the annual average monitored concentration in the Port Morris, Bronx CD #1 Study Area to 6% of the annual average monitored concentration in the Hunts Point, Bronx CDs #2 and #9 Study Areas.

At selected intersections within the Study Areas, the effects on air quality of traffic and facility operations were calculated and combined; in general, it was found that traffic contributes less $PM_{2.5}$ than do nearby facilities. On a 24-hour basis, the effect of traffic on air quality ranges from 0.3 micrograms per cubic meter ($\mu g/m^3$) (or 0.08% of the latest 24-hour monitored concentration) to 1 $\mu g/m^3$ (or 2.4% of the latest 24-hour monitored concentration. On a annual neighborhood basis, the effect of traffic on air quality ranges from 0.01 $\mu g/m^3$ (or 0.08% of the latest annual monitored concentration) to 0.17 $\mu g/m^3$ (or 0.94% of the latest annual monitored concentration).

2.2 Significance of Results for Public Health

As stated above, USEPA's NAAQS are based on protection of public health. In all modeling of the pollutants CO, NO_2, SO_2 and PM_{10} in the Study Areas, total concentrations were determined to be below USEPA's limits. These analyses considered both the emissions from the commercial waste Transfer Stations themselves and emissions from traffic, as well as existing air quality as measured by pollution monitors. Thus, while air in the Study Area neighborhoods is

affected by multiple commercial waste Transfer Stations, the air quality is not significantly degraded, and public health is not expected to be adversely affected by emissions of CO, NO_2, SO_2 or PM_{10} from these facilities.

Because $PM_{2.5}$ is a relatively new NAAQS pollutant, "official" NAAQS attainment status for $PM_{2.5}$ in the City has not yet been determined. However, monitoring indicates that existing $PM_{2.5}$ concentrations, on an annual basis, are close to or slightly above the NAAQS. In neighborhood scale analyses, commercial waste Transfer Stations are estimated to contribute up to 6% of the existing monitored annual average $PM_{2.5}$ concentration. The estimated contributions of Transfer Stations to $PM_{2.5}$ are expected to decrease substantially in the future, primarily due to USEPA rules that dramatically reduce allowable emissions from newly manufactured diesel engines. Generally, air quality throughout New York State is expected to continue to improve over the next several years and decades, due to enforcement of new regulations affecting both mobile and stationary sources of air pollution. In particular, local, regional and national reductions in emissions of gaseous pollutants, such as SO_2 and nitrogen oxides (NO_X), are expected to lead to lower airborne concentrations of sulfate and nitrate-based $PM_{2.5.}$

The potential for reducing neighborhood effects was explored by considering options such as eliminating queuing of trucks and enclosing construction and demolition (C&D) Transfer Stations. In addition, such options aside, regulatory programs already enacted but not yet fully effective, such as improvements in diesel engine design and emission controls, and diesel fuel quality (reduced sulfur content), will bring about reductions in $PM_{2.5}$ over time as facilities use new equipment and fuels.

2.3 Summary of Pollutant Health Effects

This section provides some background on the potential health effects of the pollutants evaluated in the air quality analyses.

CO is a colorless, odorless gas released during combustion of many substances, including gasoline, diesel fuel and home heating oil. At high concentrations in air, CO is deadly — hence, the need for CO detectors in homes where malfunctioning furnaces or boilers may cause a

build-up of the gas. At lower concentrations, CO causes fatigue and confusion. CO exerts toxicity by binding to the blood's hemoglobin, creating carboxyhemoglobin (COHb), and displacing oxygen. COHb is a very stable molecule, and thus the body's tissues become starved for oxygen when COHb levels accumulate. For example, a COHb concentration of 65% or more may be lethal, a concentration of 30% may cause severe headache and a concentration of 10% may cause slight headache and fatigue.[2] USEPA's review of CO toxicity at ambient concentrations determined that the most sensitive effects of exposure are on the cardiovascular system in persons with pre-existing heart disease, namely a quicker onset of angina and EKG changes.[3] The NAAQS for CO (9 parts per million [ppm] for an eight-hour average and 35 ppm for a one-hour average) are set to keep COHb levels in the blood low enough to reduce the risk of these cardiovascular effects. The City is in attainment for the CO air quality standards.

NO_2 is one of several related oxides of nitrogen, collectively termed "NOx," found in ambient air. USEPA decided to issue a NAAQS only for NO_2, however, as it is found at the highest concentrations. NO_2 is an irritant gas, and is regulated in air based on its potential effects on respiratory health of children (who might be made more vulnerable to respiratory illnesses) and on pulmonary function in asthmatics and persons with chronic obstructive pulmonary disease.[4] At much higher concentrations than are found in ambient air, long-term exposure to NO_2 has produced emphysema-like changes in laboratory rodents. With respect to the NAAQS for NO_2 (53 parts per billion [ppb] or 100 $\mu g/m^3$ as an annual average), the entire country is in compliance with the standard. The only area previously listed as non-attainment for NO_2, the South Coast Air Basin in California, was redesignated to attainment on July 24, 1998.[5]

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[2] Clayton, G. and Clayton, F., editors. *Patty's Industrial Hygiene and Toxicology, Fourth Edition, Volume II*. John Wiley and Sons: New York, NY. 1994.

[3] USEPA (1994). "National Ambient Air Quality Standards for Carbon Monoxide – Final Decision." *Federal Register*: August 1.

[4] USEPA (1995). "National Ambient Air Quality Standards for Nitrogen Dioxide: Proposed Decision." *Federal Register*: October 11.

[5] USEPA (1998). "Approval and Promulgation of State Implementation Plans and Redesignation of the South Coast Air Basin in California to Attainment for Nitrogen Dioxide" *Federal Register*: July 24.

SO_2 is one of several oxides of sulfur, or SOx, and is one of the most prevalent pollutants in ambient air. It is created primarily by combustion of fossil fuels and processing of ores. Air quality standards for SO_2 are intended to protect against possible mortality, aggravation of bronchitis, decreased lung function in asthmatics and/or children and reduced capacity to respond to respiratory infections.[6] The NAAQS are 30 ppb (80 $\mu g/m^3$) as an annual average, 140 ppb (365 $\mu g/m^3$) as a 24-hour average and 500 ppb (1,300 $\mu g/m^3$) as a three-hour average. The City is in compliance with the SO_2 NAAQS.

Unlike the other criteria pollutants -- which are specific chemical molecules -- particulate matter (PM) refers to any of thousands of chemically different solid particles or liquid droplets suspended in outdoor air. Various forms of airborne PM differ with respect to: (1) size (with diameters ranging from about 0.001 to 100 microns [μm]), shape and surface characteristics; (2) water solubility and pulmonary persistence; (3) chemical composition, pH and metal content; and (4) biologic and immunologic properties and potencies. Generally, airborne concentrations of PM are expressed as the total mass of all material (often smaller than a specified aerodynamic diameter) per volume of air (in units of micrograms per cubic meter, $\mu g/m^3$). Thus, PM_{10} refers to all particles and aerosols with diameters less than 10 microns, and $PM_{2.5}$ to all particles with diameters less than 2.5 microns.

In practice, $PM_{2.5}$ and PM_{10} are defined as all material collected and weighed using specific types of equipment and under specified conditions.[7] When samples of ambient air are collected and analyzed for purposes of NAAQS compliance, the specific physical, chemical and biological forms of PM are not determined.

Many observational epidemiologic studies have reported weakly positive statistical associations between rates of mortality or morbidity in populations and moderate concentrations of total $PM_{2.5}$ and PM_{10} measured in ambient air near those populations.[8] These observational studies

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[6] USEPA (1988). "Proposed Decision not to Revise the National Ambient Air Quality Standards for Sulfur Oxides (Sulfur Dioxide)." *Federal Register*: April 26; USEPA (1996). "National Ambient Air Quality Standards for Sulfur Oxides (Sulfur Dioxide) – Final Decision." *Federal Register*: May 22.

[7] USEPA (1997). "National Ambient Air Quality Standards (NAAQS) for Particulate Matter; Final Rule." *Federal Register*: July 18.

[8] See Krewski, D., Burnett, R., Goldberg, M., *et al*. (2000). "Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality." Health Effects Institute: Cambridge,

include cross-sectional studies,[9] in which mortality in various metropolitan areas is associated with ambient concentrations of PM in those areas; and time-series studies,[10] in which daily mortality within a metropolitan area is associated with concurrent or lagged daily fluctuations in ambient PM concentrations. The USEPA[11] believes these statistical associations reflect cause and effect, and have established the PM NAAQS primarily on the basis of the associations.

For purposes of public health assessment, however, it is important to recognize that different forms of PM may pose markedly different risks to health. Airborne PM includes countless naturally occurring materials, such as thousands of species of viruses and bacteria, various molds and pollen fragments (from thousands of species of flowering plants), fragments of innumerable species of insects and bits of different types of sand and soil. Clearly, small concentrations of some forms of natural PM, such as tuberculosis bacillus, can be deadly, while other forms, such as suspended sea salt, are benign.

Most of the $PM_{2.5}$ emitted by the commercial waste Transfer Stations studied is from diesel engine exhaust, and hence is in the form of diesel particulate matter (DPM). Diesel engine exhaust has been unusually well studied. DPM consists primarily of soot (carbon particles) to which various organic compounds are absorbed. Diesel particles are generally small enough to be counted as $PM_{2.5}$, and are emitted by diesel engines of all kinds, although different engines, loads, specific fuels and other factors result in DPM mixtures with varying chemical constituents. DPM is not a criteria pollutant, so there are no NAAQS for it.

MA; and Lipfert, F. and Wyzga, R. (1995). "Air Pollution and Mortality: Issues and Uncertainties." J. Air Waste Manage. Assoc. 45:949-966 for reviews.

[9] Dockery, D., Pope, C., Xy, X., *et al*. (1993). "An Association Between Air Pollution and Mortality in Six U.S. Cities." N. Engl. J. Med. 329:1753-1759; Pope, C., Thun, M., Namboodiri, N., *et al*. (1995). "Particulate Air Pollution as a Predictor of Mortality in a Prospective Study of U.S. Adults." Am. J. Respir. Crit. Care Med. 151:669-674; Pope, C., Burnett, R., Thun, M., *et al*. (2002). "Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution." JAMA 287(9):1132-41.

[10] Samet, J., Dominici, F., Curriero, F., *et al*. (2000). "Fine Particulate Air Pollution and Mortality in 20 U.S. Cities, 1987-1994." New Engl. J. Med. 343:1742-1749; Dominici @2003.

[11] USEPA (1996). Air Quality Criteria for Particulate Matter (Vols. I, II, & III). EPA/600/P-95/001af. Washington, DC: Office of Research and Development. [http://www.epa.gov/ncea/archive/pdfs/partmatt/vol1/0671v1fm.pdf]; USEPA (1997). "National Ambient Air Quality Standards for Particulate Matter, Final Rule." *Federal Register*: July 18; EPA (2003). Air Quality Criteria for Particulate Matter, Fourth External Review Draft. EPA/600/P-99/002aD. June 2003.

The toxic effects of diesel engine exhaust -- both DPM and the gases and vapors that comprise the bulk of the exhaust -- have been evaluated in numerous acute and chronic studies. Laboratory animals are believed to be good models for humans with regard to their responses to DPM,[12] and some 17 chronic studies, involving laboratory rats, mice, hamsters, guinea pigs, cats and monkeys, have evaluated the respiratory and systemic effects of exposure to DPM.[13] Chronic exposures to large concentrations of DPM (in the presence of diesel engine exhaust gases) cause inflammation, fibrosis and functional changes in the respiratory system; very large concentrations cause premature death. The lowest observed adverse effect levels (LOAELs) and no observed adverse effect levels (NOAELs) for these effects are considerably in excess of ambient concentrations. Thus, the experimentally-derived LOAELs for pulmonary changes in rats are in the range of 800 to 3,000 micrograms of DPM per cubic meter (μg DPM/m^3), while the levels at which these effects are not observed -- that is, the NOAELs -- range from about 100 to 500 μg DPM/m^3.[14] With regard to premature mortality due to lifetime exposure to DPM, the LOAELs are about 6,000 μg DPM/m^3 in rats[15] and 4,000 μg DPM/m^3 in mice,[16] although other rodents tested in other laboratories showed no decreased survival even given lifetime exposures of some 7,000 μg DPM/m^3.[17] For purposes of public health assessment, application of typical safety factors to these data from laboratory rodents suggests that current ambient concentrations of diesel engine exhaust in New York State are not harmful. Nonetheless, current and proposed regulations that will substantially reduce the sulfur content of

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[12] International Life Sciences Institute (ILSI) (2000). "ILSI Risk Science Institute Workshop: The Relevance of the Rat Lung Response to Particle Overload for Human Risk Assessment." Inhal. Toxicol. 12(1-2):1-17; USEPA (2002). Health Assessment Document for Diesel Engine Exhaust. EPA/600/8-90/057F.

[13] USEPA (2002); USEPA (2003a). IRIS Record for Diesel Engine Exhaust. Available at www.epa.gov/iris/subst/0642.htm.

[14] USEPA (2003a).

[15] Nikula, K., Snipes, M., Barr, E., *et al*. (1995). "Comparative Pulmonary Toxicities and Carcinogenicities of Chronically Inhaled Diesel Exhaust and Carbon Black in F344 Rats." Fundam. Appl. Toxicol. 25:80-94.

[16] Heinrich, U., Muhle, H., Takenaka, S., *et al*. (1986). "Chronic Effects on the Respiratory Tract of Hamsters, Mice, and Rats after Long-Term Inhalation of High Concentrations of Filtered and Unfiltered Diesel Engine Emissions." J. Appl. Toxicol. 6:383-395.

[17] Mauderly, J., Benson, J., Rice, D., *et al*. (1984). "Life Span Study of Rodents Inhaling Diesel Exhaust: Effects on Body Weight and Survival" in: Guilmette, R., Medinsky, M., editors. Inhalation Toxicology Research Institute Annual Report. ITRI: Albuquerque, NM, pp. 287-291; Mauderly, J., Bice, D., Carpenter, R., *et al*. (1987). Effects of Inhaled Nitrogen Dioxide and Diesel Exhaust on Developing Lung. Health Effects Institute, Report No. 8, Cambridge, MA; Mauderly, J., Banas, D., Griffith, W., *et al*. (1996). "Diesel Exhaust is Not a Pulmonary Carcinogen in CD-1 Mice Exposed Under Conditions Carcinogenic to F344 Rats." Fundam. Appl. Toxicol. 30:233-242; Heinrich, U., Muhle, H., Takenaka, S., *et al*. (1986). "Chronic Effects on the Respiratory Tract of Hamsters, Mice, and Rats after Long-Term Inhalation of High Concentrations of Filtered and Unfiltered Diesel Engine Emissions." J. Appl. Toxicol. 6:383-395; all as reviewed in USEPA (2002).

diesel fuel, and will substantially control emissions of several pollutants from diesel equipment and vehicles, are welcome improvements that will provide additional margins of safety, in addition to helping to reduce regional haze.

Laboratory rats, though not necessarily other test species, develop lung tumors during lifetime exposures to very high concentrations of DPM. As noted by USEPA,[18] the mechanism by which these tumors arise involves "particle overload and consequent persistent inflammation and cell proliferation, [which] supports a nonlinear mode of action for lung cancer in the rat (ILSI, 2000). The nonlinear cancer response is further characterized as occurring at relatively high exposures of diesel exhaust (>3,500 μg DPM/m³), which is far beyond the range of environmental levels. The rat tumor occurrences, thus, are not particularly influential in judging the hazards at environmental levels of exposure." USEPA also notes that "while the weight of evidence indicates that DE [diesel engine exhaust] has the potential to pose a lung cancer hazard to humans at anticipated levels of environmental exposure, as shown by occupational epidemiology studies, a confident dose-response relationship based on occupational exposure levels is currently lacking." The National Toxicology Program classifies DPM as "reasonably anticipated to be a human carcinogen," but notes that the increased risk of lung cancer seen in epidemiologic studies of workers "cannot always be clearly ascribed to diesel exhaust exposure . . . [and] most studies used inadequate measures of exposure."[19]

Overall, the air quality effects of the facilities evaluated in this Study do not appear to be significant in terms of known or expected dose-response relationships for the pollutants evaluated. Air quality in these areas is similar to air quality throughout the City, and is influenced by local sources, such as diesel and gasoline engine emissions, as well as upwind sources beyond the local area. Nonetheless, the operation of these facilities involves both truck traffic and odors, so it is important to review these factors with regard to their effects on public health.

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[18] USEPA (2003a).

[19] National Toxicology Program (2002). 10th Report on Carcinogens. U.S. Department of Health and Human Services.

2.4 Traffic and Respiratory Health

During the last decade, scientists have been studying possible links between respiratory diseases or symptoms, such as cough, asthma and bronchitis, and levels of traffic nearby. Since truck traffic within the Study Areas is of concern to the public, this "traffic literature" is relevant to the public health evaluation, and is briefly described, as follows.

The studies of traffic and respiratory health pertain to children[20] and occasionally to adults,[21] and were mostly performed outside the United States.[22] There are two studies in this country that were recently performed.[23] All of these studies are cross-sectional in design; that is, the respiratory health of the subjects and the levels of traffic nearby were assessed at the same time.

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[20] Brunekeef, B., Janssen, N., de Hartog, J., *et al*. (1997). "Air Pollution from Truck Traffic and Lung Function in Children Living Near Motorways." Epidemiol. 8:298-303; Buckeridge, D., Glazier, R., Harvey, B., *et al*. (2002). "Effect of Motor Vehicle Emissions on Respiratory Health in an Urban Area." Environ. Health Perspect. 110(3):293-300; Ciccone, G., Forastiere, F., Agabiti, N., *et al*. (1998). "Road Traffic and Adverse Respiratory Effects in Children." Occup. Environ. Med. 55:771-778; Duhme, G., Weiland, S., Keil, U., *et al*. (1996). "The Association between Self-Reported Symptoms of Asthma and Allergic Rhinitis and Self-Reported Traffic Density on Street of Residence in Adolescents." Epidemiol. 7:578-582; Edwards, J., Walters, S., and Griffiths, R. (1994). "Hospital Admissions for Asthma in Preschool Children: Relationship to Major Roads in Birmingham, United Kingdom." Arch. Environ. Health 49(4):223-227; English, P., Neutra, R., Scalf, R., *et al*. (1999). "Examining Associations between Childhood Asthma and Traffic Flow Using a Geographic Information System." Environ. Health Perspect. 107(9):761-767; Kramer, U., Koch, T., Ranft, U., *et al*. (2000). "Traffic-Related Air Pollution is Associated with Atopy in Children Living in Urban Areas." Epidemiol. 11:64-70; Lee, Y-L., Shaw, C-K., Su, H-J., *et al*. (2003). "Climate, Traffic-Related Air Pollutants and Allergic Rhinitis Prevalence in Middle School Children in Taiwan." Eur. Respir. J. 21:964-970; Lin, S., Munsie, J., Hwang, S-A., *et al*. (2002). "Childhood Asthma Hospitalization and Residential Traffic Exposure to State Route Traffic." Environ. Res. Sect. A. 88:73-81; Livingstone, A., Shaddick, G., Grundy, C., and Elliott, P. (1996). "Do People Living near Inner City Main Roads Have More Asthma Needing Treatment? Case-Control Study." BMJ 312:676-677; Nicolai, T., Carr, D., Weiland, S., *et al*. (2003). "Urban Traffic and Pollutant Exposure Related to Respiratory Outcomes and Atopy in a Large Sample of Children." Eur. Respir. J. 21:956-963; Oosterlee, A., Drijver, M., Lebret, E., and Brunekreef, B. (1996). "Chronic Respiratory Symptoms in Children and Adults Living along Streets with High Traffic Density." Occup. Environ. Med. 53:241-247; van Vliet, P., Knape, M., de Hartog, J., *et al*. (1997). "Motor Vehicle Exhaust and Chronic Respiratory Symptoms in Children Living near Freeways." Environ. Res. 74:122-132; Venn, A., Lewis, S., Cooper, M., *et al*. (2000). "Local Road Activity and the Prevalence, Severity, and Persistence of Wheeze in School Children: Combined Cross Sectional and Longitudinal Study." Occup. Environ. Med. 57(3):152-158; Venn, A., Lewis, S., Cooper, M., *et al*. (2001). "Living near a Main Road and the Risk of Wheezing Illness in Children." Am. J. Respir. Crit. Care Med. 164:2177-2180; Waldron, G., Pottle, B., and Dod, J. (1995). "Asthma and the Motorways – One District's Experience." J. Pub. Health Med. 17(1):85-89; Weiland, S., Mundt, K., Ruckmann, A., and Keil, U. (1994). "Self-Reported Wheezing and Allergic Rhinitis in Children and Traffic Density on Street of Residence." Ann. Epidemiol. 4:243-247; Wilkinson, P., Elliott, P., Grundy, C., *et al*. (1999). "Case-Control Study of Hospital Admission with Asthma in Children Aged 5-14 Years: Relation with Road Traffic in North West London." Thorax 54:1070-1074; Wjst, M., Reitmeir, P., Dold, S., *et al*. (1993). "Road Traffic and Adverse Effects on Respiratory Health in Children." BMJ 307:596-600.

[21] Buckeridge *et al*. (2002); Livingstone *et al*. (1996); Oosterlee *et al*. (1996).

[22] All articles initially cited except English *et al*. (1999) and Lin *et al*. (2002).

[23] English *et al*. (1999) and Lin *et al*. (2002).

Since the trucks that transport solid waste to the commercial waste Transfer Stations are diesel-powered, as are most of the engines used in facility-related bulldozers and other off-road equipment, of most relevance to this evaluation are traffic studies that examine diesel-powered vehicles. About half of the studies referenced above identified quantified diesel traffic in some manner.[24] In most cases, the health endpoints, such as asthma or allergic rhinitis, were investigated by asking children or their parents to complete questionnaires that inquired about symptoms or diagnoses of respiratory illness that occurred either in the last year or at any time. Some investigations used medical databases containing information on hospital visits for asthma[25] or prescriptions for asthma medication,[26] or had children undergo pulmonary function tests or tests for skin sensitivities (an indicator of allergy).[27]

Various methods of gauging traffic flow were used, and while some distinguished between truck and car traffic, or focused on car traffic, some did not distinguish between these kinds of vehicles.[28] Regardless, when children were studied, traffic flow was estimated near either the child's school or home. In some studies, children were asked to rate the level of truck traffic near their homes, while in others, investigators used traffic counts made by cities and towns on specific roads, maps of traffic flows, or distances from home or school to highways or to the nearest busy street. In six investigations, air pollutants were either measured in air near schools and homes and then correlated to traffic flows, or estimated using information on local traffic. In only a few studies were indoor concentrations of air pollutants determined.[29]

Most traffic studies found associations between some indicator of traffic near a child's home or school and some indicator of respiratory disease; a few found no evidence of an association.[30] Studies with positive findings, however, were not necessarily consistent, and increases in risk of wheeze, rhinitis, asthma, etc. were usually fairly small. The apparent effect of nearby traffic on health was frequently stronger in girls than boys.[31]

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[24] Brunekreef *et al*. (1997); Buckeridge *et al*. (2002); Ciccone *et al*. (1998); Duhme *et al*. (1996); Lin *et al*. (2002); Nicolai *et al*. (2003); Oosterlee *et al*. (1996); van Vliet *et al*. (1997); Weiland *et al*. (1994).
[25] Edwards *et al*. (1994); English *et al*. (1999); Lin *et al*. (2002).
[26] Livingstone *et al*. (1996).
[27] Brunekreef *et al*. (1997); Wjst *et al*. (1993).
[28] Edwards *et al*. (1994); English *et al*. (1999); Kramer *et al*. (2000); Lee *et al*. (2003); Livingstone *et al*. (1996); Venn *et al*. (2000, 2001); Waldron *et al*. (1995); Wilkinson *et al*. (1999).
[29] Brunekreef *et al*. (1997); Kramer *et al*. (2000); van Vliet *et al*. (1997),
[30] Livingstone *et al*. (1996); Waldron *et al*. (1995); Wilkinson *et al*. (1999).
[31] Brunekreef *et al*. (1997); Kramer *et al*. (2000); Oosterlee *et al*. (1996); van Vliet *et al*. (1997); Venn *et al*. (2001)

Studies of particular interest are those conducted in the United States and those in which truck traffic was quantified in some manner. Lin and Colleagues (2002) recently studied white children aged 0-14 in Erie County, New York (excluding Buffalo) who were hospitalized for asthma between January 1990 and December 1993. Characteristics of traffic on state routes near the homes of these children were compared to such characteristics for children who were hospitalized during the same period for gastrointestinal illnesses, falls or other non-traffic-related accidents. The characteristics considered included: (1) distance from the child's home to a major state route; (2) vehicle miles traveled on major state routes within 200 meters or 500 meters of the home; or (3) the proportion of heavy trucks passing within 200 meters or 500 meters of the home on a major state route. In comparisons between the two groups of children, age, sex, poverty level and education level (the last two determined at the census-tract level) were controlled.

In this study, distance of the home from the nearest major state route did not significantly differ for children hospitalized for asthma or for other reasons, nor did traffic density on routes within 500 meters of home. However, the odds ratio (OR)[32] for an asthma hospitalization was statistically significantly increased by the presence of heavy trucks passing within 200 meters of the home (OR=1.43), and for high overall traffic density within 200 meters of the home (OR=1.93).

Children 14 years of age or less in San Diego County, California, were studied by English *et al*. (1999). Children admitted to hospitals for asthma were compared to other children hospitalized for reasons other than respiratory disease or cancer. Information on traffic flow on virtually all county roads was collected by the county itself and seems to have included only cars. The distance from each child's home to each street within a 550-meter radius was determined, as were the number of cars per day on each of those streets.

[32] The odds ratio (OR) compares the chance of having the disease of interest in a group with an exposure of interest to the chance of having the disease in a group without the exposure. If the odds are the same, meaning there is no effect of exposure on disease, then the OR is 1.0. An OR greater than 1.0 indicates an increased risk of disease, given exposure. An OR of 1.5, for example, indicates a 50% increase in risk.

Contrary to expectations, children hospitalized for asthma were less likely than other children to live nearer to streets with the highest traffic flows, or to have higher traffic flows nearby. No difference was found between the groups of children for the average traffic volume on all streets within 550 meters of the home, nor on the traffic volume on the busiest nearby street. However, among children hospitalized for asthma, children with two or more hospital admissions tended to have higher traffic volumes at the nearest street than did children with only one admission; this tendency was much stronger for girls than boys.

Several other investigations, but not all, found statistically significantly increased ORs for asthma (measured, for example, as current asthma, asthma ever, doctor-diagnosed asthma or hospital admissions for asthma) and various measures of traffic near homes or schools. For example, Nicolai *et al*. (2003) found an OR of 1.8 for asthma among children exposed to the highest tertile of car traffic counts and an OR of 1.8 for those exposed to the highest tertile of soot concentration. Buckeridge *et al*. (2002) measured an OR of 1.2 for respiratory hospital admissions per $\log_{10}$ increase in modeled $PM_{2.5}$ concentrations. Wheezing was often assessed separately from asthma. For example, ORs for wheezing of approximately five were found for girls, but not for boys, living near busy streets, compared to children living along quiet streets, according to Oosterlee *et al*. (1996). Nicolai *et al*. found an OR of 1.7 for wheeze among children exposed to the highest tertile of car traffic counts. An OR for wheezing of 15 was found by Kramer *et al*. (2000) in association with an increase in outdoor urban NO_2 of 10 $\mu g/m^3$ of air.

Overall, most studies of traffic and children's respiratory health find some associations between traffic characteristics (such as distance to roads, traffic volumes or truck traffic volumes) and respiratory morbidity measures (such as allergic rhinitis, wheezing or cough), although results can vary a good deal from study to study. However, some weaknesses in the literature must be mentioned. First, an association, even if statistically significant, does not necessarily indicate cause and effect, particularly in a cross-sectional study. There may be factors, called confounders, that are both associated with residence or schooling near heavy (truck) traffic and that cause or aggravate disease. For example, it is possible that people living near busy streets or highways keep windows closed more than do people who live in quieter neighborhoods. Concentrations of indoor pollutants and agents that may contribute to respiratory illness, such as

pet allergens or cigarette smoke, might therefore be higher in homes near heavily trafficked streets. Some of the traffic studies cited in this discussion (particularly those that studied hospitalization rates) were not able to gather information on personal exposure to indoor pollutants. There is also a general concern that differences in socioeconomic status, which likely varies with distance of residence to heavily traveled streets and is associated with health, may not have been adequately controlled.

3.0 ODOR

Commercial waste Transfer Stations may emit unpleasant odors, depending on the kind of waste they accept, the volumes of waste accepted and how the facilities are built and operated. In this Study, the potential for areas of the Study Area neighborhoods to be affected by odors from multiple facilities was assessed (see Volume I, Appendices D and E of this Study). The odor methodology identified an odor level of 5 odor units (OU) (where one OU is a level that can just be detected in comparison to clean, unfiltered air in a laboratory) as a level that would be considered detectable by the general public and potentially adverse. Whether any receptors (residences, schools, parks, etc.) experienced 5 OU or more was based on dispersion modeling using five years of meteorological data. A conservative analysis was performed by assuming that the Transfer Stations had no odor control mechanisms in place, unless otherwise indicated.

Because the object of the Study was to evaluate the combined effects of multiple Transfer Stations, the odor analysis identified receptors that could experience an odor level of 5 OU or more due to emissions from each of two or more facilities. Under the assumption that commercial waste Transfer Stations do not control odors at all, receptors in two Study Areas were predicted to experience an odor level of 5 OU or more from each of two or more facilities. These included two receptors in the Brooklyn CD #1 Study Area and three receptors in the Port Morris, Bronx CD #1 Study Area. The number of hours with predicted exceedances of 5 OU was small -- less than 1% of the time, at all of these receptors.

Odor is not necessarily an indicator that a hazardous chemical is present, or that a hazardous concentration is present. However, noxious odors can be extremely annoying and cause transient problems such as headache, nausea, and eye or nose irritation, or even trigger asthmatic reactions in sensitive individuals. Although odor events due to the combined activities of Study Area Transfer Stations were modeled to be brief and infrequent, nuisance associated with these operations should be minimized to the extent feasible.

4.0 ASTHMA CAUSES AND TRIGGERS

Asthma is a chronic, inflammatory disease of the small airways characterized by episodic and reversible restriction of breathing passages. Symptoms include difficulty in breathing (which may range from mild to life-threatening), wheezing and coughing. Asthmatic episodes may be triggered by specific substances, environmental conditions and stress, as discussed below.

The New York City Department of Health and Mental Hygiene has published a very informative report, *Asthma Facts, 2nd edition*, which is available on the web at http://www.nyc.gov/html/doh/pdf/asthma/facts.pdf. Among other things, the report notes:

> Morbidity and mortality from asthma had been rising throughout the United States, with New York City having experienced a disproportionate increase in the early 1990s. However, asthma hospitalization rates have been gradually declining in the United States since the peak in the mid-1980s, and in New York City since the peak in the mid-1990s. Further, the New York City asthma hospitalization rate (3.36 per 1,000) in 2000 was the lowest rate since 1990, though costs remained high, totaling more than $242 million.

In the City in particular, several groups of researchers have analyzed the distribution and factors affecting asthma hospitalizations and mortality.[33] Asthma prevalence in the City correlates strongly with socioeconomic status, and several factors link asthma with poverty. Factors that related to asthma risk in low-income areas were the number of occupants per apartment (related to bacterial and viral exposures), water leaks (related to fungal exposures), moist basements (related to fungal exposures), deteriorating building materials (related to fungal and mite exposures) and house dust exposure (containing insect parts, animal dander and rodent excreta). Recent statistics on childhood and adult asthma prevalence in the City boroughs are provided below.

The dramatic increase in asthma among children has spurred scientists and clinicians to search for causes and risk factors for the disease, as well as therapies and interventions. The reasons for the rise in the prevalence and severity of asthma are not understood. Suspected factors include

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[33] Carr, W., Zeitel, L., and Weiss, K. (1992). "Variations in Asthma Hospitalization and Deaths in New York City." *Am J Public Health* 82:59-65. de Palo, V.A., Mayo, P.H., Friedman, P., and Rosen, M.J. (1994). "Demographic Influences on Asthma Hospital Admission Rates in New York City." *Chest 106:*447-451.Claudio, L., Tulton, L., Doucette, J., and Landrigan, P. (1999). "Socioeconomic Factors and Asthma Hospitalization Rates in New York City." Journal of Asthma. 36(4):343-350.

changing patterns of childhood illnesses, changing diet, increasing rates of obesity, changing exercise patterns, changing housing, increased vaccinations against childhood respiratory disease, increased survival of very low birth weight babies and increased exposure to indoor-air allergens. Current hypotheses tend to focus on three areas: (1) increases in individual sensitivity (possibly due to reduced respiratory infections); (2) increases in exposure to allergens (due to changes in ambient air pollution and/or indoor air quality); and (3) increases in airway inflammation of sensitized individuals (due to factors such as viral infections). No single factor is likely to explain the increased rates of asthma, however, and various factors would dominate in specific areas, homes and individuals.

In theory, one can distinguish between "causes" and "triggers" of asthma. Causes would be those factors that make a person susceptible to asthmatic attacks in the first place, while triggers would be those factors that elicit asthmatic symptoms at a particular time. Triggers are more easily studied, but may not be the underlying causes of the disease. For example, although a genetic predisposition to allergy is an important risk factor for developing asthma, there may have been no real increase in the number of genetically susceptible children, but rather a growth in the prevalence of factors that promote asthma development or trigger an attack. For a child suffering from asthma, however, identification and elimination of triggering factors is of greatest practical importance.

Allergens in the indoor environment are important triggers of asthma in the U.S. Organic materials that cause the immune system to overreact, such as cockroach antigen, dust mite antigens, molds, and pet and rodent dander and urine, are the principal triggers of asthma attacks in children. Some of these antigens are probably more common in poor quality housing, which could explain, in part, why poor children suffer high rates of asthma. Other indoor pollutants, such as tobacco smoke and natural gas combustion products, can also exacerbate asthma symptoms. "Improvements" in housing, such as increased insulation and reduced ventilation to save on energy costs, and increased amounts of wall-to-wall carpeting and stuffed furniture, may have had the unintended effects of promoting the growth of dust mites and molds, and of concentrating antigens, irritants and particulate matter indoors.[34] These changes in housing over recent decades could help explain the widespread

[34] Bielory, L. and Deener, A. (1998) 0. "Seasonal Variation in the Effects of Major Indoor and Outdoor Environmental Variables on Asthma. Review Article. J. Asthma 35(1):7-48.

increases in asthma rates. In addition, the effect of indoor pollutants may be increased by the growing amount of time that children spend indoors, which increases a child's exposure to antigens, and by lack of exercise, which might increase the respiratory system's sensitivity to allergens.[35]

Some components of outdoor air can trigger asthma attacks, such as pollens and sufficient concentrations of air pollutants. Some researchers have suggested that outdoor air pollution per se is not likely to contribute significantly to the asthma epidemic, however, because air pollution has decreased on the whole while asthma rates have increased.[36] It is nonetheless possible that specific pollutants, such as ozone or diesel exhaust, enhance the effects of other factors, such as allergens, even if moderate concentrations of the pollutants themselves are not triggers of asthma. In addition, weather conditions, and cold air in particular, can elicit asthmatic symptoms independent of air pollution.

An additional hypothesis described by Cookson and Moffatt suggests a link between the increase in asthma and the decline of respiratory infections in modern society, which could shift the balance of the immune system in favor of factors that predispose persons to asthma and allergy.[37] Infectious disease has been dramatically reduced in our society by the use of antibiotics and immunization programs.

Experimentally, exposure to diesel exhaust particles increases airways resistance in mice,[38] while other studies of mice and humans have shown that diesel exhaust particles can enhance responses to allergens.[39] Experiments in which non-asthmatic adults were exposed for an hour to diesel engine exhaust (containing particles and gases) found increased airways resistance[40] and some cellular indicators of inflammatory response;[41] however, these subjects did not experience asthma.

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[35] Crater, S. and Platts-Mills, T. (1998). "Searching for the Cause of the Increase in Asthma." Curr. Opin. Pediatr. 10:594-599.

[36] Ibid.

[37] Cookson, W.O.C.M. and Moffatt, M.F. (1997). "Asthma; an Epidemic in the Absence of Infection?" Science 275: 41-42.

[38] Sagai, M., Furuyama, A., Ichinose, T. (1996). "Biological Effects of Diesel Exhaust Particles (DEP) III." "Pathogenesis of Asthma Like Symptoms in Mice." Free Radio Biol. Med. 21:199-201 (abstract).

[39] Diaz-Sanchez, D. (1997). "The Role of Diesel Exhaust Particles and Their Associated Polyaromatic Hydrocarbons in the Induction of Allergic Airway Disease." Allergy 52:52-56; Takano, II, Yoshikawa, T., Ichinose, T., Miyabara, Y., Imaoka, K., Sagai, M. (1997). "Diesel Exhaust Particles Enhance Antigen-Induced Airway Inflammation and Local Cytokine Expression in Mice." Am. J Respir. Crit. Care Med. 156:36-42.

[40] Rudell, B., Ledin, M.C., Hammarsurom, U., Stjenberg, N., Lundback, G., Sandstrom, T. (1996). "Effects on Symptoms and Lung Function in Humans Experimentally Exposed to Diesel Exhaust." Occup. Environ. Med. 53:6480652 (Abstract).

[41] Salvi, S., Bloomberg, A., Rudell, B., Kelly, F., Sandstrom, T., Holgate, S.T., Frew, A. (1999). "Acute

Causes, triggers, and prevention of childhood asthma in the City are the subjects of active research.[42] For example, researchers are investigating the possible influence of prenatal exposure to antigenic materials; collecting air pollution measurements in areas of the City with high rates of asthma; testing infants and children for respiratory symptoms; measuring pollutant levels in urine as an indicator of exposure to diesel exhaust; and cleaning, repairing, and addressing pest infestations in apartments of families with asthmatic children. It is hoped that this research would not only help identify the most significant factors leading to asthma but also identify effective prevention measures.

City officials are well aware of the epidemic of childhood asthma in the City's many boroughs and communities, and, under the direction of the City Department of Health, began an aggressive Asthma Initiative in 1997. The goals of the Asthma Initiative are to reduce illness and death from childhood asthma by: (1) strengthening the ability of institutions, such as schools and medical facilities, to respond to the disease; (2) encouraging and coordinating asthma research; (3) facilitating interactions among health care facilities, schools, communities and government agencies; and (4) giving special attention to high-risk populations. Among the Initiative's recommendations for preventing asthma episodes are: (1) avoid cigarette smoke; (2) reduce exposure to dust mites; (3) avoid furred pets and birds; (4) eliminate or reduce roaches; (5) close windows and use an air conditioner when pollen or air pollution is bad; and (6) help improve the environment.[43]

Clearly, asthma among children is a major public and personal health problem in the City. Yet the causes of asthma and its increase over the last two decades are not known, and the triggers for exacerbation are only partly understood. The potential relationship between vehicular exhaust resulting from increased truck traffic and asthma, especially in communities with high rates of asthma, requires further study.

Inflammatory Response in the Airways and Peripheral Blood After Short-term Exposures to Diesel Exhaust in Healthy Human Volunteers." Am. J Respir. Crit. Care Med. 159:702-709 (Abstract).

[42] Gergen, P., Mitchell, H., Lynn, H., *et al*. (2002). "Understanding the Seasonal Pattern of Childhood Asthma: Results from the National Cooperative Inner-City Asthma Study (NCICAS)." J. Pediatr. 141(5):631-636; Kinney, P., Northridge, M., Chew, G., *et al*. (2002). "On the Front Lines: An Environmental Asthma Intervention in New York City." Amer. J. Pub. Health 92(1):24-26; Miller, R., Chew, G., Bell, C., *et al*. (2001). "Prenatal Exposure, Maternal Sensitization, and Sensitization in Utero to Indoor Air Allergens in an Inner-City Cohort." Am. J. Respir. Crit. Care Med. 164:995-2001; Northridge, M., Yankura, J., Kinney, P., *et al*. (1999). "Diesel Exhaust Exposure Among Adolescents in Harlem: a Community-Driven Study." Amer. J. Pub. Health 89(7):998-1002; Perera, F., Illman, S., Kinney, P., *et al*. (2002). "The Challenge of Preventing Environmentally Related Disease in Young Children: Community-Based Research in New York City." Environ. Health Perspect. 110(2):197-204.

[43] New York City Department of Health. (1999). "Take Charge of Asthma." Community Asthma Program. Available at http://www.ci.nyc.ny.us/html/doh/html/asthma/atake.html.

4.1 Asthma Morbidity and Mortality in Host Communities

The City Department of Health and Mental Hygiene (DOHMH) provided preliminary, recent statistics on asthma for City.[44] Information is collected on the fraction of children and adults with asthma (prevalence), discharges from hospitals after asthma-related illness (morbidity) and deaths from asthma (mortality). The numbers of children with asthma are determined from school health examination forms, usually submitted when children are four or five years old, while numbers of adults with asthma are determined from a telephone survey.

A summary of asthma prevalence among children in areas of the City is provided in Table 4.1-1. A summary of asthma prevalence data for adults is provided in Table 4.1-2. Adults are markedly less likely than children to have an asthma diagnosis.

[44] Personal communications from Dan Kass, DOHMH, to Sarah Armstrong, Cambridge Environmental, Inc., 2003.

Table 4.1-1
Asthma Prevalence Among Children Four to Five Years Old

New York City Area	% With Asthma in 1999
All of New York City	9.1
Bronx	15.5
Hunts Point-Mott Haven neighborhood	17.1
Brooklyn	8.8
Greenpoint neighborhood	8.9
Downtown-Heights-Slope neighborhood	9.3
Bensonhurst-Bay Ridge neighborhood	5.2
Manhattan	11.9
Washington Heights-Inwood neighborhood	12.6
Upper East Side neighborhood	6.4
Chelsea-Clinton neighborhood	9.4
Queens	5.6
Flushing-Clearview neighborhood	2.6

Table 4.1-2
Asthma Prevalence Among Adults

New York City Area	% With Asthma in 2002
All of New York City	4.4
Bronx	6.2
South Bronx, including the Hunts Point-Mott Haven neighborhood	7.1
Brooklyn	3.7
Greenpoint neighborhood	3.1
Downtown-Heights-Slope neighborhood	8.0
Bensonhurst-Bay Ridge neighborhood	3.3
Manhattan	4.5
Washington Heights-Inwood neighborhood	6.7
Upper East Side neighborhood	2.7
Chelsea-Clinton neighborhood	3.6
Queens	3.7
Flushing-Clearview neighborhood	2.3

Asthma is the leading cause of hospitalization of children in the City. Rates of asthma hospitalization among children aged 0-14 dropped markedly between 1997 and 2000 in many neighborhoods. In these neighborhoods, decreases in hospitalization rates ranged from 42% to 56%. The rate decreased the most in the Hunts Point-Mott Haven area, in which DOHMH began a major childhood asthma initiative in 1998.

Asthma mortality data for 2000 are not available by neighborhood. By borough, mortality rates from asthma (deaths per 100,000 people) for people of all ages were 4.9 in the Bronx, 2.9 in Manhattan, 2.2 in Brooklyn and 1.6 in Queens. During the 1990s, asthma mortality rates decreased by about 25% in both sexes in the City. Rates of death from asthma increased with age, being highest among people aged 65 or older.

5.0 CONCLUSION

This appendix presents a review of information regarding the toxicity of various air pollutants and epidemiologic studies relating traffic to respiratory health, as well as the modeled effects of Transfer Station operations and associated traffic on air quality and odor. Air quality in affected neighborhoods was found to be similar to air quality throughout the City, and is influenced by local sources, such as diesel and gasoline engine exhaust emissions, as well as upwind sources beyond the local area. Nonetheless, the operation of Transfer Stations involves both truck traffic and odors, and emissions from these sources should be minimized to the extent feasible.

APPENDIX J

ENGINEERING AND OPERATIONS SURVEY OF SELECTED TRANSFER STATIONS

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1.0 BACKGROUND AND OBJECTIVE

This report on the design and operation of existing commercial waste Transfer Stations was prepared as part of the Commercial Waste Management Study (Study) authorized by Local Law 74 (LL74). One part of the Study identified four Study Areas with privately owned and operated Transfer Stations in geographical proximity to one another in New York City (City) for analysis: Port Morris, Bronx Community District (CD) #1; Hunts Point, Bronx CDs #2 and #9; Brooklyn CD #1; and Jamaica, Queens CD # 12). Table 1-1 shows the names, locations and types (putrescible, non-putrescible or fill material) of Transfer Stations in each Study Area.

Table 1-1
Commercial Waste Transfer Stations within Study Areas

Name	Address	Type of Transfer Station	Site Zoning
Port Morris, Bronx CD #1 Study Area			
Bronx County Recycling	475 Exterior Street	Fill	M2
Felix Equities	290 East 132nd Street	Fill	M3
Tilcon NY	980 East 149th Street	Fill	M3
USA Waste Services of NY (Waste Management)	98 Lincoln Avenue	Putrescible	M3
USA Waste Services of NY (Waste Management)(1)	132nd Street at St. Anns Avenue	Putrescible (Intermodal)	M3
Waste Services of NY	920 East 132nd Street	Putrescible	M3
Total Number in Port Morris, Bronx CD #1 Study Area		**6**	
Hunts Point , Bronx CDs #2 and #9 Study Area			
A.J. Recycling	325 Faile Street	Non-Putrescible	M3
Bronx City Recycling	1390 Viele Avenue	Fill	M3
G. M. Transfer	216-222 Manida Street	Non-Putrescible	M3
Kids Waterfront Corp.	1264 Viele Avenue	Non-Putrescible	M3
IESI NY Corp.	325 Casanova Street	Putrescible	M3
John Danna and Sons	318 Bryant Avenue	Non-Putrescible	M3
Metropolitan Transfer Station	287 Halleck Street	Putrescible	M3
Paper Fibres Corp.	960 Bronx River Avenue	Putrescible	M1
Waste Management of NY	Oakpoint Avenue & Barry Street	Putrescible (Intermodal)	M3
Waste Management of NY	620 Truxton Street	Non-Putrescible	M3
Waste Management of NY(1)	315 Barretto Street	Non-Putrescible	M3
Total Number in Hunts Point, Bronx CDs #2 and #9 Study Area		**11**	

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

Name	Address	Type of Transfer Station	Site Zoning
Brooklyn CD #1 Study Area			
Point Recycling Ltd	686 Morgan Avenue	Non-Putrescible	M3
Waste Management of NY[2]	75 Thomas Avenue	Non-Putrescible	M3
Waste Management of NY[2]	485 Scott Avenue	Putrescible	M3
Waste Management of NY	215 Varick Avenue	Putrescible	M3
Waste Management of NY	123 Varick Avenue	Non-Putrescible	M3
Waste Management of NY	232 Gardner Avenue	Non-Putrescible	M3
Maspeth Recycling[3]	58-08 48th Street	Fill	M3
IESI NY Corp	548 Varick Avenue	Non-Putrescible	M3
Astoria Carting Company	538-545 Stewart Avenue	Non-Putrescible	M3
City Recycling Corp	151 Anthony Street	Non-Putrescible	M3
Cooper Tank and Welding	222 Maspeth Avenue	Non-Putrescible	M3
Pebble Lane Associates[3]	57-00 47th Street	Fill	M3
Keyspan Energy	287 Maspeth Avenue	Fill	M3
New Style Recycling Corp. [2] [3]	49-10 Grand Avenue	Putrescible	M3
New Style Recycling Corp. [2] [3]	49-10 Grand Avenue	Non-Putrescible	M3
BFI Waste Systems of NJ[4]	598-636 Scholes Street	Putrescible	M3
BFI Waste Systems of NJ[4]	594 Scholes Street	Non-Putrescible	M3
BFI Waste Systems of NJ[4]	575 Scholes Street	Non-Putrescible	M3
BFI Waste Systems of NJ	115 Thames Street	Putrescible	M1
Hi-Tech Resource Recovery	130 Varick Avenue	Putrescible	M3
Total Number in Brooklyn CD #1 Study Area		**20**	
Jamaica, Queens CD # 12 Study Area			
American Recycling Management[2]	172-33 Douglas Avenue	Putrescible	M1
American Recycling Management[2]	172-33 Douglas Avenue	Non-Putrescible	M1
Regal Recycling[2] [5]	172-06 Douglas Avenue	Putrescible	M1
Regal Recycling[2] [5]	172-06 Douglas Avenue	Non-Putrescible	M1
T. Novelli[2]	94-07 Merrick Avenue	Fill	M1
T. Novelli[2]	94-20 Merrick Avenue	Non-Putrescible	M1
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.

The Transfer Stations process three categories of waste: putrescible solid waste, non-putrescible solid waste, and fill material. Transfer Stations in the City are subject to the requirements of Title 16, Chapter 4 of the Rules of the City of New York (RCNY), City Department of Sanitation (DSNY) Transfer Station Regulations. Under 16 RNCY 4, Section 4-01, Subchapter A, each category is defined as follows:

- Putrescible solid waste means "solid waste containing organic matter having the tendency to decompose with the formation of malodorous by-products";
- Non-putrescible solid waste means "solid waste, whether or not contained in receptacles, that does not contain organic matter having the tendency to decompose with the formation of malodorous by-products, including but not limited to dirt, earth, plaster, concrete, rock, rubble, slag, ashes, waste timber, lumber, Plexiglas, fiberglass, ceramic tiles, asphalt, sheetrock, tar paper, tree stumps, wood, window frames, metal, steel, glass, plastic pipes and tubes, rubber hoses and tubes, electric wires and cables, paper and cardboard"; and
- Fill material means "clean material consisting of earth, ashes, dirt, concrete, rock, gravel, asphalt millings, stone or sand."

1.1 Existing Commercial Waste Transfer Stations

Putrescible waste Transfer Stations receive commercial waste delivered in waste collection vehicles (e.g., packer trucks, roll-off containers) and typically process it by sorting out bulky items and then crushing, baling or compacting it. The processed waste is placed into transfer trailers for over-the-road long haul, or into containers for export by rail to out-of-City disposal locations. Typically, one transfer trailer or container consolidates the waste delivered by two collection vehicles. All putrescible waste processing operations occur in an enclosed building, and operate with scales as required by New York State Department of Environmental Conservation (NYSDEC) Title 6 of the New York Codes, Rules and Regulations (NYCRR), Part 360. All but four putrescible waste Transfer Stations in the four Study Areas are located in M3 zones. Those located in M1 zones are: Paper Fibers Corp. (Hunts Point, Bronx CDs #2 and #9 Study Area); BFI Waste Systems of NJ (115 Thames) (Brooklyn CD #1 Study Area); American Recycling Management, LLC (Jamaica, Queens CD #12 Study Area); and Regal Recycling Co., Ltd. (Jamaica, Queens CD #12 Study Area).

Construction and demolition (C&D) debris is picked up from demolition, new construction or renovation projects and delivered to Transfer Stations in roll-off containers. Non-putrescible waste Transfer Stations then engage in sorting, crushing and processing of the C&D material. These operations also recover materials for recycling, thereby reducing the volume of waste disposed. Processed residual waste is then loaded into transfer trailers for over-the-road long haul to out-of-City disposal locations. Recyclable materials that have been separated from the waste are typically sent to other facilities (such as scrap metal firms) for processing.

Most non-putrescible waste processing operations occur outdoors. Most facilities have paved surfaces for processing; those operating with unpaved sites are in the process of being upgraded under NYSDEC regulations. Seventy percent (70%) of the City's non-putrescible Transfer Stations operate with scales; the others record materials handled based on inbound and outbound truck volumes (cubic yards), rather than weight. All but three non-putrescible waste Transfer Stations in the four Study Areas are located in M3 zones. Those located in M1 zones are Regal Recycling, American Recycling, and T. Novelli, all in the Jamaica, Queens CD #12 Study Area.

Fill material Transfer Stations receive loads of excavated dirt, rock, concrete, etc., from construction sites, including road, utility building, repair and other public works projects. They have equipment on site that is used to sort the aggregate into various sizes; the majority of the material they receive is stored on site and recycled or reused. Most of the processed materials are stockpiled on site and reused in other projects. The operations at these Transfer Stations occur outside in open lots. All but two fill material Transfer Stations in the four Study Areas are located in M3 zones. The fill material Transfer Station located in an M1 zone is T. Novelli in the Jamaica, Queens CD #12 Study Area. Bronx County Recycling (Port Morris, Bronx CD #1 Study Area) is the only fill material Transfer Station located in an M2 zone.

As noted in Table 1-1, there are:

- Six Transfer Stations in the Port Morris, Bronx CD #1 Study Area: three putrescible and three fill material;
- Eleven Transfer Stations in the Hunts Point, Bronx CDs #2 and #9 Study Area: four putrescible, six non-putrescible and one fill material;

- Twenty Transfer Stations in the Brooklyn CD #1 Study Area: six putrescible, 11 non-putrescible and three fill material; and
- Six Transfer Stations in the Jamaica, Queens CD #12 Study Area: two putrescible, three non-putrescible and one fill material.

These 43 Transfer Stations represent 62% of the 69 Transfer Stations currently permitted in the City. After review of available information in engineering reports, DSNY Transfer Station permits, and NYSDEC Part 360 Solid Waste Permits, 24 of the 43 Study Area Transfer Stations were selected for engineering and operations surveys based on the criteria discussed below.

Putrescible Waste Transfer Stations – A majority (nine of the 15) of the putrescible waste Transfer Stations in the Study Areas were selected for the survey since the design and operation of this type of facility is more heavily regulated for environmental controls.

Non-Putrescible Waste Transfer Stations – Eleven of the 20 non-putrescible waste Transfer Stations in the Study Areas were selected for the survey. (Three of these 11 also had permits to process either putrescible waste or fill material.) These facilities, all located in the Jamaica, Queens CD #12 Study Area, are American Recycling, Regal Recycling, and Thomas Novelli. These sites were chosen because they had common physical characteristics and operating practices. They also had a range in throughput, from 200 to 1,800 cubic yards, and a range in storage capacity, from 500 to 3,000 cubic yards.

Fill Material Transfer Stations -- Four of the eight fill material Transfer Stations were selected for the survey since they shared common physical characteristics and operating practices. The chosen facilities had throughputs ranging from 500 to 2,000 cubic yards and received clean fill from sources other than parent company demolition sites.

Table 1.1-1 shows the names, locations and types (putrescible, non-putrescible or fill material) of Transfer Stations surveyed.

The objective of the field survey was to observe the existing facility and site layout, facility design features, and operating and maintenance procedures at each of the Transfer Stations in Table 1.1-1 to determine if they are in compliance with applicable regulations. The observations

Table 1.1-1
Commercial Waste Transfer Stations Surveyed

Name	Address	Type of Transfer Station	Site Zoning
Port Morris, Bronx CD #1 Study Area			
Bronx County Recycling	475 Exterior Street	Fill	M2
Felix Equities	290 East 132nd Street	Fill	M3
Waste Services of NY	920 East 132nd Street	Putrescible	M3
Total Number in Port Morris, Bronx CD #1 Study Area		**3**	
Hunts Point, Bronx CDs #2 and #9 Study Area			
A.J. Recycling	325 Faile Street	Non-Putrescible	M3
Bronx City Recycling	1390 Viele Avenue	Fill	M3
Kids Waterfront Corp.	1264 Viele Avenue	Non-Putrescible	M3
IESI NY Corp	325 Casanova Street	Putrescible	M3
John Danna and Sons	318 Bryant Avenue	Non-Putrescible	M3
Metropolitan Transfer Station	287 Halleck Street	Putrescible	M3
Paper Fibers Corp.	960 Bronx River Avenue	Putrescible	M1
Total Number in Hunts Point, Bronx CDs #2 and #9 Study Area		**7**	
Brooklyn CD #1 Study Area			
Point Recycling Ltd	686 Morgan Avenue	Non-Putrescible	M3
Waste Management of NY	215 Varick Avenue	Putrescible	M3
Waste Management of NY	75 Thomas Avenue	Non-Putrescible	M3
Astoria Carting Company	538-545 Stewart Avenue	Non-Putrescible	M3
City Recycling Corp.	151 Anthony Street	Non-Putrescible	M3
IESI NY Corp	548 Varick Avenue	Non-Putrescible	M3
BFI Waste Systems of NJ	115 Thames Street	Putrescible	M1
Hi-Tech Resource Recovery	130 Varick Avenue	Putrescible	M3
Total Number in Brooklyn CD #1 Study Area		**8**	
Jamaica, Queens CD #12 Study Area			
American Recycling Management	172-33 Douglas Avenue	Purtrescible	M1
American Recycling Management	172-33 Douglas Avenue	Non-Putrescible	M1
Regal Recycling	172-06 Douglas Avenue	Putrescible	M1
Regal Recycling	172-06 Douglas Avenue	Non-Putrescible	M1
T. Novelli	94-07 Merrick Avenue	Fill	M1
T. Novelli	94-20 Merrick Avenue	Non-Putrescible	M1
Total Number in Jamaica, Queens CD #12 Study Area		**6**	
Total Number of Transfer Stations Evaluated		**24**	

made during the field surveys identified options for improvements related to operations (waste storage and handling, location of equipment, hours of operation, etc.) and design (e.g., perimeter fencing, on-site queuing space, ventilation controls, etc.). Additional information was gathered during the surveys (e.g., scalehouse records, site plans, Transfer Station permits, Waste Hauling Vehicle weights, etc.) for use in other parts of the Study.

1.2 Facility Survey

A survey checklist that identified design and operational parameters that would be observed during the field surveys was prepared for each Transfer Station. The checklist included parameters that are required by City and state regulations governing putrescible waste, non-putrescible waste and fill material Transfer Stations, including zoning standards (e.g., 10- to 15-foot-high opaque fencing, visible signage, backflow preventers for water connections, etc.). The checklist also included additional design features that, if implemented, could improve control of noise, odor and dust emissions and ensure properly operating drainage systems. A copy of the checklist used during the surveys is included in Attachment A to this report.

During the month of June 2003, letters were sent by DSNY to the Transfer Station operators to notify them that field surveys would be conducted. (A copy of the DSNY letter is provided in Attachment B to this report.) The field surveys, which lasted approximately two to three hours each, were conducted between June 6, 2003 and August 4, 2003 at each of the Transfer Stations listed in Table 1.1-1, during peak hours of operation for that Transfer Station. Transfer Station personnel accompanied Study staff during the survey.

During field surveys the Consultant observed and recorded:

- Scalehouse operations;
- Volumes and type of waste entering the Transfer Station;
- Loading and tipping procedures;
- Waste pile management;

- Waste transfer operations and overall facility operations (including the presence/absence of operating ventilation and odor control systems); and
- Operational practices required by permit (e.g., closing of doors during waste processing).

Scalehouse transactions were observed at all nine putrescible waste Transfer Stations and the weights of inbound/outbound Waste Hauling Vehicles were recorded to determine an average weight per truck to be utilized in the environmental reviews performed in this Study. Scalehouse records were also reviewed for 11 of the 24 Transfer Stations (eight putrescible and three non-putrescible) and compared to information contained in DSNY's Quarterly Reports for use in the waste quantification section of this Study (Volume II, Commercial Waste Generation and Projections).

After completion of the surveys, unannounced visits were performed at all of the 43 Transfer Stations in the Study Areas during the months of October 2003 and November 2003. Generally, conditions observed during the survey were similar to those found during the unannounced visits, except that the use of the odor and dust control systems, and the closing of overhead doors during waste processing, were not consistently practiced. During the unannounced visits, odor control systems were sometimes not operating, manual dust suppression systems (e.g., hoses) were sometimes operating, and overhead doors were sometimes open at the putrescible waste Transfer Stations when there were no vehicles delivering waste. Slight odors were also detected at the lot lines during the unannounced visits.

2.0 FINDINGS

The findings of the field surveys have been grouped into the following main categories:

- Environmental Control Systems;
- On-Going Enforcement Items; and
- Additional Items.

"Environmental Control Systems" include engineering and/or operational modifications that will mitigate the potential effects of environmental conditions such as odor, noise and dust on the community. "On-Going Enforcement Items" include environmental, engineering and/or operational conditions/practices that are currently monitored and enforced at every Transfer Station during routine DSNY Permit and Inspection Unit (PIU) inspections. "Additional Items" include modifications that will improve operating conditions and operating efficiencies observed at several facilities, but will not directly contribute to mitigating the potential for impacts to the community.

Design and operational improvement options (including possible costs associated with implementing the alternatives) are based on observations during the field survey and the DSNY Consultant's experience with the design and operation of similar solid waste transfer stations throughout the United States.

2.1 Environmental Control Systems

The following environmental and process control systems were evaluated at each Transfer Station during the survey:

- Odor Control Systems
- Noise Control Systems
- Dust Control Systems

2.1.1 Odor Control Systems

2.1.1.1 Governing Regulations

The following regulations on odor control govern all Transfer Stations in the City.

NYSDEC Part 360 – According to 6 NYCRR 360-1.14(m), "Odors must be effectively controlled so that they do not constitute nuisances or hazards to health, safety or property."

City Department of Planning and Zoning Resolution – According to the City Zoning Resolution Section 42-24, the New York City Department of Environmental Protection (NYCDEP) regulates the emissions of odorous matter. The regulations state for M1 and M2 districts, "The emission of odorous matter in such quantities as to be readily detectable at any point along lot lines or for M3 districts that produce a public nuisance or hazard beyond lot lines is prohibited."

Rules of the City of New York – According to 16 RCNY 4-17(j), "Odors, including odors from deodorizing materials, shall not be emitted so as to violate the performance standards of the Zoning Resolution of the City of New York or applicable provisions of the Air Pollution Control Code of the Administrative Code of the City of New York or to create a public nuisance."

City Building Code – According to Title 27, Subchapter 13, Article 1, Section 27.777.1(b) of the City Building Code, "There shall be provided a system of mechanical means of sufficient capacity to exhaust six air changes per hour (ach) or one cubic foot per minute (cfm) per square foot, whichever is greater, from the largest floor in the building, using either dedicated fan equipment or the building ventilation system arranged to shut down automatically with manual override capability to exhaust one floor at a time through a roof or an approved location on an exterior wall other than a lot line wall."

2.1.1.2 Observations

Under NYSDEC 6 NYCRR Part 360 and the City Zoning Resolution, odor control systems are required at Transfer Stations that process putrescible waste. (Although non-putrescible and fill material Transfer Stations normally do not produce odors, they are prohibited from emitting odors, pursuant to 16 RCNY 4.) All nine of the putrescible waste Transfer Stations surveyed used some type of odor control system. The systems were typically comprised of portable 55-gallon drums containing a scented odor-masking agent that is pumped through an atomizer nozzle to create a fine mist. They were usually located adjacent to the entrances of the processing buildings and were capable of being moved to other locations on site, if necessary. During the field survey and subsequent follow-up visits, the odor control systems were already operating or were placed into operation, upon arrival of PIU and the Consultant at the site. Slight odors, consisting of a combination of the smell of solid waste and the masking agent, were present along site boundaries of all nine facilities surveyed. A few Transfer Stations contained state-of-the-art odor neutralizing systems, which inject a mist with an odor-neutralizing agent into the building exhaust air system.

2.1.1.3 Improvement Options

The odor control systems observed at most of the putrescible Transfer Stations surveyed when operating appeared to mask the odors released to the surrounding communities. However, use of the 55-gallon drum and atomizer is not the most efficient technology for effectively controlling odors from solid waste operations. These types of systems are subject to damage by Waste Hauling Vehicles and other equipment operating inside of the processing building. The atomizer can cover only a very small area of the processing floor and a small area around the openings to the processing building. Odors generated from the waste storage and handling operations within the processing building are not effectively controlled by this method and can be drawn out of the building through the exhaust ventilation system, or through open doors or other building openings.

The masking agents used at many of the Transfer Stations surveyed were scented (i.e., cherry- or pine-scented chemicals) and may be considered unpleasant odors to the communities near these Transfer Stations if used in large doses.

Results from the Study Area analysis on odor testing performed at sample Transfer Stations are located in Volume I, Summary Report of the Study. The odor analysis indicates that when odor controls are used, odor emissions are, at best, 38% lower than the emissions when no odor control is used at the same Transfer Station. This low percentage is due to the use of scented masking agents instead of introducing odor-neutralizing agents into exhaust air that chemically react with and remove odor-causing compounds.

The portable odor control systems described above should be replaced with permanent odor control systems, injecting a mist with a neutralizing agent in the exhaust air at all Transfer Stations where this applies. This state-of-the-art odor control option consists of a hard-piped system, typically ¼" to ¾" stainless steel pipe, suspended above the processing floor. The pipe is routed to a stainless steel misting ring with 6 to 12 nozzles that are attached to each of the exhaust fans above the processing floor. An odor-neutralizing agent, stored in a room removed from waste processing activities, is pumped up to each of the misting rings. This combination of exhaust fan and neutralizing agent misting rings neutralizes the odors in the air as the air exits the building.

With the hard-piped system, the flow of the neutralizing agent to the misting rings can also be easily regulated to account for various operating conditions (e.g., an increase or decrease in waste processing and storage, etc.) or environmental conditions (such as increasing flow during hot weather to account for increased odors). The addition of a permanent hard-piped odor control system can achieve 90% or greater reduction in odors, depending on which type of odor neutralizing agent is used and at what concentration. A neutralizing agent, such as NOMASK1000™, is suggested for use with this type of system instead of the scented masking agents currently used at the Transfer Stations surveyed. The neutralizing agent acts to neutralize active odor compounds in the air stream.

The capital costs associated with a permanent hard-piped system are typically in the range of approximately $40,000 for a smaller transfer station (approximately 16,000 square feet or less of building area) to approximately $90,000 and upwards for larger transfer stations (approximately 66,000 square feet or more of building area). The chemical costs associated with the neutralizing agent can range from $500 to $1,500 per 55-gallon drum.

To optimize the effectiveness of the recommended odor control technology, a facility's air handling system should be designed to maintain negative air pressure even when the doors are open. Title 27, Subchapter 13, Article 1, Section 27.777.1(b) of the City Building Code requires that buildings be designed with a minimum of six ach. Transfer Stations designed to meet this standard may nevertheless release odors when the doors are open. Although doors are required to be closed except when trucks are entering or leaving, as a practical matter they are often open. Open doors would be less of a problem and odors are more effectively controlled if the facility's ventilation system is sized to provide a sufficient air exchange rate, measured as the number of fresh air changes within the processing building per hour.

To maintain an adequate ventilation system for the processing buildings of the putrescible waste Transfer Stations, it is suggested that the exhaust system be designed to provide a minimum of 8 to 12 ach, depending on the size of the Transfer Station and the amount of waste to be processed. The required air exchange rate for the enclosed processing buildings should be automatically maintained. When overhead roll-up doors are required to be open, additional roof exhaust fans should automatically begin operating to maintain the required negative pressure inside the building that will prevent odors, fugitive dust or loose debris from escaping from the processing building. This, in conjunction with the odor neutralizing and misting system described above, would provide an effective odor management system.

The estimated costs associated with upgrading the existing ventilation systems at many of these Transfer Stations ranges from $50,000 for the smaller putrescible transfer stations (16,000 square feet or less) to $170,000 and up for the larger putrescible transfer stations (66,000 square feet or greater).

Results from the Study Area analyses (see Volume I, Summary Report) indicate that combined estimated effects of odors on sensitive receptors will be removed if a 90% reduction in odorous emissions were achieved at the putrescible waste Transfer Stations. Therefore, it is suggested that the putrescible Transfer Stations within the Study Areas using the 55-gallon drum and atomizer be required to install the permanent hard-piped odor control system with a misting ring and upgraded ventilation system (if necessary), as described above.

In addition to the options discussed above, DSNY's inspection process with PIU staff must ensure that appropriate housekeeping measures be maintained at the Transfer Stations in the Study Areas, which include, but are not necessarily limited to, the daily wash-down of solid waste handling areas and equipment. The interior and exterior walls of the processing building should also be washed down routinely to remove dust and dirt that can accumulate and create odor issues. These requirements are a focus of DSNY's PIU, which has a staff of inspectors empowered to enforce these housekeeping standards.

2.1.2 Noise Controls

2.1.2.1 Governing Regulations

NYSDEC Part 360 – According to 6 NYCRR 360-1.14(p) of NYSDEC Part 360 regulations, "Noise levels resulting from equipment or operations at the facility must be controlled to prevent transmission of sound levels beyond the property line at locations zoned or otherwise authorized for residential purposes…" According to Section 6 NYCRR 360-1.14(p)(4) of NYSDEC Part 360 regulations, "Mufflers are required on all internal combustion-powered equipment used at the facility. Sound levels for such equipment must not exceed 80 decibels (A) at a distance of 50 feet from the operating equipment."

City Department of Planning and Zoning Resolution – According to the City Zoning Resolution Section 42-21, "The sound pressure level (in decibels or dBA) resulting from any activity, whether open or enclosed, shall not exceed, at any point on or beyond any lot line, the maximum permitted decibel levels for the designated octave band as set forth in the table for the indicated district (M1, M2 and M3)." The Zoning Resolution also requires that "whenever a Manufacturing District adjoins a Residence District, at any point at the district boundary or

within the Residence District, the maximum permitted decibel level in all octave bands shall be reduced by six decibels from the maximums set forth in the table in section 42-213 (maximum permitted decibel levels)." Octave bands along with zoning classes are located in Attachment C to this report.

In addition, the City Noise Code §24-243 and §244 sets forth ambient noise quality zones, criteria and standards for all stationary activities and for all mobile activities whenever they may be stationary. The standards in §24-243 do not include contributions from sound sources outside of the boundaries of the source, such as public highways, vehicular traffic and over-flying aircraft. According to City Noise Code §24-227, "…no person shall cause or permit discharge into the open air of the exhaust of any device, including but not limited to any steam engine, diesel engine, internal combustion engine or turbine engine, so as to create an unnecessary noise." The City Noise Code §24-238 also limits noise levels from refuse compacting vehicles to 70 dBA when compacting, as measured at a distance of 10 feet from the center line of the face of the compacting unit.

DSNY Transfer Station Regulations – According to 16 RCNY 4A- Section 4-06 (bb)(1), "Noise levels generated by the operation of and at the Transfer Station, including the sound of transport vehicles entering or exiting the facility, shall be controlled to prevent sound levels beyond the Transfer Station property line from exceeding 67 decibels (7am-10pm) and 57 decibels (10pm-7am) in all manufacturing zones." Section 4-06 (bb)(5) also states that "mufflers are required on all internal combustion-powered equipment used at the Transfer Station, and sound levels for such equipment must not exceed 80 decibels at a distance of 50 feet from the operating equipment."

2.1.2.2 Observations

2.1.2.2.1 Putrescible Waste Transfer Stations

Pursuant to NYSDEC Part 360-11.3(3) regulations, all putrescible Transfer Stations must "…process, tip, sort, store and compact (if applicable) waste within a fully enclosed building." All of the putrescible waste Transfer Stations surveyed performed waste processing operations within an enclosed building that provided some shielding from noise levels resulting from

operations within the building on outside receptors. Additional noise was generated from equipment, such as Waste Hauling Vehicles and other processing equipment (e.g., site sweepers), operating within the site boundaries, outside of the enclosed processing building. All of the putrescible waste Transfer Stations surveyed had perimeter fencing (e.g., chain-link) around the property boundary as required by the regulations.

Two of the nine putrescible waste Transfer Stations surveyed also had a non-putrescible Transfer Station component on the same site (American Recycling and Regal Recycling). During low periods of putrescible waste processing, mobile equipment was used to process non-putrescible waste. Note that American Recycling processes non-putrescible waste indoors and Regal Recycling has recently been approved to do so.

In addition, Paper Fibers Corp. (Hunts Point, Bronx CDs #2 and #9 Study Area); BFI Waste Systems of NJ (115 Thames, Brooklyn CD #1 Study Area); American Recycling Management, LLC (Jamaica, Queens CD #12 Study Area); and Regal Recycling Co., Ltd. (Jamaica, Queens CD #12 Study Area) are located in M1 zones within 300 feet of the nearest residential area.

2.1.2.2.2 Non-Putrescible Waste and Fill Material Transfer Stations

Part 360-16 Construction and Demolition Debris Processing Facilities or DSNY Transfer Station Regulations do not specifically require non-putrescible waste and fill material Transfer Stations to operate within an enclosed processing building. These regulations do require a minimum of 10-foot-high opaque fencing for facilities that are 300 feet from a residential zone and 15 feet high for facilities less than 300 feet from residential areas. Regal Recycling, American Recycling, and T. Novelli, all in the Jamaica, Queens CD #12 Study Area, were located in M1 zones within 300 feet of a residential area. However, all 11 non-putrescible waste and four fill material Transfer Stations surveyed, including Regal Recycling, American Recycling, and T. Novelli, had some type of perimeter opaque fencing (i.e., corrugated sheet metal, chain link with barrier slats, concrete, or jersey barrier walls). The opaque fencing used at the non-putrescible waste and fill material Transfer Stations provides a visual barrier, but very little noise attenuation in comparison to a full building enclosure.

None of the non-putrescible or fill material Transfer Stations surveyed process waste in enclosed processing buildings, except for American and Regal, as noted above. They use outdoor processing equipment operating to sort, process and transfer material. The overall noise levels from these types of Transfer Stations are generally higher than those from the putrescible waste Transfer Stations.

2.1.2.3 Improvement Options

Field observations and the results from the Study Area analyses (see Volume I, Summary Report), indicate that the largest contributor to noise levels for all types of Transfer Stations is off-site queuing of collection vehicles. However, there is no specific regulation against trucks queuing on a street. There is a regulation that prohibits trucks from idling their engines for more than three minutes, while standing still. Because truck queues are typically moving, this regulation is not an effective method of controlling queuing. The most effective method for controlling off-site queuing is providing adequate on-site queuing space to handle anticipate truck traffic. This design feature is being required in the permitting of new facilities but is not a practical option for many existing facilities.

2.1.2.3.1 Putrescible Waste Transfer Stations

Should existing facilities seek permits to expand their facilities, particularly those Transfer Stations located in M1 zones, there would be an opportunity to provide for on-site queuing. Noise from on-site mobile and processing equipment is not an issue, since these facilities operate indoors.

2.1.2.3.2 Non-Putrescible Waste and Fill Material Transfer Stations

Noise impacts may arise at property boundaries where on-site mobile and processing equipment operates outside, but analyses showed that there were no impacts at sensitive receptors. In recent years, when Transfer Stations have sought permit renewals, the NYSDEC has focused on design measures to limit off-site queuing.

2.1.3 Dust Controls

2.1.3.1 Governing Regulations

NYSDEC Part 360 – According to 6 NYCRR 360-1.14(k): "Dust must be effectively controlled so that it does not constitute a nuisance or hazard to health, safety or property. The facility owner or operator must undertake any and all measures as required by the department to maintain and control dust at and emanating from the facility."

City Department of Planning and Zoning Resolution – According to the City Zoning Resolution Section 42-233 (e), "In all manufacturing districts, all storage areas, yards, service roads or other untreated open areas developed within the boundaries of the zoning lot shall be improved with appropriate landscaping or paving, or treated by oiling or any other means as specified in the rules and regulations adopted by the NYCDEP, so that dust or other types of air pollution borne by the wind from such sources shall be minimized."

DSNY – According to 16 RCNY 4-4-06 (ff), "Where a Transfer Station is partially or fully enclosed, exhaust air shall be vented through air filters, dust collectors, and/or other equipment which remove particulate matter and malodorous by-product."

2.1.3.2 Observations

2.1.3.2.1 Putrescible Waste Transfer Stations

During visits, dust from waste processing operations (i.e., tipping and transferring of waste) was observed exiting the putrescible waste Transfer Station processing buildings through the ventilation system at all nine Transfer Stations surveyed. While waste was being processed, dust was controlled by using water hoses in the processing buildings to spray water on the waste. This method was inadequate as visible dust was being exhausted from the building through the ventilation system.

2.1.3.2.2 Non- Putrescible/Fill Material Transfer Stations

Of the 11 non-putrescible waste and four fill material Transfer Stations surveyed, none were observed to have effective dust control systems. Two of the non-putrescible waste Transfer Stations had misting systems for dust control: water sprayed through atomizing systems located along the top of the perimeter fencing. The remaining nine non-putrescible and four fill material Transfer Stations had garden sprinklers located near the perimeter fencing that direct the spray toward the section of the pile closest to the fence, but did not reach all sections of the piles or piles located further away from the fence.

All non-putrescible waste and fill material Transfer Stations had hoses that were turned on and directed towards the operating areas by staff for dust control. During the surveys, the Consultant observed the atomizing systems in operation, but they did not appear effective since the amount of spray was small and the direction of spray was influenced greatly by prevailing winds. During other visits to the Transfer Stations throughout the Study with DSNY PIU officers, dust control measures were not implemented until operators observed the PIU officers arriving on site.

Emissions of visible dust, i.e., particulate matter greater than 10 microns in diameter, is governed by the above-referenced regulations. Results from the Study Area analyses (see Volume I, Summary Report) indicate that the combined estimated impacts of dust particles smaller than 10 microns in diameter (PM_{10}) are below National Ambient Air Quality Standards (NAAQS). The major sources of PM_{10} are associated with tailpipe emissions from diesel-powered vehicles and re-entrained dust, while for dust particles less than 2.5 microns in diameter ($PM_{2.5}$) the major sources are associated with emissions from diesel-engine non-road vehicles. Dust emissions can be reduced with the measures suggested in Section 2.1.3.3.

2.1.3.3 Improvement Options

Based on the observations described above, the methods (hoses, sprinklers, etc.) used by the Transfer Stations to control dust were not effective. It is suggested that all Transfer Stations (putrescible, non-putrescible and fill) be required to install permanent dust control systems, with water hoses as a backup system, to provide an effective means of dust control.

2.1.3.3.1 Putrescible Waste Transfer Stations

The Consultant recommends that a hard-piped permanent water misting dust control system be installed within the processing building at putrescible waste Transfer Stations over all areas where waste is tipped or processed. The system commonly used in the solid waste industry involves pumping water through a ¼" to ¾" steel pipe to high-pressure mist nozzles that atomize water, creating a fine mist that reduces dust generation. These systems, when operated properly, are effective at reducing as much as 90% of the dust generated at putrescible transfer stations.

Hand-held hoses could be used in combination with these systems for additional control during periods of high dust generation (e.g., during waste tipping) and to wash down the floor and equipment in the processing building and on the site.

These systems do not require a lot of maintenance. The systems could be set on a timer that begins misting every 10 to 15 minutes and continuously operates for 5 to 10 minutes. The costs associated with hard-piped misting systems range from $66,000 for smaller putrescible transfer stations to approximately $120,000 for larger putrescible transfer stations.

2.1.3.3.2 Non-Putrescible/Fill Material Transfer Stations

PIU currently enforces the use of hand-held garden hoses and sprinklers to keep dust down from waste piles at non-putrescible and fill Transfer Stations. This method, particularly at facilities that do not operate in open lots, is a proven and effective means of controlling dust if the waste piles are continuously wetted down. The Consultant recommends that PIU continue to enforce the continuous spraying down of waste piles at open-air facilities. The Consultant also recommends the installation of a hard-piped water misting system as described in Section 2.1.3.3.1 for any non-putrescible Transfer Stations that perform waste processing operations within an enclosed building.

An effective alternative to using only hand-held hoses at these types of open-air Transfer Stations is a combination of water sprinklers or misters and hand-held water hoses. The system would use several oscillating water sprinklers mounted on a stand positioned near the waste

storage pile(s). The height of the stand should be adjustable to accommodate the varying heights of the waste pile during waste receiving and processing operations. Several of these mounted sprinklers could be installed around the perimeter of the storage pile area to ensure that the entire pile is evenly wetted down. Water could be routed to the sprinkler and stand with flexible hoses if a portable system is desired, or with hard steel or plastic pipe if a permanent system is preferred. This type of system, if used properly in tandem with portable hand-held hoses, could effectively reduce fugitive dust emissions from escaping into the atmosphere and the surrounding community.

The costs associated with the oscillating water sprinkler and stands are approximately $1,700. The non-putrescible Transfer Stations surveyed would require 6 to 12 of these sprinkler and stand assemblies, in addition to the hand-held hoses currently used, to effectively control fugitive dust from processing operations.

2.2 On-Going Enforcement Issues

The following were evaluated at each Transfer Station during the survey as on-going enforcement issues.

2.2.1 Drainage Systems

2.2.1.1 Governing Regulations

NYSDEC Part 360 – According to 6 NYCRR 360 -11.4(f), "All [putrescible Transfer Station] floors must be free from standing water. All drainage from cleaning areas must be discharged to sanitary sewers, authorized sanitary waste treatment facilities, or a corrosion-resistant holding tank. Disposal of leachate and drainage from cleaning areas and holding tanks must be in compliance with all applicable federal and state regulations."

NYSDEC Part 360 – According to 6 NYCRR 360 -16.4(g), "[Non-putrescible and fill material Transfer Stations] must have adequate drainage, be drained and free of standing water. All processed and unprocessed C&D debris must be stored and managed to minimize leachate

production." Note that NYSDEC under its authority to issue State Pollution Discharge Elimination System (SPDES) permits is requiring the installation of paved areas with drainage control at the non-putrescible facilities that currently do not have them.

New York City Health Code – The New York City Health Code Article 143 requires that "sewage from any building or premises shall be discharged directly into the municipal sewage disposal system or into a facility connecting with such municipal system, but if there is no public sewer or other part of the municipal sewage disposal system to which a connection can be made from the building or premises concerned, or if it is impracticable to discharge sewage from such building or premises into the municipal system, a private system may be used."

DSNY – According to 16 RCNY 4-4-06 17(E), "A system for the sanitary disposal of sewage and waste waster be functioning at the Transfer Station in accordance with provisions of Article 143 and 145 of the New York City Health Code and all applicable laws and rules governing the discharge of sewage and waste water."

2.2.1.2 Observations

2.2.1.2.1 Putrescible Waste Transfer Stations

During the survey, floor slabs within the processing building at six out of nine putrescible waste Transfer Stations were worn with some exposed rebar from waste processing and transfer operations. The corrosive nature of the waste stored on the floor, and the abrasive damage caused by the front-end loader buckets scraping the floor during pile management, are contributing factors to wearing of the floor slabs. This wearing effect reduces the structural integrity of the concrete slabs and prevents process water from being properly channeled to the floor drains. The process water, in turn, contributes to further degradation of the concrete floor slab, which poses potential safety problems to employees, and contributes to odor problems from the collecting liquids in the processing building, if drainage is insufficient.

All nine of the putrescible waste Transfer Stations had floor drains that were not kept clear of debris, and many were clogged or showed signs of clogging. Process water was observed to collect and stand either around or near the floor drains. Freestanding liquids that have been exposed to municipal solid waste will generate odors if left untreated, particularly when temperatures are high.

2.2.1.2.2 Non-Putrescible Waste/Fill Material Transfer Stations

Four of the 11 non-putrescible waste Transfer Stations were open, relatively small lots with no paved surfaces or visible stormwater management systems in place. Note that this situation is being rectified by NYSDEC under its SPDES permit authority. Excavators and loaders operate on top of the C&D debris pile, excavate the material and place it into transfer trailers on the site. In some cases, it appeared as though the equipment excavated some of the dirt from the lot. None of the non-putrescible waste Transfer Stations had a buffer or setback between the operations and the perimeter fencing. During the surveys, dirt and mud were present on the roads directly outside of the site. During periods of rain or application of water for dust control, the process water drained directly into the soil on site or ran off site into nearby roads or adjacent parcels.

The remaining seven non-putrescible waste Transfer Stations were open, larger lots with paved surfaces (reinforced concrete slabs or asphalt paved). Since waste was present on most of the lot, only a small portion of the paved area was visible. The paved surfaces on the visible portions of the lot at all seven Transfer Stations showed signs of wear and tear. These Transfer Stations with paved surfaces had no buffer or setback between the operations and the perimeter fencing. During the surveys, dirt and mud was observed on the roads directly outside of the facilities. During periods of rain or application of water for dust control, the process water drains directly into the soil below the site and runs over clogged drains into nearby roads or adjacent parcels.

The fill material Transfer Stations typically consist of an unpaved open lot. None of the four fill material Transfer Stations surveyed had visible signs of stormwater management or drainage systems, and little or no buffer or setback between processing operations and the perimeter fencing. During the surveys, dirt and mud was observed on the roads directly outside many of the facilities.

2.2.1.3 Improvement Options

2.2.1.3.1 Putrescible Waste Transfer Stations

The Consultant recommends that PIU continue to monitor the condition of process drains at all putrescible Transfer Stations and enforce the routine daily cleaning of drains to properly process water removal and treatment, and prevent the accumulation of standing water that attributes to odors. Stronger enforcement of the daily 30-minute "clean time" pursuant to 16 RCNY 4-17(i) would also greatly reduce the amount of waste and debris on the floor that contributes to drain clogging.

In addition, the Consultant recommends that PIU monitor the condition of the existing floor slabs at all putrescible waste Transfer Stations, and require the repair or replacement of concrete floors that have been worn down to rebar. The floors should be repaired/replaced using high-strength concrete (about 6,000 pounds per square inch or greater) with low moisture to minimize voids where process water and corrosive chemicals in the waste can penetrate and damage the concrete slab.

The Consultant also recommends that all mobile equipment operating in the processing building that has the potential to damage the floors (e.g., front end loaders) be equipped with rubber blades to reduce the abrasion and wear caused by metal blades scraping on the concrete floor slab. The cost of repairing damaged floor areas with high-strength concrete floors will vary based on the extent of the damaged floor area. The cost of installing high-strength concrete can range from $40 to $50 per cubic foot installed. The rubber blades on a front end loader range from $250 to $300 each, which means that the front end loaders can be retrofitted with rubber blades at a cost of less than $500 per front end loader installed. On average, a putrescible waste Transfer Station has at least one front end loader continuously operating, with at least one spare front end loader that may be used during peak delivery periods or when the other loader is down for maintenance.

2.2.1.3.2 Non-Putrescible Waste/Fill Material Transfer Stations

It is suggested that all non-putrescible waste Transfer Stations that operate on unpaved lots be required to manage processing operations on an area that is paved (i.e., concrete slab or pad) with an adequate stormwater management system. Currently, NYSDEC, under its authority to issue SPDES permits, is requiring the installation of paved areas with drainage control at the non-putrescible facilities that currently do not have them (City Recycling, Cooper Tank and Welding, and Point Recycling, all in Brooklyn CD #1 Study Area). Positive drainage should be provided for these facilities so that runoff is routed away from the buildings and material storage areas.

The Consultant also recommends that PIU continue to strictly enforce that all non-putrescible and fill Transfer Stations maintain operable drainage systems that include sediment interceptors to prevent uncontrolled runoff from these facilities.

To minimize the potential for tracking dirt and mud off site, the Consultant suggests that all non-putrescible waste and fill material Transfer Stations have a minimum setback of one truck length (25 to 30 feet long and 10 feet wide for a 20-cubic-yard trailer) between the Transfer Station entrance and exit, and the processing and storage areas on the site, in which materials cannot be processed or stored. In addition to this minimum setback, a truck/tire washing station is also suggested. It would consist of a 650-square-foot concrete deck with trench drains located near the exit of the Transfer Station. Employees of the Transfer Stations, or the drivers themselves, would wash all truck tires with hoses prior to exiting the facility. A truck/tire washing station should be required in this location to mitigate the potential for off-site tracking of dirt and mud. The cost associated with the tire washing station is approximately $60,000.

Results from the Study Area on-site air quality analyses indicated that the dust and dry mud tracked on the roadways near the facility entrance/exit by Waste Hauling Vehicles and equipment contributed to 87% of the total predicted particulate emissions. If the roadways did not have dirt or mud tracking from the Transfer Stations, particulate emission would be reduced by 58%.

2.3 Additional Items

The following were evaluated at each Transfer Station as "Additional Items" that include modifications that will improve operating conditions and operating efficiencies observed at several facilities, but will not directly contribute to mitigating the potential for impacts to the community:

- Fire Protection
- Safety

2.3.1 Fire Protection

Four out of the nine putrescible waste Transfer Stations surveyed have automatic Fire Suppression systems. The City Building Code requires that the Transfer Stations be equipped with working fire extinguishers. Of the nine putrescible facilities surveyed, only one did not have sufficient fire extinguishers. The Consultant suggests that all Transfer Stations have sufficient fire extinguishers throughout the facility.

2.3.2 Safety

At all of the 24 Transfer Stations surveyed, some employees were not wearing safety boots, orange vests and/or hard hats during waste handling operations, and the majority of these Transfer Stations did not have adequate natural or artificial lighting inside of the processing building.

Several employees were not wearing dust masks when dust levels inside of the processing buildings and on site at most of the 24 Transfer Stations were high. The high dust levels also made visibility poor inside of the enclosed processing buildings at the putrescible waste Transfer Stations. The dust control systems would alleviate this problem as discussed in Section 2.1.3.3.

3.0 COSTS FOR FACILITY IMPROVEMENTS

Table 3-1 contains a summary of improvement options to the Transfer Stations and an order-of-magnitude range of costs that could be associated with each option.

Table 3-1
Estimate of Probable Capital Costs for
Commercial Transfer Station Upgrades/Improvements

Environmental/Process Control	Facility Size & Type[(1)]	Design/Operational Options Estimated Capital Cost
Odor Control Systems	**Putrescible (Square Feet)**	**1-Hard Piped Odor Control**
Small Building	< 16,000	$38,000
Medium Building	27,000	$60,000
Large Building	> 66,000	$88,000
Noise Control Systems	**Putrescible (Square Feet)**	N/A
Small Building	< 16,000	
Medium Building	27,000	
Large Building	> 66,000	
Small Lot	< 23,000	
Medium Lot	63,000	
Large Lot	> 368,000	
Noise Control Systems	**Non-Putrescible & Fill Material (Square Feet)**	N/A
Medium Lot	27,000	
Large Lot	39,000	
Small Building	11,000	
Medium Building	21,000	

Table 3-1 (Continued)
Estimate of Probable Capital Costs for
Commercial Transfer Station Upgrades/Improvements

Environmental/Process Control	Facility Size & Type[(1)]	Design/Operational Options Estimated Capital Cost	
Dust Control Systems	**Putrescible (Square Feet)**	**1-Hard Piped Dust Control**	
Small Building	< 16,000	$66,000	
Medium Building	27,000	$80,000	
Large Building	> 66,000	$120,000	
Dust Control Systems	**Non-Putrescible & Fill Material (Square Feet)**	**1-Sprinkler Systems**	
Medium Lot	31,700	$1,700	
Large Lot	55,800	$1,700	
Medium Building	18,000	N/A	
Large Building	26,600	N/A	
Drainage Systems	**Putrescible (Square Feet)**	**1-High-Strength Concrete**	
Small Building	< 16,000	$135,000	
Medium Building	27,000	$226,000	
Large Building	> 66,000	$550,000	
Drainage Systems	**Non-Putrescible & Fill Material (Square Feet)**	**1-Paving & Storm Water Management**	**2-Setback & Tire Washing Station**
Medium Lot	31,700	$50,000	$60,000
Large Lot	55,800	$200,000	$60,000

Note:
(1) Facility size and type based on prototypical designs.

4.0 CONCLUSIONS

Transfer Stations are subject to stringent permitting and regulatory requirements by NYSDEC, DSNY, City Zoning Regulations and the City Building Code. Based on the facility surveys and additional unannounced (or "drive-by") visits to the Transfer Stations in the Study Areas during the course of the Study, along with the review of complaints and violations issued by the PIU, it appears that many of these Transfer Stations are operated in compliance with the permitting and regulatory requirements. However, the Consultant has identified several design and operational improvement options that can be applied to each of the different types of Transfer Stations surveyed in the Study. These design and operational improvement options will aid in further reducing the potential for impacts to the community.

In addition to the specific improvement options listed below, it is recommended that DSNY implement the following regulatory requirements:

1. An annual inspection of each Transfer Station is currently performed at all Transfer Stations by an independent engineer that evaluates each facility's compliance with existing regulations. The inspection includes a brief description of the facility and operations and a list of on-site equipment. The inspection report summarizes each facility's adherence to the performance standards specified in the City Department of City Planning (NYCDCP) Zoning Resolution as it relates to noise, vibration, smoke, dust and particulate, odorous matter, toxic and noxious matter, radiation hazards, fire and explosive hazards, humidity, heat or glare. The test report also includes sound level testing for noise impacts, and particulate emissions testing. In addition to these items, the Consultant recommends that the following be included as part of the annual inspection: a detailed review of record keeping and reporting to determine the actual waste processed annually by the facility; the condition of facility building structures and stationary and mobile equipment; site conditions; housekeeping practices; and the operating condition of the safety, emergency, security, process and environmental control equipment. The summary report should be submitted to the DSNY for review and include, but not be limited to: a summary of the inspection; any noted deficiencies or violations of existing

permits; and a compliance plan (including a timeframe for implementation and explanation of how they will comply) to address deficiencies or violations; a summary of the annual violations issued by DSNY or others; and an assessment of whether the violations have been addressed through modified engineering or operational practices.

2. A requirement for existing Transfer Stations to adopt and implement the control options recommended in Section 4.1 below. Once modified regulations are promulgated, Transfer Station owners should be required within six months to submit a written plan to DSNY for implementing these modifications. The plan should include a detailed description and an estimated schedule of compliance for all improvements, and engineering drawings, specifications, and additional supplemental information.

4.1 Commercial Waste Transfer Stations

The following section identifies several design and operational improvement options that can be applied to each of the different types of Transfer Stations surveyed in the Study. The different control options and recommendations are listed below in order of decreasing priority from a community standpoint of the impact being controlled by the technology, and the relative ease and costs of the technologies implementation at each type of Transfer Station.

1. Odor Control (Putrescible Transfer Stations) – The existing odor control systems used at most of the putrescible Transfer Stations surveyed were portable systems that utilize a 55-gallon drum of a masking agent chemical distributed by a motorized atomizer. Although no significant odor effects were discovered at the Transfer Stations, these systems should be upgraded. For the types of facilities surveyed, the most common and cost effective option with a high odor removal efficiency (as high as 90%) is a hard-piped permanent misting ring system with an odor neutralizing chemical. These systems can be easily implemented at all of the Transfer Stations surveyed, and they are relatively cost effective. The capital costs associated with such a system are typically in the range of approximately $38,000 for a smaller transfer station (approximately 16,000 square feet or less of building area) to approximately $88,000 for a larger transfer station (approximately 66,000 square feet or more of building area). The chemical costs

associated with the neutralizing agent can range from $500 to $1,500 per 55-gallon drum. It should be stressed that these systems are more effective if used along with a properly sized ventilation system as described below.

2. Ventilation Systems – The ventilation systems observed at some of the Transfer Stations did not appear to be operating properly during the site surveys (e.g., fans not running). A supply/exhaust air system must be installed that provide sufficient air exchange rates, measured as fresh air changes within the processing building per hour (ach). To maintain an adequate ventilation system for the processing buildings of the putrescible waste Transfer Stations, it is suggested that the ventilation systems be designed to provide a minimum of 8 to 12 ach, depending on the size of the Transfer Station and the amount of waste being processed. The required air exchange rate for the enclosed processing buildings should also be automatically maintained when overhead roll-up doors open; additional roof exhaust fans should automatically begin operating to maintain the required negative pressure inside the building, thereby preventing odors, dust or loose debris from escaping from the processing building. The costs associated with upgrading the existing ventilation systems at the Transfer Stations with a system similar to the one described above (where necessary) are typically in the range of approximately $50,000 for smaller transfer station (approximately 16,000 square feet or less of building area) to approximately $170,000 and upwards for larger transfer stations (approximately 66,000 square feet or more of building area).

3. Drainage Systems (Non-Putrescible and Fill Material Transfer Stations) – It is suggested that all non-putrescible waste Transfer Stations that operate on open dirt lots be required to manage processing operations on a paved surface with a stormwater management system and/or sediment interceptors in place. Currently, most of the non-putrescible Transfer Stations that are not paved are required under a NYSDEC consent order to install paved surfaces. Paved surfaces will minimize the potential for tracking dirt and mud off site.

4. Drainage Systems (Putrescible Transfer Stations) – During the site surveys, the concrete pads observed at the majority of the Transfer Stations were observed to be severely worn and degraded with exposed rebar in areas. These damaged and worn areas of floor are

prone to pooling process water, and can contribute to improper drainage and odor problems if the water is allowed to accumulate for too long. The Consultant recommends that the severely damaged and worn areas of floor (i.e., where rebar was observed) be repaired with high-strength concrete before further damage occurs. The repaired sections of floor should be adequately sloped towards the trench drains to provide proper drainage flow, and drainage from the processing floor should be routed through a system of trench drains located in the processing building floor. It is suggested that, along with repairing the damaged and worn areas of floor that all mobile equipment operating within the processing building be equipped with rubber blades to reduce the abrasion and wear caused by the metal blades scraping on the concrete floor slab. The cost for repairing the damaged sections of floor with high-strength concrete is approximately $40 to $50 per cubic foot installed, including the costs for rebar replacement. If installed properly the repaired sections of floor can last up to five to ten years depending on level of use. The rubber blades on a front end loader range from $250 to $300 each, which means that the front end loaders can be retrofitted with rubber blades at a cost of less than $500 per front end loader installed.

5. Dust Control (Non-Putrescible and Fill Material Transfer Stations) -- The best method of controlling dust at these types of open air facilities, outside of enclosing the processing operations within a building, is through a combination of water sprinklers and hand-held water hoses. The water sprinkler system would use several oscillating water sprinklers mounted on a stand positioned near the waste storage pile(s). This type of system, if used properly in tandem with portable hand-held hoses, could effectively reduce fugitive dust emissions from escaping into the atmosphere and the surrounding community. The costs associated with the oscillating water sprinkler and stands are approximately $1,700. The non-putrescible Transfer Stations surveyed would require six to twelve of these sprinkler and stand assemblies, in addition to the hand-held hoses currently used, to effectively control fugitive dust from processing operations.

6. Dust Control (Putrescible Transfer Station) – The generation of dust from putrescible waste operations is minimal, occurring mostly during the tipping of waste and loading of waste onto transfer trailers. However, the current dust control method used at the putrescible Transfer Stations surveyed -- a hand-held garden hose -- did not appear to be

effectively controlling fugitive dust emissions from escaping the processing building. It is recommended that a system to effectively mitigate dust emissions be required in all putrescible Transfer Stations. The Consultant recommends the installation of a hard-piped permanent water misting dust control system in the processing building over areas where waste is processed. These systems are effective at controlling the dust generated at the putrescible Transfer Stations and can reduce dust emissions by approximately 90%. Hand-held hoses should be used in combination with these systems for additional control during periods of high dust generation and to wash down the floor, walls and equipment in the processing building and on the site. The costs associated with hard-piped misting systems range from $66,000 for smaller putrescible transfer stations to approximately $120,000 for larger putrescible transfer stations.

7. Noise Control (All Transfer Stations) – The results of field observations and the Study Area analyses (see Volume I, Summary Report) indicated that the largest contributors to noise levels for all types of Transfer Stations is off-site queuing collection vehicles. However, the noise analyses showed that, despite off-site queuing of collection vehicles at many Transfer Stations in the Study Areas, there were no impacts at sensitive receptors. There is also no specific regulation that prohibits trucks from queuing on a street. It should be noted, however, that NYSDEC is requiring that adequate on-site queuing space be provided for a permit to issued for a new facility. NYSDEC is also focusing on design measures and permit conditions to limit off-site queuing as part of the permit renewal process for existing facilities.

ATTACHMENT A

COMMERCIAL WASTE TRANSFER STATION SURVEY

NEW YORK CITY DEPARTMENT OF SANITATION
COMMERCIAL WASTE TRANSFER STATION SURVEY

PUTRESCIBLE/ NONPUTRESCIBLE/ FILL (Circle One)

Date of Inspection: _____

General Information

Facility Name:_____ Hours of Operation (Permit):_____
Owner/Operator:_____ Hours of Operation (Actual):_____
Address:_____
_____
_____

Contact Person:_____ Title:_____
Phone Number:

Facility in Operation Since: _____

Permit Information

DSNY Permit #: _____ Is permit current: ☐Yes ☐No
Permit Expiration Date:_____
Permitted Waste Capacity: _____tpd
Comments:_____
_____
_____

NYSDEC Permit #:_____ Is permit current: ☐Yes ☐No
Permitted Waste Capacity: _____tpd
Permit Expiration Date:_____
Comments:_____
_____
_____

Equipment Description (List and Describe types of equipment used at the facility for loading, unloading, lifting, compacting etc.)

_____
_____
_____
_____
_____
_____
_____

Facility Information

Vehicle Maneuvering Area in an Enclosed facility: ☐Yes ☐No
Waste Processing Operation in an Enclosed facility: ☐Yes ☐No
Waste Loading Operation in an Enclosed Facility: ☐Yes ☐No
Building Description (one large building with all operations, separate buildings for different operations): _____

Number of delivery stalls: _____
Number of delivery vehicles per day (average and peak): _____
Type and size of delivery vehicles (i.e. all packer trucks, roll-offs, any trailers): _____

How many load out hoppers/spaces: _____
Open top loading or compactor (i.e. front-end loader/grapple crane): _____

Describe how doors are closed or lids/covers are put in place: _____

Is there a perimeter fence: ☐Yes ☐No
Height of Perimeter Fence: _____ Opaque Fence: ☐Yes ☐No
Exterior Condition/Description: _____

How much vehicle queuing space is available on site (i.e. number of lanes, length, or do they queue an a street): _____

Does facility have a scale on site: ☐Yes ☐No
Number of inbound scales: _____
Number of outbound scales:_____
Type of Scale: _____
Date of Inspection by NY Weights and Measures: _____
Does the facility have scale data recording system: ☐Yes ☐No
Size of scalehouse: _____
Description of scale operations (hard ticket system, electronic): _____

Condition of scales/scale house: _____

Describe procedure if vehicles are overweight & how does their load get adjusted: _____

Does the Facility have adequate interior lighting? ☐Yes ☐No
How much natural lighting: _____%
Comments: _____

Ventilation System: ☐Yes ☐No
Description (number of supply and exhaust fans, locations, etc.): _____

Fire Suppression System: ☐Yes ☐No
Is System tested Frequently: ☐Yes ☐No
Last Date Tested: _____
Is a fire pump used: ☐Yes ☐No
Type of System (wet, dry pipe, etc): _____
Are there Fire extinguishers on site: ☐Yes ☐No
Comments: _____

Dust Control System: ☐Yes ☐No
Description/Comments (Include the location(s) of operation and times when operated):

Odor Control System: ☐Yes ☐No
Type of odor agent used (if applicable): _____
Description/Comments (Include the location(s) of operation and times when operated):

Electrical Service Information: _____

Does interior of facility have a reinforced concrete deck (Tipping floor, loading floor, waste processing floor etc.): ☐Yes ☐No
Condition of deck (Include vehicle maneuvering area, tipping floor, loading floor and processing area):_____

Are Roll-up Doors Working Properly: ☐Yes ☐No
Number of Roll-up doors/Condition: _____
Comment:_____

Push Walls: ☐Yes ☐No
Approx. Height: _____
Material: _____
Condition: _____

Condition of Roof/insulation:_____

General Comments of Facility physical properties: _____

Operations

Number of Shifts: _____
Number of Employees per shift: _____
Is Waste Stored on site in a designated storage area: ☐Yes ☐No
Volume of Waste: _____ Maximum allowable storage Time: _____
Maximum allowable storage capacity:_____
Are containers or trailers stored on site: ☐Yes ☐No
Is waste compacted: ☐Yes ☐No
Describe compaction if applicable: _____

Is tipping floor cleared daily: ☐Yes ☐No
How is waste removed from the site (transfer trailers, rail, etc.): _____
_____
_____

Describe sorting or material recovery operations: _____
_____
_____
_____

Describe procedure for handling unacceptable waste (medical, etc.): _____
_____
_____
_____

Describe time constraints for facility operation (Include constraints for inbound and out bound delivery trucks): _____
_____
_____
_____

Is odor control system working properly: ☐Yes ☐No
Is there a strong odor outside of the building?: ☐Yes ☐No
Describe the odor:
Comments: _____
_____
_____

Is dust control system working properly: ☐Yes ☐No
Comments: _____
_____

Are Doors kept closed during operations: ☐Yes ☐No

Are floor drains working properly: ☐Yes ☐No
Are floor drains cleared of debris: ☐Yes ☐No
Does facility have an oil/water separator: ☐Yes ☐No
Is oil/water separator working properly: ☐Yes ☐No
Comment: _____

_____

_____

_____

Is the ventilation system operational: ☐Yes ☐No
Supply Fan(s) Operating Data:
Number: Fan HP:_____ CFM:_____
Exhaust Fan(s) Operating Data:
Number: Fan HP:_____ CFM:_____
Do exhaust fans have dust filters: ☐Yes ☐No
Are filters working properly: ☐Yes ☐No
Comment: _____

_____

_____

_____

Does facility Have potable water connection: ☐Yes ☐No
Does facility have backflow prevention: ☐Yes ☐No
Is backflow prevention operational: ☐Yes ☐No
Is process water discharged to sewer system: ☐Yes ☐No
Is facility located near water body: ☐Yes ☐No
If facility is located near a body of water is there any visible contamination:
☐Yes ☐No
Does facility connect to city sewer system: ☐Yes ☐No
Condition: _____

Describe facility housekeeping procedures (Include equipment and personnel):_____

_____

_____

_____

_____

Describe how the housekeeping program is working or not working: _____

_____

_____

Describe the maintenance support is available at the facility (Include equipment and spare parts storage: _____

_____

ATTACHMENT B

NOTIFICATION LETTER

May XX, 2003

Waste Services of NY
920 East 132nd Street
Bronx, NY 10454

Re: Review of Transfer Station Operations and Material Processing

Dear Mr. XX:

As part of the Commercial Waste Management Study being conducted in accordance with Local Law 74 requirements, the New York City (City) Department of Sanitation (DSNY), will be performing a survey of commercial waste transfer stations (transfer stations) in the City. The survey will be conducted to assess the current design and operation of selected transfer stations, and obtain sample data correlating the weights and volumes of commercial waste collection and transfer vehicles.

In addition, the DSNY will review the quarterly waste reports submitted for your transfer station in the year 2002. During the survey, the DSNY will need to:

1. Observe operations and review the transfer station design;
2. Obtain copies of electronic supporting documentation from your scale house records that correlate to the numbers reported on the quarterly reports to confirm the source of information;
3. If you do not use scales, obtain hard copies of the supporting documentation;
4. Observe and record the quantity, capacity, and weights of up to 13 outbound and inbound vehicles and types of materials in each load to determine typical densities of materials as your transfer station handles them; and
5. Observe up to 14 inbound vehicle loads after tipping to determine the types of material in the loads.

The DSNY will be visiting your transfer station this week or the week of May XX, 2003 during peak hours to review the operations at your facility and observe inbound and outbound vehicles. The DSNY will arrive at your facility approximately one hour before the peak hour on the day of the visit and will plan to spend up to four hours reviewing and observing operations. In the interest of expediting the review process, DSNY requests that copies of the scale house summaries from January 2002 to April 2003 be compiled and made available for review at the time of the site visit. The DSNY would like to stress that it intends on performing these site visits without disrupting the normal operations of the transfer station.

A member of the Permit and Inspection Unit will call you this week to discuss, based your estimated peak hour of operations, the date and time during which we will be visiting your facility. Your cooperation in this matter is greatly appreciated.

Sincerely,

ATTACHMENT C

MAXIMUM PERMITTED SOUND PRESSURE LEVEL TABLE
MAXIMUM PERMITTED STEADY STATE VIBRATION DISPLACEMENT TABLE
MAXIMUM PERMITTED IMPACT VIBRATION DISPLACEMENT TABLE

Maximum Permitted
Sound Pressure Level
(Decibels)

Octave Band (Cycles per second)	District		
	M1	M2	M3
20 to 75	79	79	80
75 to 150	74	75	75
150 to 300	66	68	70
300 to 600	59	62	64
600 to 1,200	53	56	58
1,200 to 2,400	47	51	53
2,400 to 4,800	41	47	49
Above 4,800	39	44	46

Maximum Permitted
Steady State Vibration Displacement
(Inches)

Frequency (cycles per second)	District		
	M1	M2	M3
10 and below	.0008	.0020	.0039
10-20	.0005	.0010	.0022
20-30	.0003	.0006	.0011
30-40	.0002	.0004	.0007
40-50	.0001	.0002	.0005
50-60	.0001	.0002	.0004
60-and over	.0001	.0001	.0004

Maximum Permitted
Impact Vibration Displacement
(Inches)

Frequency (Cycles per second)	District		
	M1	M2	M3
10 and below	.0016	.0040	.0078
10-20	.0010	.0020	.0044
20-30	.0006	.0012	.0022
30-40	.0004	.0008	.0014
40-50	.0002	.0006	.0010
50-60	.0002	.0004	.0008
60-and over	.0002	.0002	.0008

APPENDIX K

EFFECTIVENESS OF ENFORCEMENT

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1.0 INTRODUCTION

Transfer Stations are facilities where municipal solid waste is unloaded from collection vehicles and, after any sorting or processing, reloaded onto larger long-distance transport vehicles for shipment to landfills or other treatment or disposal facilities or for recycling. Transfer Stations are an integral part of New York City's (City) waste management program; they combine loads of several individual waste collection trucks, separate recyclable material for proper processing and produce a single shipment, thereby reducing the labor, cost and vehicles needed to transport waste to distant disposal sites. For regulatory and management purposes, most of the waste generated in the City falls into one of five large identifiable categories:

- "Putrescible" waste, which 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 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 City Department of Sanitation (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).

- "Non-Putrescible" waste, which 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. This material includes recyclable metal, and any other material that may be separated and recycled.

- "Fill Material," which is a subset of non-putrescible waste, is clean material consisting of earth, ashes, dirt, concrete, rock, gravel, asphalt millings, sand or stone, provided that such material shall not contain organic matter having the tendency to decompose with the formation of malodorous by-products. Virtually all fill material is recycled after processing.

- "Source Separated Recyclables," which are either "source separated" before collection, such as metal, glass, certain plastics, cardboard and paper; or

- "Processed Separated Recyclables," which are reusable materials sorted and separated from construction and demolition (C&D) debris and fill material, such as metals, dirt, aggregate, stone and asphalt millings.

The waste materials that are not classified by these categories -- such as liquids, hazardous wastes, medical wastes, sewage sludge, etc. -- are managed by specialized disposal companies under contract with the waste generators.

The City's Transfer Station industry has undergone significant changes over the last 14 years, with the establishment of operational rules, regulatory bodies, and the arrival of major national waste management companies, as well as the closing of Fresh Kills. Current management policies for Transfer Stations are defined by the type of waste processed and the specific zone (M1, M2 or M3) in which the facility is located. However, all Transfer Stations are governed by citywide legislation and supporting enforcement mechanisms. Agencies responsible, at both the local and state level, for the development of Transfer Station legislation and enforcement were investigated and reviewed in the course of this Commercial Waste Management Study (Study). These agencies derive their powers to control Transfer Station development and operation from various legislation, ranging from Titles 16, 17 and 25 of the New York City Administrative Code (NYCAC) and Title 16 of the Rules of the City of New York (RCNY) at the local level to the New York State Environmental Conservation Law (ECL) and its implementing regulations, Title 6 of the New York Codes, Rules and Regulations (NYCRR), Part 360, at the state level.

The structure of regulatory authority, defined by both the agency responsible and the authorizing legislation, is explained in this Study. While the majority of regulation occurs on the local city level, with legislation tailored to the specifics of the City, agencies such as the New York State Department of Environmental Conservation (NYSDEC) set and enforce statewide standards. The enforcement structure relative to each responsible agency and relevant legislation is also presented in this subtask, and the existing enforcement structure, including specific units within each agency and those providing inter-agency coordination, is reviewed.

The actual act of enforcing laws and regulations, conducting inspections and issuing permits and violations is carried out by several agencies, primarily DSNY and NYSDEC. The New York City Police Department (NYPD) enforces truck route and vehicle-related violations regulated by the City Department of Transportation (NYCDOT). The Business Integrity Commission (BIC) is responsible for regulating and licensing private carters and ensuring that recyclable materials are handled properly. Additionally, the City Department of Buildings (NYCDOB) enforces the building code, zoning regulations and other local codes related to building construction by issuing Certificates of Occupancy, which confirm a use is lawful for the site zoning. Overlaps or coordination issues in the enforcement structure by the relevant agencies will be identified and analyzed in this Study. By reviewing the results of inspections and violation statistics, and conducting field observations to evaluate the prevalence of truck route violations, a clear understanding of the specific issues that affect the City's Transfer Stations can be reached.

The City Zoning Resolution is the first level of regulation dictating the siting of Transfer Stations. Under to the Zoning Resolution, M1 (light manufacturing districts) and M2 (medium manufacturing districts) zones are intended for industrial uses that can meet high or medium performance standards, respectively. M3 zones (heavy manufacturing districts) are designed to accommodate the essential heavy industrial uses that may involve objectionable influence and hazards and which ordinarily cannot be expected to meet high performance levels. Transfer Stations are currently located within manufacturing zones M1, M2 and M3; however the 1998 DSNY siting rules (which will be discussed later in the document) dictate that new Transfer Stations must be located in M2 or M3 zones. In the sense that zoning and the proper siting of Transfer Stations relate to enforcement practices and regulations, they will be discussed as an effective enforcement measure.

Finally, the effectiveness of the enforcement policies and efficiency of inter-agency coordination is evaluated to formulate conclusions.

2.0 OVERVIEW OF REGULATORY AGENCIES AND RELEVANT STATUTES

Transfer Station regulation occurs at both the city and state level. Table 2-1, Enforcement Summary Chart, details the many levels of agency power and describes the legislation from which they derive their authority and the punishment that can be exacted.

2.1 City Regulatory Power

The regulation of private Transfer Stations involves a number of City agencies, while the principal state agency is NYSDEC. The City's principal regulating agencies for Transfer Stations are: DSNY, BIC, the City Department of Environmental Protection (NYCDEP) Air and Noise Inspectors and Environmental Control Board (ECB), the NYCDOB and NYCDOT (see Table 2-1, Section I). Transfer Stations must undergo initial environmental review, with the involvement of the NYCDEP, for air, odor and noise impacts; the NYCDOT for traffic impacts; the City Department of City Planning (NYCDCP) for compliance with City plans for waterfront revitalization; and the Landmarks Preservation Commission (LPC) for assessing potential impacts to historic resources. Violations of the Zoning Resolution can be brought to the attention of the NYCDOB for enforcement by the relevant borough commissioner; the NYCDOB may conduct their own inspections if it is deemed necessary.

New York City Department of Sanitation

The DSNY has the most fundamental role in the implementation of the City's Transfer Station policies and enforcement of regulations. The City Charter and the NYCAC grant regulatory authority to DSNY, which it uses to promulgate detailed rules (RCNY) regarding Transfer Stations. Refer to Table 2-1, Section I for detailed descriptions of regulations.

NYCAC Sections 16-130 - 16-133 (Sanitation), and Section 24 (Air and Noise Code) pertain to Transfer Station regulation.. 16 NYCAC 16-130 mandates permits for operators of dumps, putrescible and non-putrescible Transfer Stations and fill material operations, and prohibits any person or public agency other than DSNY from operating any such facility without a permit.

The rules of operation for dumps, non-putrescible and putrescible Transfer Stations and fill material operations including regulations on siting, hours of operation, noise, odor control, ventilation and other matters pertaining to Transfer Station operation are established in the many subsections of 16 NYCAC 16-131. DSNY has the power to adopt certain rules, for the protection of public health and the environment. DSNY also has control over the issuance, renewal, suspension and revocation of permits. 16 NYCAC 16-133 establishes the DSNY's Permit and Inspection Unit (PIU), which will be discussed in greater detail in a subsequent section of this document.

In Chapters 1 and 2 of Title 24 of the NYCAC (24 NYCAC) Air Pollution and Noise Control, regulations and penalties, respectively, are established. Additional regulations concerning construction and building codes are detailed in Titles 26 and 27, which mandate acquisition of a permit from DSNY in order to construct, alter, repair or remove a waste facility.

Local Law 40 of 1990 assigned the regulation of putrescible Transfer Stations to DSNY, which already had authority for non-putrescible Transfer Stations. DSNY is responsible for establishing operational and siting requirements for the stations as well as the regulation of pier or land usage for these Transfer Stations. Local Law 74 of 2000 (LL74) requires DSNY to complete a comprehensive study of commercial solid waste to help the City develop a new Comprehensive Solid Waste Management Plan.

The RCNY set forth DSNY and other City agency regulations applicable to the regulation of Transfer Stations. Title 16, Section 4 of the RCNY requires permits for the operation of each type of Transfer Station. 16 RCNY, Sections 4-02, 4-03, 4-05 and 4-06 require any person who owns, operates, maintains or controls a non-putrescible Transfer Station to comply with the state ECL, Titles 16 and 24 of the Health and Administrative Codes of the City of New York (Air Pollution and Noise Control), Title 26 and 27 of the NYCAC (Building Codes), the Zoning Resolution of the City of New York, and the New York City Health Code, as well as all other applicable local and state laws and rules including general transportation and vehicular transport routes in the siting of Transfer Stations. Additionally, it mandates that a permit is required for operation of a non-putrescible Transfer Station. This permit can be suspended or revoked if the

Transfer Station is in violation of any of the above-mentioned policy regulations, or is creating a nuisance or condition hazardous to public health and safety. 16 RCNY 4-07 and 4-08 and 16 RCNY 4-11, 4-14, 4-16 and 4-17 contain similar provisions as the above-described rules yet pertain to fill material Transfer Stations and putrescible Transfer Stations, respectively.

New York City Department of Environmental Protection

There are two branches of NYCDEP involved with Transfer Station enforcement: the Air and Noise Inspectors and the ECB. NYCDEP's Air and Noise Inspectors, who enforce the air, odor and noise codes, will respond to a citizen's complaint with an investigation. The ECB operates an administrative tribunal that provides hearings on notices of violations issued by other City agencies for various "quality of life" infractions, including odor, air, noise and leachate that can potentially have a significant effect on local populations – it does not promulgate regulation or issue notices of violation. If an outstanding ECB violation exists, DSNY will not renew a Transfer Station permit until the fine is paid. As an administrative judicial entity, the ECB has sole control over the adjudication of outstanding violations.

New York City Department of Transportation

The NYCDOT, as previously noted, has no specific regulatory role over Transfer Station authority. However, it is responsible for establishing the truck routes that carters must use, under DSNY rules, in transporting waste to and from Transfer Stations (see Table 2-1, Section I). New York City Truck Route Rules, Title 34, Section 4-13 (RCNY 4-13) grants authority to the NYCDOT to establish the City truck route network, including all coordination, engineering, education, information and enforcement policies. In actuality, however, enforcement is the responsibility of the NYPD. Currently the NYCDOT is undertaking a study of existing City truck routes with the goal of ensuring that trucks remain on designated routes instead of using residential streets.

The New York City Traffic Rules prohibit engine idling and state that three minutes is the maximum time an engine is allowed to idle while a vehicle is parking, standing or stopping, unless the engine is being used to operate a loading, unloading or processing device.

2.2 State Regulatory Power

New York State Department of Environmental Conservation

NYSDEC is the main regulatory agency at the state level. The ECL dictates that the NYSDEC is responsible for all state programs directed towards protecting and enhancing the environment (see Table 2-1, Section II). Titles 9, 11 and 13 of Article 27 of this legislation provide for the treatment and disposal of solid and hazardous waste in accordance with a Solid Waste Management Plan. NYSDEC must undertake environmental review of permits it issues for putrescible and non-putrescible Transfer Stations, but considers the issuance of registrations for fill material Transfer Stations to be a ministerial action not requiring an environmental review.

The bulk of NYSDEC regulatory responsibilities for Transfer Stations are set forth in Title 6 of the NYCRR, Part 360 (Solid Waste Management), Part 201 (Air Resources), Part 617 (Environmental Quality Review), and Part 750 (regulating discharges to water).

The most pertinent section of Title 6 -- Part 360 (1993) -- outlines the New York State Solid Waste Management Regulations, setting standards and criteria for all waste management facilities, including Transfer Stations. Part 360 dictates the design, construction, operation and closure requirements for different types of waste management facilities. The NYSDEC created and manages the registration process and is responsible for issuing permits to register Transfer Stations as is outlined in Sections 360-11.3 and 11.4. Section 360-11.3 establishes design requirements for Transfer Stations, while Section 360-11.4 establishes operational requirements; permits guiding construction and operation, respectively, are mandatory and issued by the NYSDEC regional office. Transfer Stations that process C&D debris also must comply with the operational requirements of Section 360-16.4. Quarterly and annual reports from the NYSDEC are required for the submittal and review of facility permit renewals.

Part 201, of 6 NYCRR, dictates that the NYSDEC's Air Permitting Program is administered by the Division of Air Resources (DAR). Two basic types of permits are issued by the Department of Air Contamination Sources (described in 6 NYCRR, Part 260) and facilities are either required to be registered with or permitted by the NYSDEC depending on the classification of materials processed (procedure detailed in Part 261).

Table 2-1
Enforcement Summary Chart
I. City Level - New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 NYCAC 16-131.1 - Title 16 - Sanitation, Chapter 1 – (16-131.1) Dept. of Sanitation	*Issuance, renewal, suspension and revocation of permits.* The commissioner shall be responsible for the issuance, renewal, suspension and revocation of permits as required by section 16-130. An application for such a permit shall also be presented by DSNY to the City Trade Waste Commission (now known as Business Integrity Commission [BIC]) for review.		DSNY	In addition to any other penalties, any violation of section 16-129, 16-130, 16-131, 16-131.2, 16-131.3 or 16-131.5 of this chapter, or article 157 of the City Health Code, shall be punishable by a civil penalty of not less than $25,000 nor more than $10,000 for the first violation, not less than $5,000 nor more than $10,000 for the second violation committed in a period of three years, and $10,000 for the third and any subsequent violation committed in such period. In the case of a continuing violation, every day's continuance thereof may be deemed to be a separate and distinct violation.
16 NYCAC 16-131.2 - Title 16 - Sanitation, Chapter 1 – (16-131.2) Dept. of Sanitation	*Additional powers of the commissioner.* In addition to any other enforcement procedures authorized by law, the commissioner shall have the powers described in this section. (a) The commissioner may order any person violating section 16-130 or 16-131 of this chapter or Article 157 of the New York City Health Code to discontinue such violation immediately. (b) 1. If the commissioner finds that premises for which a permit is required pursuant to section 16-130 of this chapter are being used either without such permit or in a manner which poses an imminent threat to public health or safety.		DSNY	

Table 2-1 (Continued)
Enforcement Summary Chart
I. City Level - New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 NYCAC 16-133 - Title 16 - Sanitation, Chapter 1 - (16-133) Dept. of Sanitation	*Concerned with transfer station enforcement.* Any person who violates any provision of section 16-129, 16-130, 16-131, 16-131.2, 16-131.3 or 16-131.5 of this chapter, or Article 157 of the New York City Health Code, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not to exceed $25,000, or by imprisonment for a term of not more than one year, or by both such fine and imprisonment.		DSNY	In addition to any other penalties, any violation of section 16-129, 16-130, 16-131, 16-131.2, 16-131.3 or 16-131.5 of this chapter, or Article 157 of the New York City Health Code, shall be punishable by a civil penalty of not less than $25,000 nor more than $10,000 for the first violation, not less than $5,000 nor more than $10,000 for the second violation committed in a period of three years, and $10,000 for the third and any subsequent violation committed in such period. In the case of a continuing violation, every day's continuance thereof may be deemed to be a separate and distinct violation. Civil penalties shall be recovered in a civil action brought in the name of the commissioner or in a proceeding before the ECB, provided however that civil penalties for violations of Article 157 of the New York City Health Code may only be recovered as provided by law for violations of the New York City Health Code.

Table 2-1 (Continued)
Enforcement Summary Chart
I. City Level - New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
24 NYCAC - Title 24 – Environmental Protection and Utilities, Chapter 1 – Air Pollution Control	*Air Pollution Control.* *Limits visible emissions from a motor vehicle §24-143.* *Limits emissions of dense smoke §24-142.* *Limits emissions of odorous air contaminant §24-141.*		NYCDEP DSNY	*Various, set forth in §24-178.*
24 NYCAC - Title 24 – Environmental Protection and Utilities, Chapter 2 – Noise Control	*Noise Control*. Zoning standards for air, odor and noise must be complied with. Transfer stations must annually submit a certified engineering report to DSNY that attests to the facility's compliance with such zoning standards. Noise Code must be complied with.		NYCDEP DSNY	*Various, see §24-257.*
24 NYCAC - Title 26 (Housing and Buildings), Chapter 1 (Department of Buildings), Subchapter 3 (Building Construction)	*Requirement of permit*. It shall be unlawful, on and after December 6, 1968 to construct, alter, repair, demolish or remove any building in the City, or to erect, install, alter, repair or use or operate any signs or service equipment in or in connection therewith, unless and until a written permit therefore shall have been issued by the commissioner in accordance with the requirements of this subchapter and the requirements of the building code, subject to such exceptions and exemptions as may be therein provided.			

Table 2-1 (Continued)
Enforcement Summary Chart
I. City Level - New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 RCNY 4-02 (Rules of the City of New York)	*Regulates non-putrescible waste transfer stations***.** Any person who owns, operates, maintains or controls a non-putrescible waste transfer station shall comply with 1) the state ECL and all permit conditions; 2) Titles 16 and 24 of the Health and Administrative Codes of the City of New York (Air Pollution and Noise Control); 3) Subchapter 3 of Chapter 1 of Title 26, and Chapter 1 of Title 27 of the Administrative Code of the City of New York (Building Code); 4) the Zoning Resolution of the City of New York; 5) the New York City Health Code; and 6) all other applicable local and state laws and rules including general transportation and vehicular transport routes.	NYSDEC For environmental review: NYCDEP, NYCDOT, NYCDCP.	DSNY	
16 RCNY 4-03	*A permit is required to operate a non-putrescible waste transfer station.*		DSNY	The permit may be suspended or revoked upon violation of the terms of Subchapter 16, any of the applicable sections of the Administrative Code or the ECL, or any applicable permit condition, law or rule.

Table 2-1 (Continued)
Enforcement Summary Chart
I. City Level - New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 RCNY 14-06 and 16 RCNY 4-05	*A permit is required to operate and maintain construction and demolition debris transfer stations.*		DSNY	The permit may be suspended or revoked upon violation of the terms of Subchapter 16, any of the applicable sections of the Administrative Code or the ECL or any applicable permit condition, law or rule.
16 RCNY 4-06	*Governs the operation and maintenance of construction and demolition debris transfer stations.* Operations must avoid any nuisance or condition hazardous to public health or safety.		DSNY	
16 RCNY 4-07	*A permit is required to operate a fill material transfer station.*		DSNY	The permit may be suspended or revoked upon violation of the terms of Subchapter 16, any of the applicable sections of the Administrative Code or the ECL or any applicable permit condition, law or rule.
16 RCNY 4-08	*Governs the operation and maintenance of fill material transfer stations.*		DSNY	

Table 2-1 (Continued)
Enforcement Summary Chart
I. City Level - New York City Department of Sanitation (DSNY)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
16 RCNY 4-11	*Regulates putrescible waste transfer stations*. Like non-putrescible waste transfer stations, putrescible waste transfer stations are required to comply with all state and local laws and rules, including general transportation and vehicle transport routes.		DSNY	
16 RCNY 4-14	*Permits for putrescible waste transfer stations must include written plans for the control of noise and odors.*		DSNY	Permits are subject to suspension and revocation for violation of the terms of Chapter 4 or any applicable section of the Administrative Code or any other applicable permit condition, law or rule.
16 RCNY 4-16	*Establishes design and equipment requirements for putrescible waste transfer stations.*		DSNY	
16 RCNY 4-17	*Establishes operation and maintenance rules for putrescible waste transfer stations.*		DSNY	
34 RCNY 4-13	*New York City Truck Routes Rules.* NYCDOT is charged generally with the management and oversight of the City truck route network – coordinating and engineering, educational, informational and enforcement efforts. Works with the NYPD to identify or respond to chronic route violations to ensure that trucks remain on designated truck routes and do not use residential streets.		NYPD DSNY	

Table 2-1 (Continued)
Enforcement Summary Chart
I. City Level - Business Integrity Commission (BIC)
(formerly known as the Trade Waste Commission [TWC], Organized Crime Control Commission)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
Local Law 42 (1996)	*Created a new City agency called the TWC (formerly) responsible for regulating and licensing "private carters" in accordance with all local laws governing the regulation of the trade waste industry.*			
Section 16-502 of the RCNY	*Established the Business Integrity Commission consisting of the commissioners from Department of Business Services, Department of Consumer Affairs (DCA), Department of Investigation (DOI), NYPD and DSNY.*	Department of Business Services, DCA, DOI, NYPD and DSNY.		
6 RCNY 5-12	*Licensees that collect or transport designated recyclable materials must transport them to putrescible or non-putrescible waste transfer stations or other facilities that accept such materials for recycling or reuse.*			
6 RCNY 2-186 and 16 RCNY 1-10	*Such materials may not be brought to a solid waste disposal facility containing recyclable materials in detectable amounts. Private transporters are required to recycle recyclable materials and to take them to transfer stations or other facilities that accept such materials.*			

Table 2-1 (Continued)
Enforcement Summary Chart
I. City Level – New York City Department of Buildings (NYCDOB)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
Not Applicable	*Enforces the building code, zoning resolutions, state multiple dwelling law, electrical code and other local laws related to building construction and alteration. Also issues building and construction-related licenses.*			

I. City Level - New York City Department of Environmental Protection (NYCDEP)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
Zoning Resolution of the City of New York	*Regulations in Manufacturing Zones 42-00*		NYCDEP NYCDOB DSNY	

Table 2-1 (Continued)
Enforcement Summary Chart
II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
NYCAC §16-130, §16-131, §16-133	*A Local Law to amend the NYCAC, in relation to regulation of the use of piers or land as non-putrescible waste transfer stations and putrescible waste transfer stations, transfer of permitting jurisdiction with respect to putrescible waste transfer stations from DSNY in connection therewith, issuance, renewal, suspension and revocation of permits, permit enforcement, and penalties in connection therewith and in connection with other violations of Chapter 1 (DSNY) of Title 16 (Sanitation) of such code, and the power of the commissioner to conduct inquiries, including subpoena power.* Grants authority to DSNY to address issues relating to the operation of private waste transfer stations according to City laws and rules.	In consultation with City's Commissioners of Health and Environmental Protection.		
State Environmental Conservation Law (ECL) - Titles 9, 11 and 13 of Article 27 of the State ECL	*Provides for the treatment and disposal of solid and hazardous waste through the Solid Waste Management Plan*. NYSDEC responsible for all state programs directed toward protecting and enhancing the environment.		NYSDEC	

Table 2-1 (Continued)
Enforcement Summary Chart
II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
6NYCRR Part 360 - Title 6 of the Codes, Rules and Regulations, referred to as 6NYCRR (New York State's Solid Waste Management Regulations)	*Part 360 regulations include design, construction, operation and closure requirements for different types of waste management facilities*. Facility quarterly and annual reports are required for submittal and review. Legislation provides technical and regulatory assistance to the regional offices of NYSDEC and the regulated community and establishes the registration process for certain types of waste management facilities, such as fill transfer stations.		NYSDEC	
6NYCRR 360-11	*Regulates facilities that transfer or process solid waste.*		NYSDEC	
6NYCRR 360-11.3	*Establishes design requirements for waste transfer stations*. Permit required to construct, issued by the regional office staff of NYSDEC.		NYSDEC	

Table 2-1 (Continued)
Enforcement Summary Chart
II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
6NYCRR 360-11.4	*Establishes operational requirements for waste transfer stations* (must operate within the law and within the terms of their permit). Permit required to operate, issued by the regional office staff of NYSDEC.	In its inspections, the NYSDEC's Environmental Conservation Officers (ECOs) are assisted by the NYPD, particularly the City police highway and motor carrier units.	NYSDEC	- nuisance problems such as inadequate dust and odor controls and truck queuing - processing more garbage than their permit allowed - lacking proper fire suppression equipment - accepting and process types of solid waste not allowed by the facility's permit - failure to control access to the facility - inadequate drainage unlawful disposal of waste oil
6NYCRR 360-16.4	*Operational standards for transfer stations that process C&D debris.*		NYSDEC	
6 NYCRR Part 201	*Describes the two basic types of permits that are issued by NYSDEC for air contamination sources.* NYSDEC's Air Permitting program is administered by the Division of Air Resources (DAR). Facilities are either required to be registered with or permitted by NYSDEC depending on the classification of the material processed.		NYSDEC, Bureau of Stationary Sources (BOSS)	

Table 2-1 (Continued)
Enforcement Summary Chart
II. State Level - New York State Department of Environmental Conservation (NYSDEC)

Legislation	Enforcement Issues	Coordination With Other Agencies	Enforcers	Violations Issued
6 NYCRR Part 617	*Environmental Quality Review prior to issuance of permit or major permit modification*	DSNY		
6 NYCRR Part 621	*Permit applications are processed following a number of steps prior to issuance. Revocation and Denial of Permit*. Failure of such person to properly operate and maintain the effectiveness of such emission units and emission control devices may be sufficient reason for NYSDEC to revoke or deny a permit. *Suspension, Reopening, Reissuance, Modification or Revocation.* NYSDEC may suspend, reopen, reissue, modify or revoke a permit in accordance with the procedures and provisions of Part 621 of this Title.		NYSDEC	
6 NYCRR Part 750	*State Pollution Discharge Elimination System (SPDES) discharges to surface water; stormwater discharges associated with industrial activity.*	NYCDEP	NYSDEC	

3.0 ENFORCEMENT AND VIOLATION PRACTICES

Transfer Stations are regularly inspected by two governing agencies: DSNY and NYSDEC. NYSDEC is responsible for issuing state permitsregulating the construction, design and operation of Transfer Stations and enforcing compliance through periodic inspections. DSNY's PIU is responsible for issuing City permits and conducting weekly[1] facility maintenance and operation inspections. DSNY inspections are carried out by PIU officers. While overlap does exist between NYSDEC and DSNY inspection criteria, NYSDEC is primarily concerned wit5h the siting, design and engineering of the facility, while DSNY responds to maintenance and operation procedures affecting "quality of life" issues (such as air and noise pollution) that have the potential to affect the surrounding community. Both agencies conduct inspections, record any specific infractions and issue notices of violation. If an infraction is officially reprimanded, a violation will be issued. Additionally, the NYPD's Traffic Control Division acts as another enforcement agency (together with DSNY) for compliance with the City's Truck Route Rules.

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: 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, reserved under the Zoning Resolution of 1961 for industrial uses which cannot be designed without appreciable expense to conform to high performance standards with respect to the emission of objectionable influences, and which normally generate considerable traffic. 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. In addition, activities such as

[1] Inspections are carried out weekly at putrescible and non-putrescible (C&D) stations, biweekly at fill material stations.

stone crushing must be in an enclosed building if conducted within 300 feet of a residential district or in an M1 zone, and storage of materials in an M1 district within 200 feet of residential district must be completely enclosed.

M1 districts often serve to buffer residential and commercial districts from heavier industrial M2 or M3 zones. M1 districts allow certain kinds of new residential uses (for example, artists living/working space).

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 is 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 well suited for the siting of Transfer Stations.

The City Noise Code and Air Code provide additional standards that are applicable to Transfer Stations. Section 24-141 of the Air Code prohibits the emission of odorous contaminants so as to cause detriment to the comfort of any person. Under the older, less stringent Zoning Resolution, odor standards vary by type of district; in M1 and M2 districts, it is prohibited to emit odorous matter so as to be readily detectable at the lot line or so as to produce a public nuisance beyond the lot line. In M3 zones, the Zoning Resolution merely provides that odor may not cause a public nuisance beyond the lot line. In view of this standard and the Air Codes standard of a detriment to the comfort of any person, odor violations under either provision would be less likely for Transfer Stations in sparsely populated M3 zones than in M1 zones proximate to residences.

For noise, maximum decibel limits are lower in M1 zones than in M3 zones under the Zoning Resolution performance standards. In the 600- to 1,200-octave band, the maximum permitted sound pressure level is 53 decibels in M1 zones and 58 decibels in M3 zones. Although 24-243 of the Noise Code sets additional limits on ambient noise in manufacturing zones, these do not apply when a facility is in compliance with the Zoning Resolution performance standards. Motor vehicle noise, which can be a factor at Transfer Stations, is exempt from the Zoning Resolution performance standards, but is limited by 24-232 of the Noise Code and by the DSNY operating rules for Transfer Stations (when entering or exiting the facility). Lastly, on a purely practical level, since M1 zones are located in close proximity to residential uses, the potential for a local resident to be affected by the presence of a Transfer Station increases and, due to complaints, enforcement efforts may be heightened in those areas.

The majority of the City's Transfer Stations are sited in M3 zones (68%). However, in Queens, approximately half of the Transfer Stations are in M1 zones (see Table 3-1).

Table 3-1
Zoning Designation for New York City's Transfer Stations

	M1	**M2**	**M3**	***Total***
Brooklyn	5	1	17	*23*
Queens	11	0	10	*21*
Bronx	2	2	14	*18*
Manhattan	0	0	1	*1*
Staten Island	1	0	5	*6*
Total	*19*	*3*	*47*	*69*

Source: DSNY inspection records, PIU, 2004.

In 1998, DSNY promulgated new Transfer Station siting rules (implemented as a new subsection of the existing rules governing Transfer Stations found in Chapter 4 of Title 16 of the RCNY) that included restrictions on the locations in which Transfer Stations could be sited and limitations on their hours of operation. They included a general prohibition on the siting of new putrescible and non-putrescible Transfer Stations in M1 zones and within 400 feet of residential districts and sensitive receptors such as public parks and schools and a prohibition on the siting of a new non-putrescible Transfer Station within 400 feet of an existing non-putrescible Transfer

Station. The regulation further forbids the 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. It can be assumed therefore that new facilities would be less likely to be in a location that would impact local residents or community facilities.

3.1 New York City Department of Sanitation

DSNY is the agency responsible for the majority of the Transfer Station inspections. Unlike NYSDEC inspections, DSNY is primarily responsible for regulating the maintenance and operation of facilities, instead of the design. Twenty-two (22) officers -- 17 Environmental Police Officers and 5 Environmental Lieutenants -- comprise the PIU and conduct the on-site inspections.

The frequency of the inspections is dependent on the type of material processed at the facility. Full inspections are conducted at putrescible Transfer Stations and non-putrescible Transfer Stations roughly 5.2 times a month and at fill material Transfer Stations approximately twice a month. Inspections can occur 24 hours a day, 7 days a week. The one- to two-hour inspection examines a variety of potential violations concerning Transfer Station management procedure, cleanliness, noise, machine maintenance and general operation. The inspector measures and evaluates the current level of waste on site as well as reviews recent record logs.

Drive-by inspections (which are not scheduled) usually last roughly 15 minutes and occur twice as frequently as full inspections. There are approximately 240 to 250 per month. Drive-by inspections occur when an inspector has other reason to be in the vicinity of the Transfer Station and constitute a basic evaluation of "quality of life" issues and a general maintenance check at the Transfer Station. DSNY frequently adapts new inspection and surveillance techniques to increase their conspicuousness. Improvements such as adjusting inspection timing, diversifying the types and colors of inspection vehicles used and special observation procedures for documenting conditions that give rise to persistent complaints are utilized by the PIU.

There are 69 Transfer Stations, including 22 putrescible stations, 25 non-putrescible stations and 22 fill material stations. (Five facilities have dual permits, i.e., putrescible/non-putrescible, and one facility has three permits, so the total number of actual facilities is 60.) This total includes two intermodal facilities that accept waste in sealed containers for transloading onto railcars. The total number of the Transfer Stations in the City has declined significantly over time. In 1990, 153 Transfer Stations were in operation as compared to 96 in 1996 and currently, in 2004, only 69. The number of stations each inspector is responsible for varies depending on shift rotation. Each shift generally has four teams of two officers that rotate through the Transfer Stations.

Discussions with personnel in the DSNY PIU indicated that the agency tries to adhere to a no-tolerance policy for "quality of life" infringements. When a violation pertaining to odors, leachate, vectors/rodents or dust occurs, definite action is usually taken. In such cases, a summons violation is immediately issued and must be followed up. For all other infringements relating to facility maintenance or procedure, a warning may be issued before summons action is taken.

Various fine structures exist depending on the type, severity and frequency of a violation. Certain Transfer Station violations, such as operating a Transfer Station without a valid permit or being in violation of 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.)

Parking violations have a minimum fine of $35 and a maximum of $115. Traffic violation fines vary, based on the type of offense: (1) moving violations, which warrant a minimum of $65 for a first offense; (2) equipment violations, which warrant a minimum of $60 for a first offense; (3) unlicensed vehicles (minimum $90 to maximum $125); (4) uninspected vehicles (minimum

$75 to maximum $100); and (5) unregistered vehicles (minimum $90 to court-administered maximum). Moving violations and equipment violations warrant court-administered fines for subsequent offenses.

Stations can accrue fines of delinquency over time, yet are required to settle their accounts every year with the ECB or risk permitting violations from the NYSDEC. Repeated or uncorrected violations will lead DSNY to close a facility; such was the case in recent years with the Hunts Point, Equinox and Summit facilities.

DSNY Summons Statistics. A review of DSNY violation statistics and inspection forms provides information relating to the frequency and types of violations that occur at Transfer Stations. Figure 3.1-1 shows an overview of the "major" violation summonses issued from 1991 to 2002 for ECB infractions relating to Transfer Station facility maintenance or operation.

That 12-year span shows a peak in summonses issued in 1996 and then again in 2001. It is likely that an increase in the frequency of inspections first led to a steady corresponding increase in summonses issued as the opportunity to present them rose. The number of violations began to decline post-2001 when the increase in PIU staff and inspections, as well as a constructive working relationship between inspectors and Transfer Stations, translated into improved performance and adherence to the regulations.

Figure 3.1-2 shows a steady increase in the number of the inspections for non-putrescible and fill material stations and a slight decline/leveling-off for putrescible facilities. As discussed previously, drive-by inspections occur twice as often as full inspections; they have also seen an increase in frequency over the last four years. (Drive-by inspections are not regularly scheduled and therefore often occur when an inspector has another reason to be in the area.) Total inspection counts are calculated for both total overall inspections and for total full inspections. Since full inspections are more rigorous, their increase was charted independently of drive-by inspections.

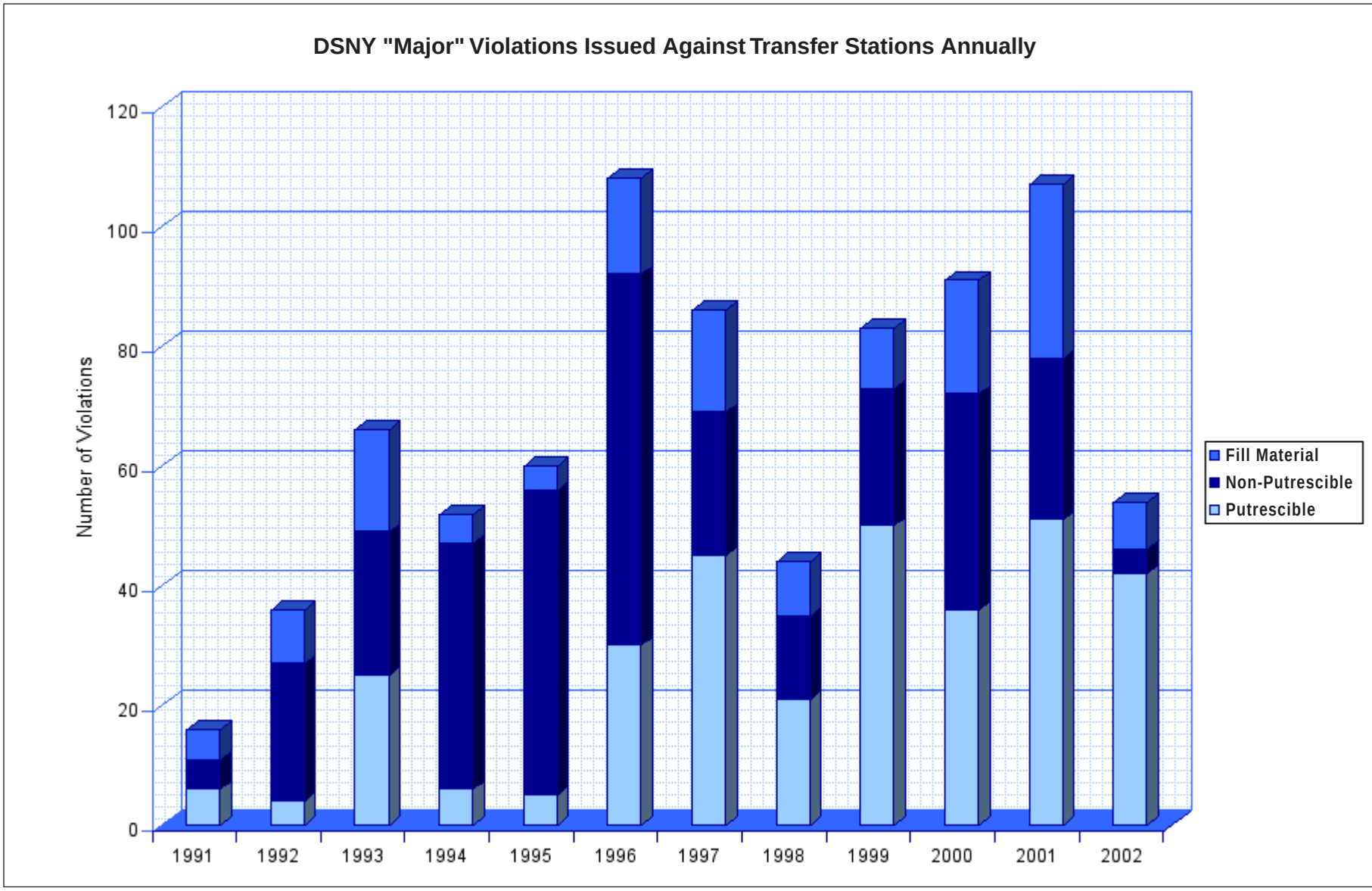

Figure 3.1-1 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

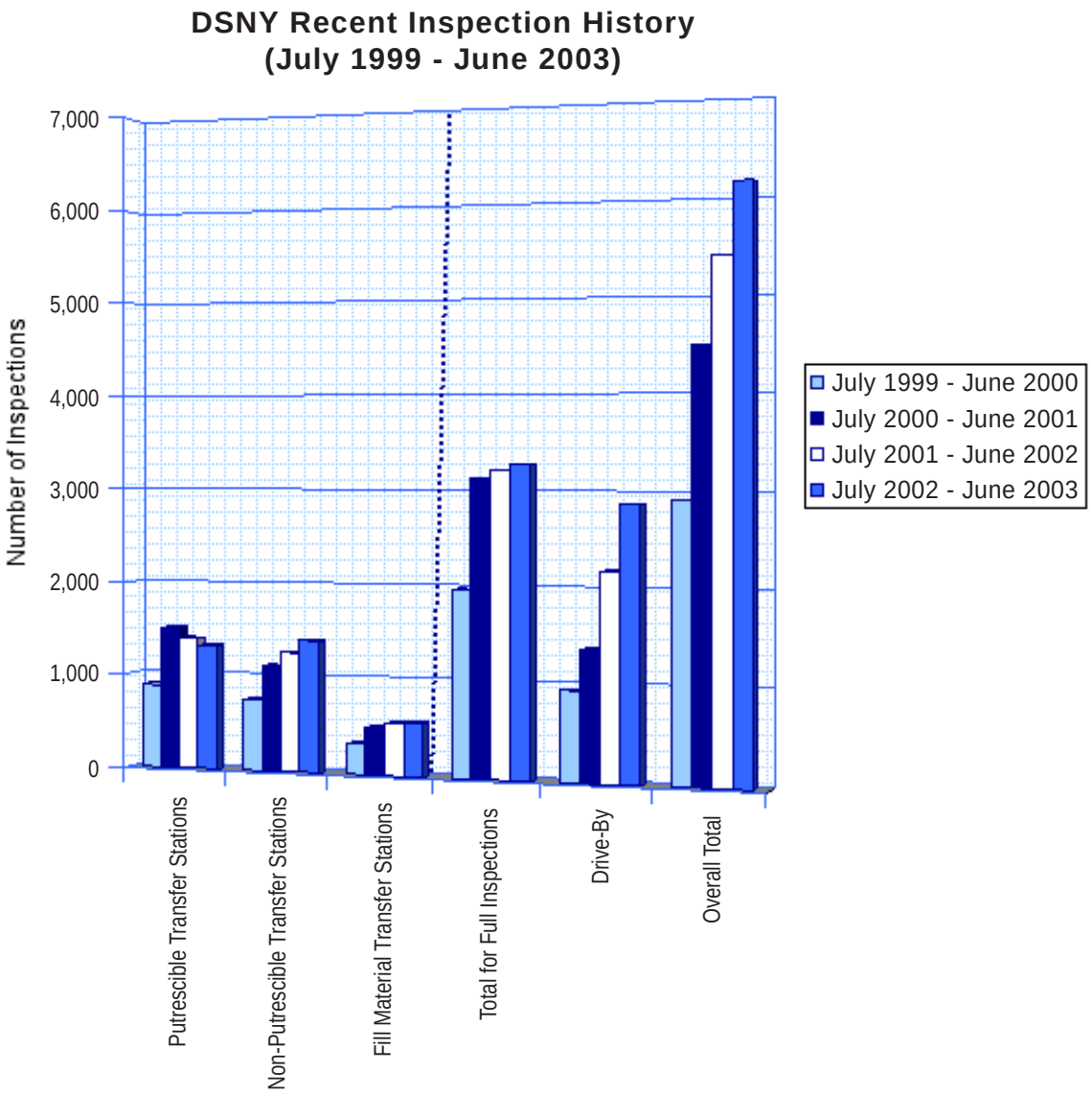

Figure 3.1-2 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

The total number of violations issued over the 12-year period is shown in Figure 3.1-3. Fill material Transfer Station summons counts are the lowest, in part because these Transfer Stations are inspected half as often as either non-putrescible Transfer Stations or putrescible Transfer Stations. The slight variation between putrescible and non-putrescible Transfer Stations summons counts is inconsequential. According to DSNY historical summons data, Hunts Point Recycling stands out as a major offender over the past 12 years (1991 – 2002), generating more than double the amount of violations than at any other Transfer Station; the facility has since been closed.

Roughly 15% of putrescible Transfer Stations, 12% of non-putrescible Transfer Stations and 8% of fill material Transfer Stations accrued more than 20 violations in the 12-year span. As mentioned above, the lower rates of violations at fill material Transfer Stations may be due to the overall lower number of inspections.

The fact that roughly half (48%) of non-putrescible Transfer Stations accrued more than five violations each in the 12-year span is indicative of the fact that non-putrescible stations are cited more frequently with violations than fill or putrescible stations. Only 24% of fill material stations and 39% of putrescible Transfer Stations were cited with more than five violations for the same time period.

DSNY inspection and violation statistics for Fiscal Year 2003 (July 2002 - June 2003) are displayed in Tables 3.1-1 through 3.1-5.

Table 3.1-1 indicates the number of inspections by type of Transfer Station per month and Tables 3.1-2 and 3.1-3 indicate the number of violations that were issued during those months. Table 3.1-2 focuses on “major” violations issued by DSNY, while Table 3.1-3 specifies “minor” violations issuance. Tables 3.1-4 and 3.1-5 report the violations issued for parking and traffic offenses.

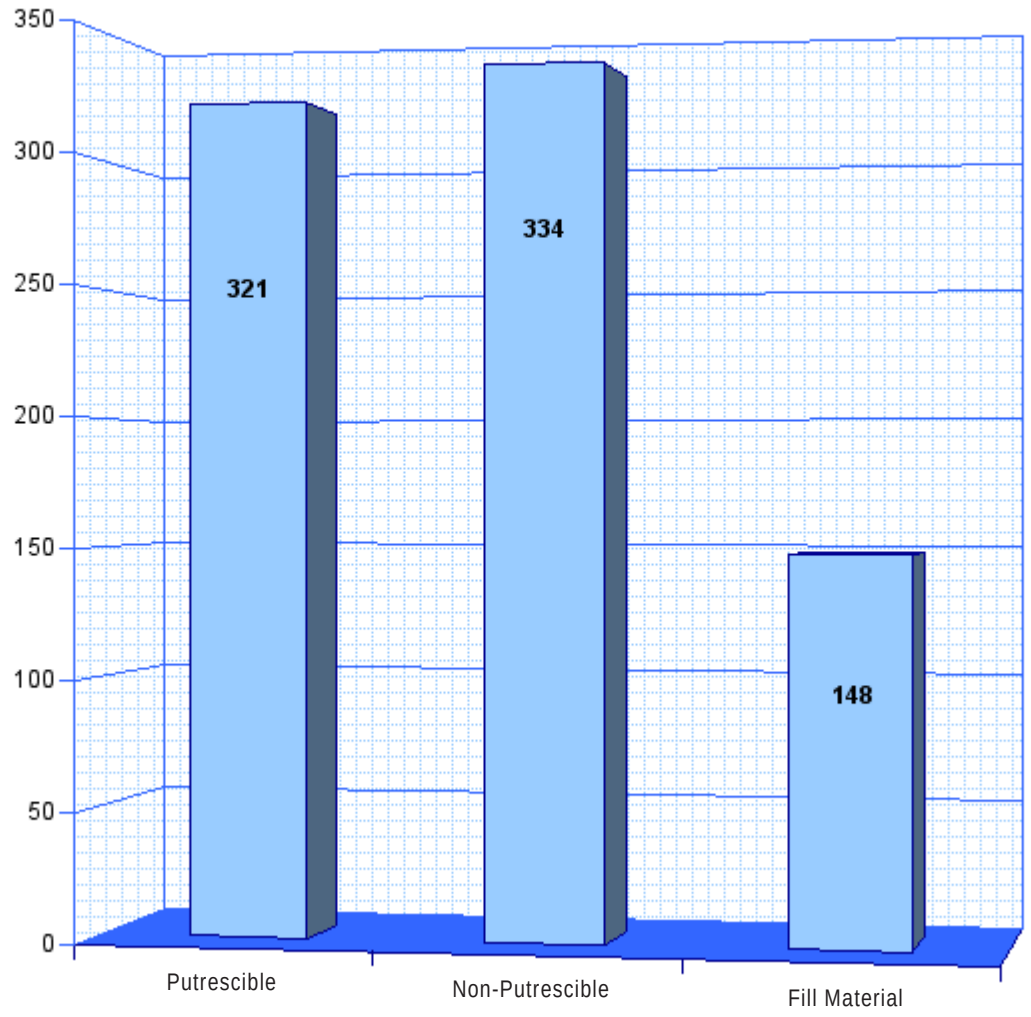

Figure 3.1-3 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

Table 3.1-1
DSNY Inspection History, July 2002 – June 2003

	July	August	September	October	November	December	January	February	March	April	May	June	*Totals*
Putrescible	179	107	110	146	115	117	107	103	109	112	115	139	*1,459*
Non-Putrescible	71	125	124	144	116	129	158	127	134	130	138	120	*1,516*
Fill Material	57	48	46	58	37	50	56	42	45	76	45	51	*611*
Drive-By	320	207	122	341	291	398	406	133	177	208	260	219	*3,082*
Totals	627	487	402	689	559	694	727	405	465	526	558	529	*6,668*

Source: DSNY inspection records, PIU, 2003.

Table 3.1-2
DSNY Violation History for "Major" Offenses, July 2002 – June 2003[(1)]
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	*Totals*
Putrescible	2	5	10	2	2	4	1	1	0	4	3	5	*39*
Non-Putrescible	5	0	3	2	0	0	3	0	1	4	2	2	*22*
Fill Material	6	3	2	7	1	4	0	0	1	1	0	0	*25*
Totals	13	8	15	11	3	8	4	1	2	9	5	7	*86*

Note:
(1) ECB S-36 – S-39 violations ("major" violations relating to operational rules).
Source: DSNY inspection records, PIU, 2003.

Table 3.1-3
DSNY Violation History for "Minor" Offenses, July 2002 – June 2003[1]
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Violations[2]	44	70	57	63	49	48	44	30	52	53	31	58	599

Notes:
[1] ECB S-02 – S-24, A-24, A-51, A-87, E-38 and W-55 violations ("minor" violations relating to maintenance around the Transfer Station).
Source: DSNY inspection records, PIU, 2003.
[2] Data does not break down information by Transfer Station type.

Table 3.1-4
DSNY Violation History for Parking Offenses, July 2002 – June 2003
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Violations[1]	305	406	312	398	403	317	410	184	328	374	422	350	4,209

Note:
[1] Data does not break down information by Transfer Station type.
Source: DSNY inspection records, PIU, 2003.

Table 3.1-5
DSNY Violation History for Traffic Offenses, July 2002 – June 2003
(Number of Violations)

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Violations[1]	52	52	66	95	54	63	59	30	28	35	42	35	611

Notes:
[1] Data does not break down information by Transfer Station type.
Source: DSNY inspection records, PIU, 2003.

It can be seen that putrescible and non-putrescible Transfer Stations are each inspected almost three times as often as fill material stations. Drive-by inspections, by contrast, occur twice as often as full putrescible or non-putrescible inspections.

The reported parking and traffic summonses are issued in areas where Transfer Stations are prevalent. PIU officers are trained to check in and around Transfer Stations for any truck-related or unsanitary-related conditions, so while violations relate to Transfer Station activity, the violation summons is not issued to a specific Transfer Station.

On average, seven "major" 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. Putrescible Transfer Stations had the most violations, accounting for 45% of those issued; non-putrescible Transfer Stations accounted for only 26%.

On average, 50 "minor" ECB violations (see Table 3.1-3), 351 parking violations (see Table 3.1-4) and 51 traffic violations (see Table 3.1-5) were issued per month between July of 2002 and June of 2003. With an annual count of 5,505 summonses, DSNY issues approximately 460 violation summonses of varying severity each month.

DSNY Infraction Information. Due to the differing types of material processed, regulation procedures at putrescible, non-putrescible and fill material stations vary. The number of "major" infractions noted at putrescible stations is markedly larger than at either non-putrescible or fill material Transfer Stations. For the most part, non-putrescible and fill material stations are required to abide by the same regulations. Figures 3.1-4, 3.1-5 and 3.1-6 illustrate the number of violations issued for each infraction at each type of Transfer Station. While the violation count represented in these figures does not match the total number of violations in Table 3.1-2, the pattern of infraction, rather than the exact number of issuance, is key.

"Major" Violations Issued by DSNY at Non-Putrescible Transfer Stations (July 2002-June 2003)

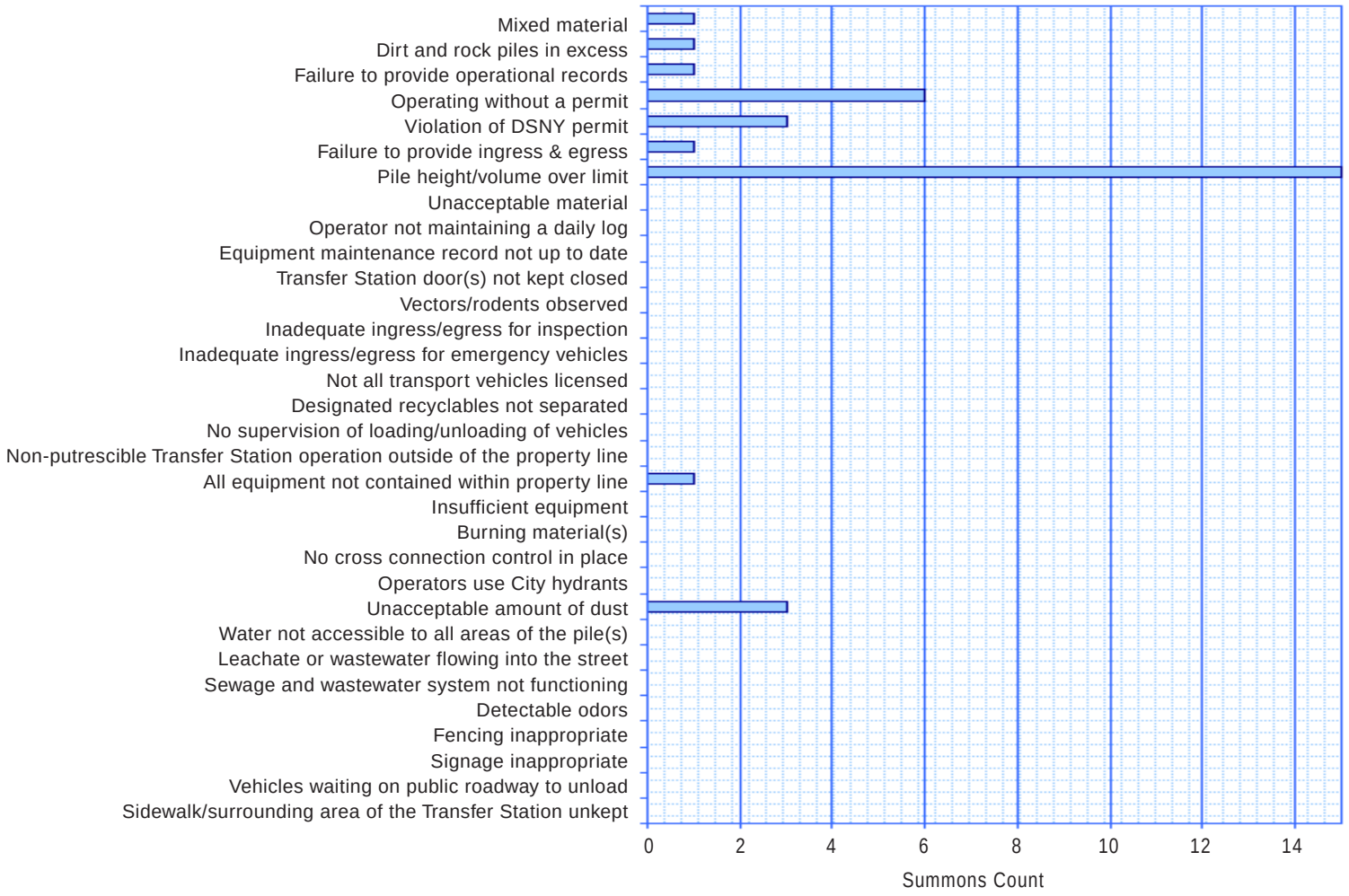

Figure 3.1-4 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

"Major" Violations Issued by DSNY at Putrescible Transfer Stations (July 2002-June 2003)

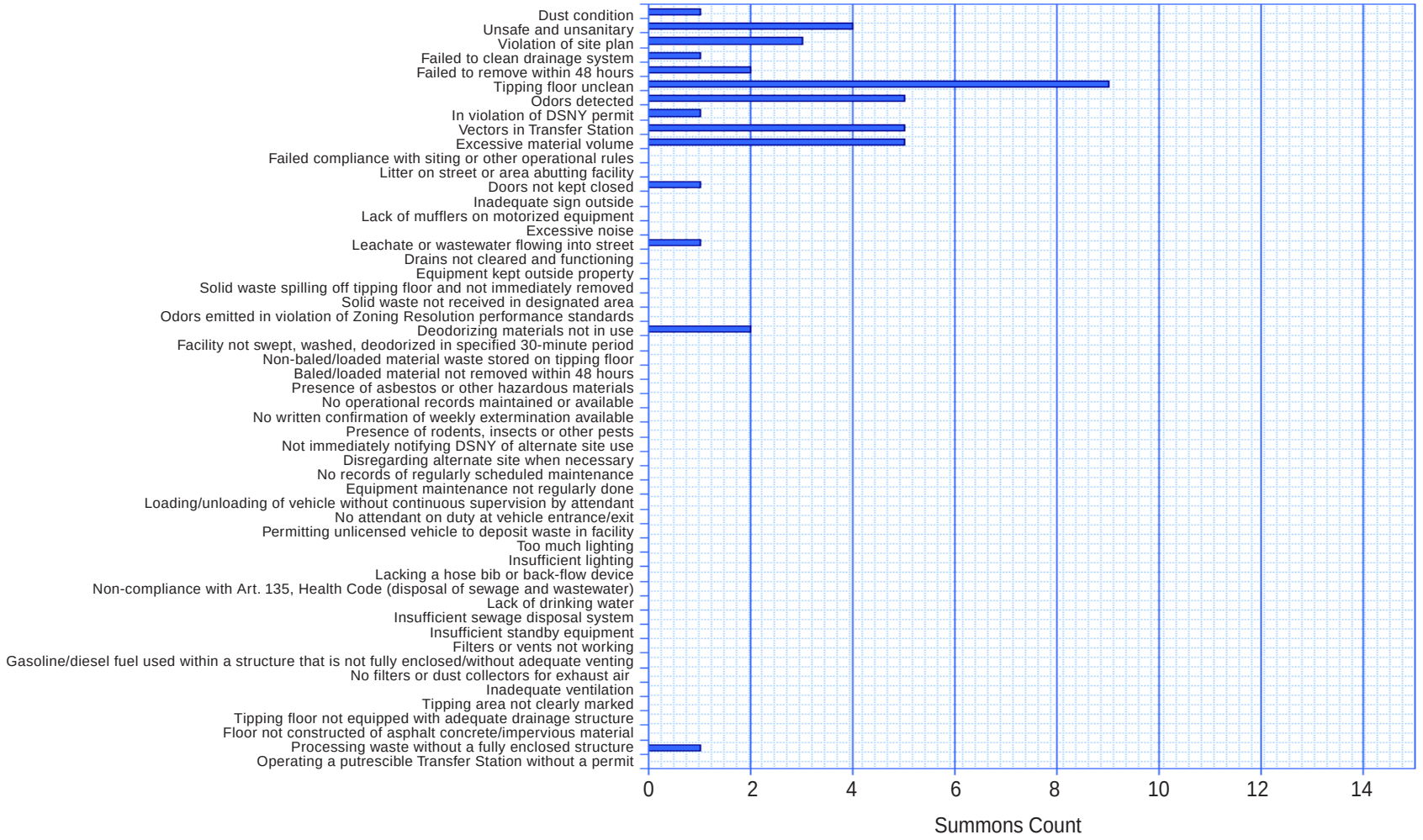

Figure 3.1-5 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

"Major" Violations Issued by DSNY at Fill Material Transfer Stations (July 2002-June 2003)

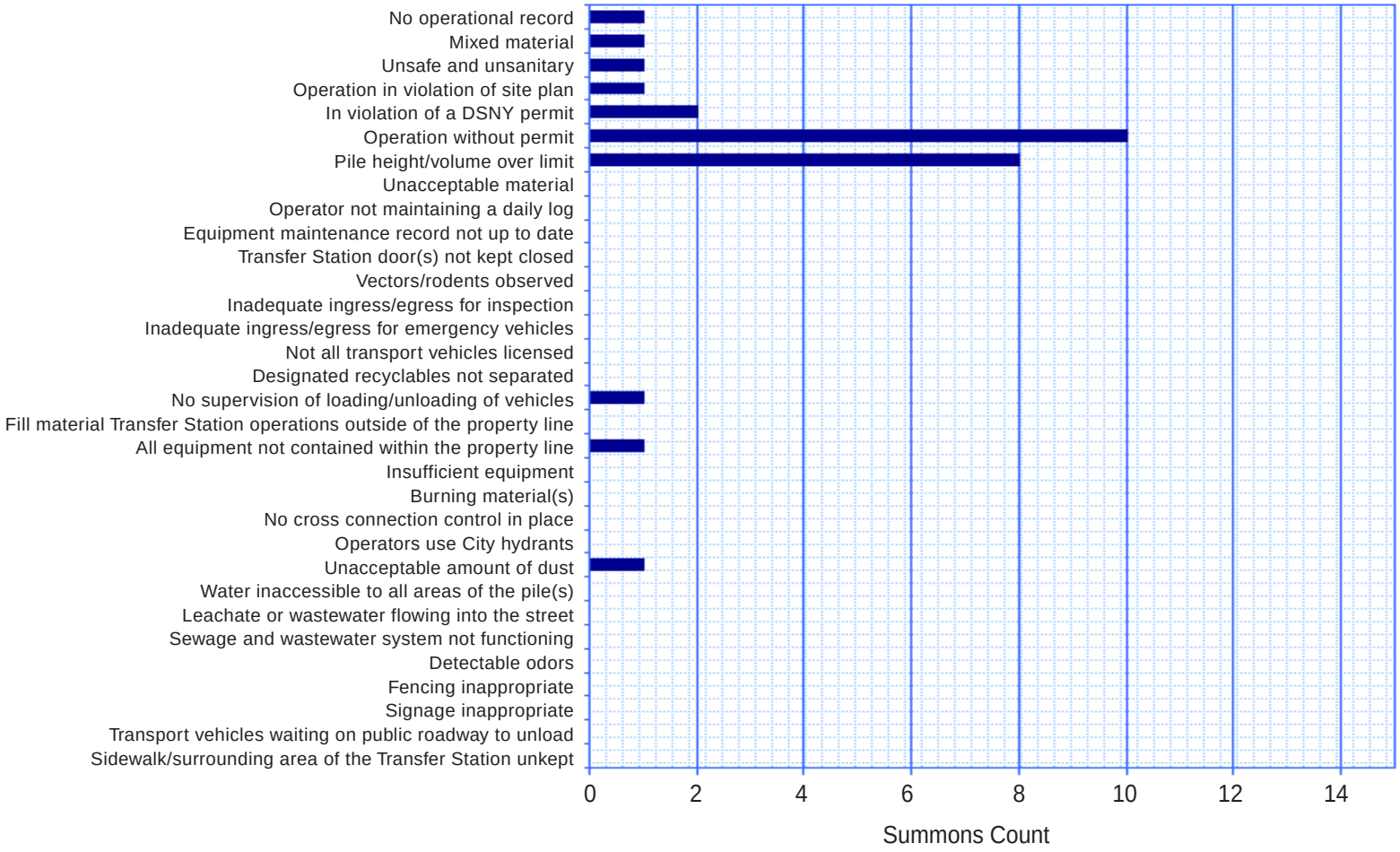

Figure 3.1-6 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

According to DSNY statistics for Fiscal Year 2003, pile height/volume over the limit was the most common violation at non-putrescible Transfer Stations, resulting in 15 summonses and comprising roughly 47% of "major" violations issued to these types of facilities (see Figure 3.1-4); operating without a permit was the second most common violation. The majority of the infractions resulted in only one summons in Fiscal Year 2003.

The most common violation reported at putrescible Transfer Stations was an unclean tipping floor (see Figure 3-1.5). DSNY issued nine violations for this offense in Fiscal Year 2003, comprising 22% of "major" violations issued at this type of facility. Other common infractions reported by DSNY at putrescible Transfer Stations included the presence of odors, vectors (rodents), and excessive material volume, warranting five violations each.

Figure 3-1.6 indicates that ten violations were issued by DSNY to fill material Transfer Stations for operating without a permit. This infraction comprises roughly 37% of the "major" violations issued at this type of facility. This violation results in closing an illegal operation. The other frequent fill material infraction concerned excessive pile height/volume over the limit.

The types and rates of "minor" violation infractions issued by DSNY are illustrated in Figure 3.1-7. Spillage from trucks and/or receptacles is the most frequent "minor" violation, reported 96 times and comprising roughly 16% of "minor" violations, between July 2002 and June 2003. Illegal dumping by both the owner and operator were the second and third most common "minor" violations, reported at roughly 13% and 12% of "minor" violations, respectively. Additionally, causing a street obstruction and the presence of noxious liquids were both reported frequently -- each at roughly 10% of all inspections and approximately 60 violations -- between July 2002 and June 2003.

From Figure 3.1-8 it can be determined that the majority of the parking violations issued by DSNY are in response to trucks standing or parking without proper equipment, or having a detached trailer. Each violation was reported more than 1,200 times between July 2002 and June 2003. Parking for over three hours in a commercial zone or parking in the wrong direction are also common violations, each leading to almost 400 summonses issued in Fiscal Year 2003.

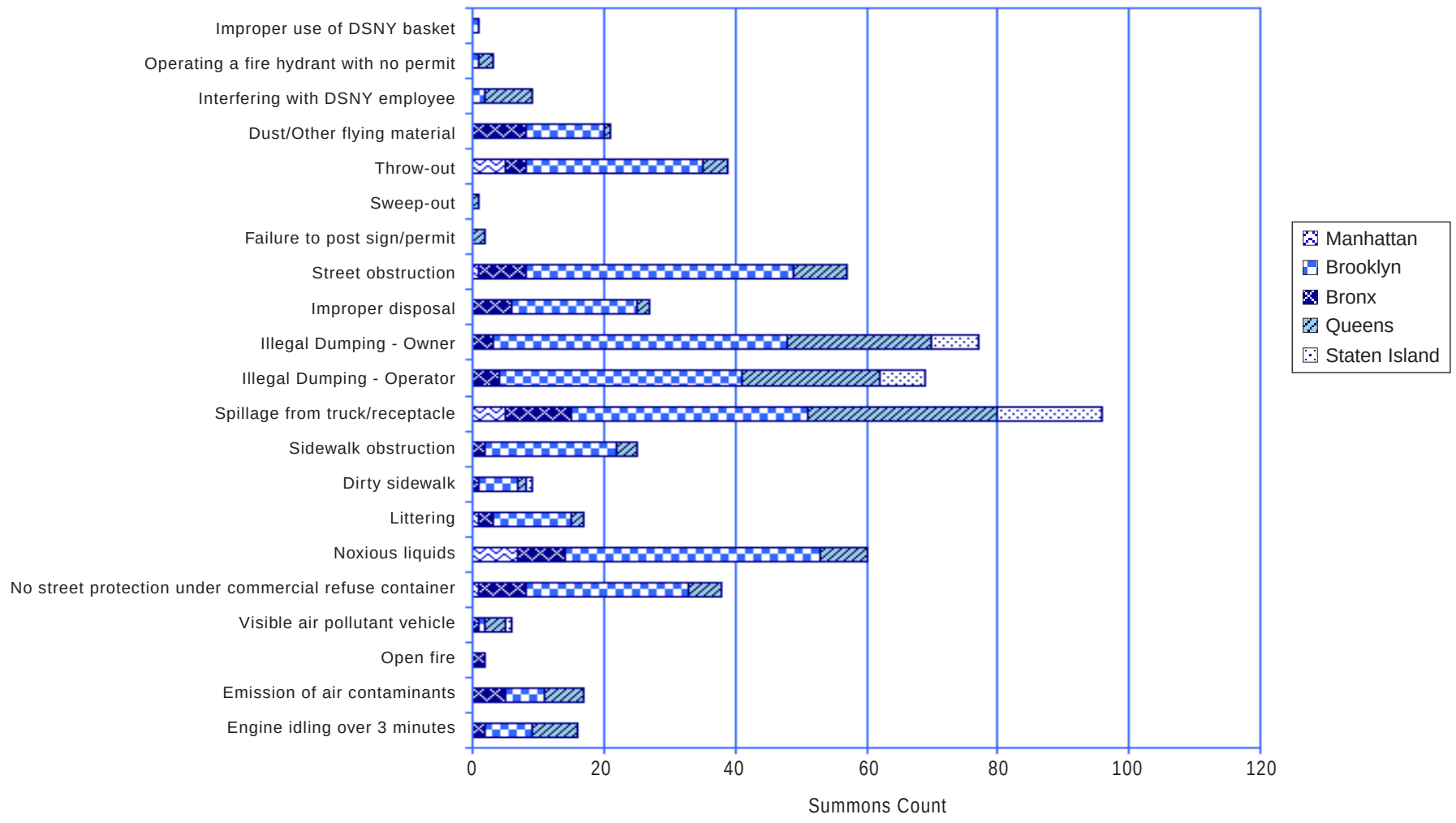

Figure 3.1-7 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

DSNY Parking Violations by Borough (July 2002 - June 2003)

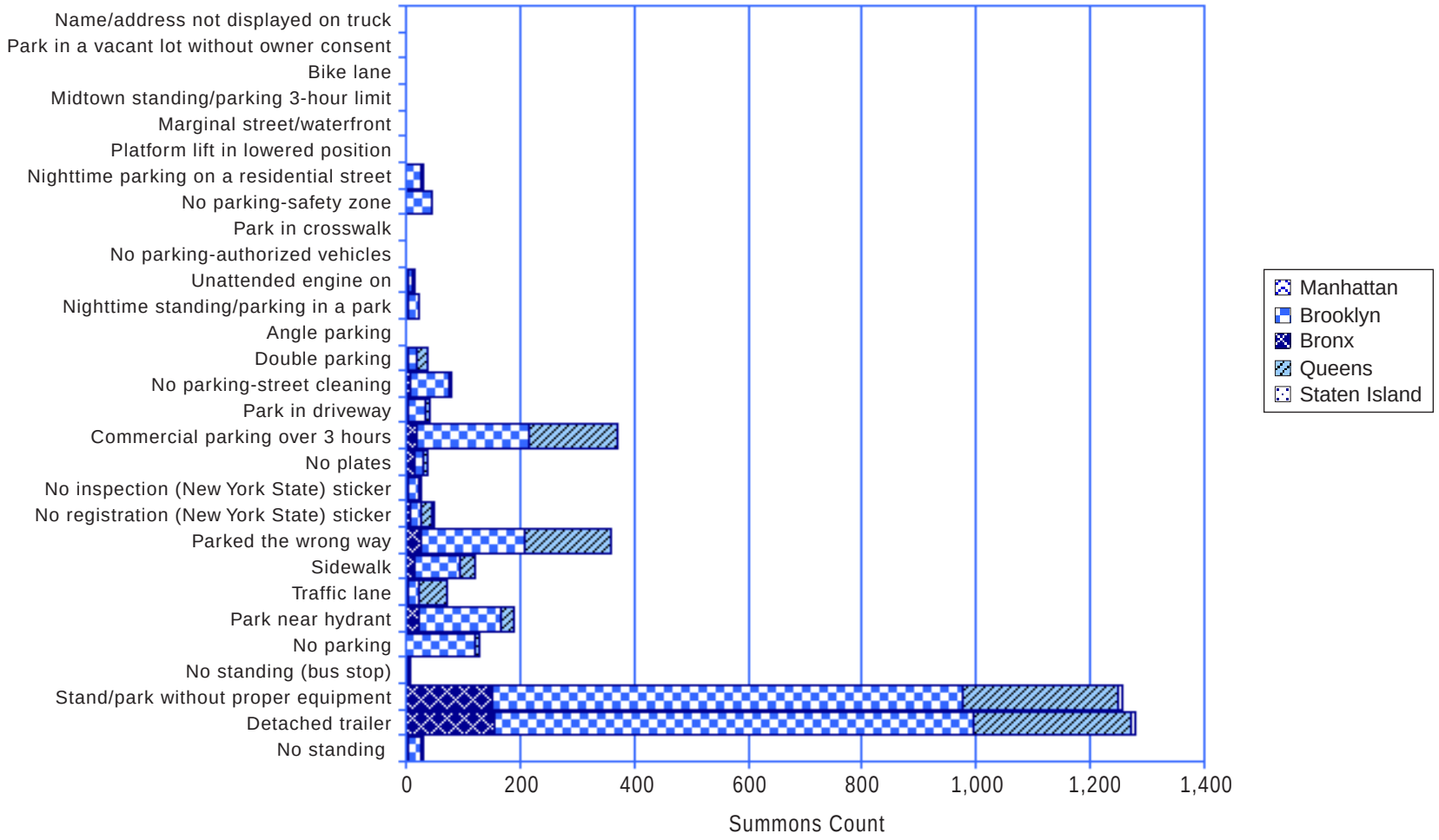

Figure 3.1-8 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

DSNY-issued traffic violations are portrayed in Figure 3.1-9. The transportation of loose cargo without a cover is clearly the most commonly violated rule, with 300 summonses issued within Fiscal Year 2003. Most other traffic violations, with the exception of failing to adhere to local truck routes, occurred fewer than 50 times in the one-year period. Note that the majority of the traffic violations occurred in Brooklyn.

Analysis of Inspection Forms. A sample of DSNY inspection forms was reviewed to provide a more detailed profile of "major" violation and warning percentages by facility type. Blank DSNY inspection forms for putrescible and non-putrescible Transfer Stations can be found in Attachment A. A list of the various laws and regulations enforced by the PIU is included as Attachment C.

A 20% sample of inspection forms from July of 2002 to June of 2003 was reviewed - 657 inspection forms from full inspection visits only. (Full inspection reports instead of drive-by inspection statistics were used to ensure that the aggregate was an accurate representation of violations found and not unduly skewed towards infractions observed only in drive-by inspections.) Table 3.1-6 summarizes the findings.

Violation and warning frequency for putrescible, non-putrescible and fill material facilities can be evaluated based on statistics calculated from the survey analysis. Warnings are issued at fill material and putrescible stations twice as often as violations, compared to non-putrescible Transfer Stations where warnings are issued more than four times as often as violations. It must be remembered that fill material Transfer Stations are inspected only half as often as putrescible and non-putrescible stations, indicating that their warning-to-inspection rate is actually higher than that for putrescible facilities – and closer to the non-putrescible Transfer Station rate. The similarity in warning statistics between fill material and non-putrescible stations can be attributed to the similar inspection criteria that relates to equipment maintenance and strict pile height limitations. These infractions often lead to a warning, as they are typically temporary conditions caused by fluxes in the City's waste disposal needs that might be reported during an inspection but are not the norm at the facility.

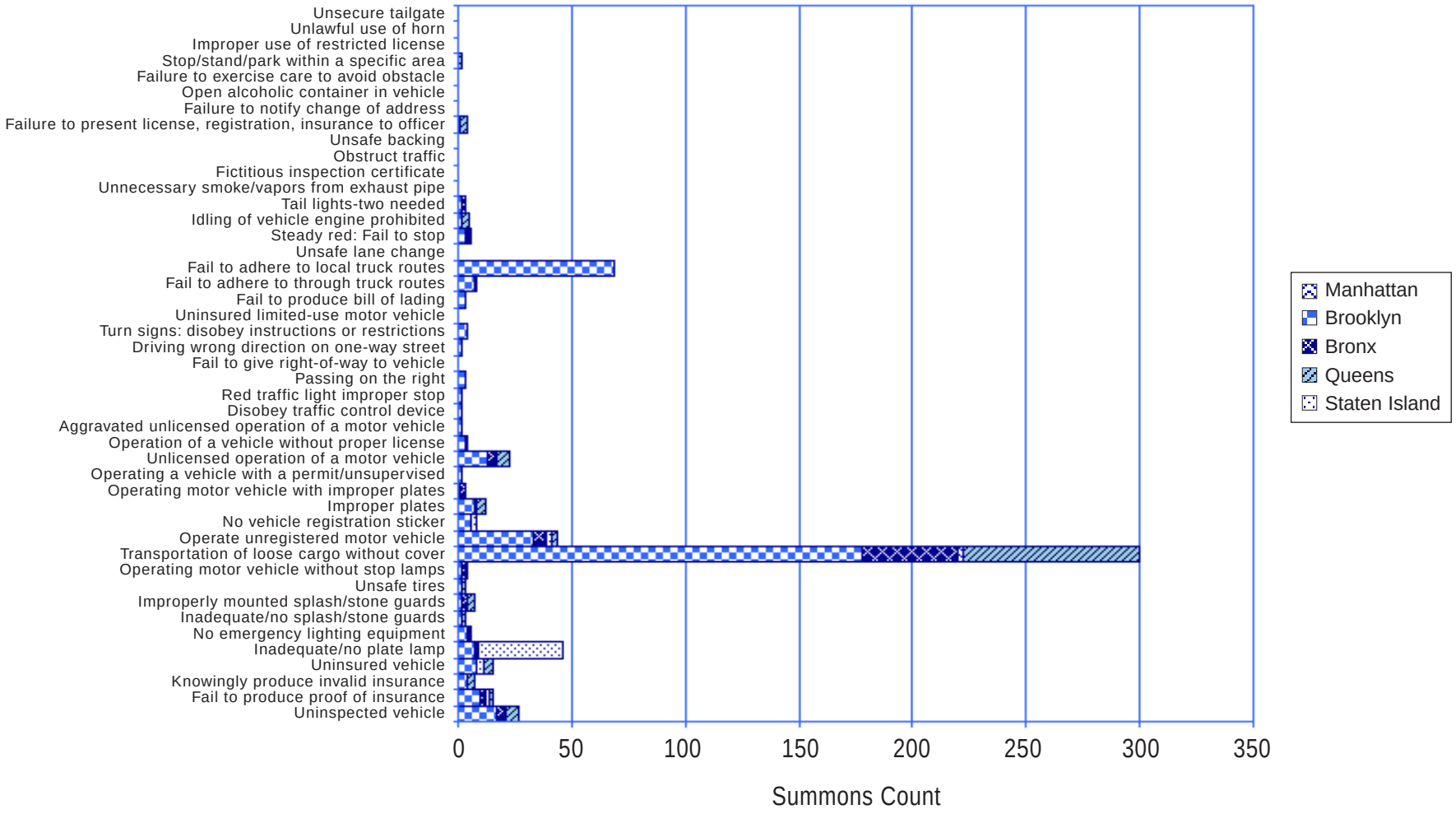

Figure 3.1-9 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

Table 3.1-6
DSNY Violations and Warnings for "Major" Offense Violations[(1)]
(20% Sample of July 2002-June 2003 Reports)

	Inspections	Warnings	Violations
Putrescible	268	11	5
Non-Putrescible	277	26	6
Fill Material	112	10	4
Totals	657	47	15

Note:
[(1)] ECB S-36 – S-39 violations ("major" violations relating to operational rules).
Source: DSNY inspection records, PIU, 2003.

3.2 New York State Department of Environmental Conservation

NYSDEC is responsible for issuing state permits and continued inspection of Transfer Stations, ensuring that the facility is designed, maintained and operated according to provisions in the permit and as set forth by 6 NYCRR Part 360. Additionally, NYSDEC's Environmental Conservation Officers (ECOs), often assisted by the NYPD's City Police Highway and Motor Carrier Units, are responsible for responding to criminal or administrative complaints. Most often these complaints relate to noise or odor issues reported by the public. While regular inspections are carried out by NYSDEC environmental inspectors, no standard frequency of inspections is set. Past inspection forms are kept by both NYSDEC and the facility for follow-up purposes.

Urbitran Associates conducted a survey of NYSDEC Bronx, Brooklyn and Queens inspection reports for June 2002 - June 2003. The frequency of NYSDEC inspections varied greatly, from once a year to three a month. The average for putrescible Transfer Stations was 12.2 inspections per year -- just over one a month. For non-putrescible Transfer Stations the average was 11.1 inspections a year -- roughly once every five weeks. Table 3.2-1 shows inspection frequency for each borough determined by the survey. (Note: NYSDEC categorizes fill material as non-putrescible.)

Table 3.2-1
NYSDEC Inspection Frequency

Borough	Type of Station	Frequency
Brooklyn	Putrescible	~ 2 per month
	Non-Putrescible	~ 1 per month
Bronx	Putrescible	~ 1 every 2 months
	Non-Putrescible	NA
Queens	Putrescible	~ 1 per month
	Non-Putrescible	~ 1 every 6 weeks

Source: NYSDEC inspection records, 2003.

Inspections where violations were noted can result in revocation and denial of a permit or its suspension or modification, as is outlined in Part 621, Title 6 for NYCRR. Information on the regularity of such revocations was not available for this Study. Common violations included nuisance problems (such as inadequate dust and odor controls, truck queuing and processing more garbage than their permit allows); lack of proper fire suppression equipment; accepting and processing types of solid waste not allowed by the facility's permit; failure to control access to the facility; inadequate drainage; and unlawful disposal of waste oil. Table 3.2-2 indicates the percentage of inspections that led to the issuing of a formal violation, according to the review of NYSDEC inspection reports.

Table 3.2-2
% of NYSDEC Inspections Resulting in Violation
(June 2002- June 2003)

Type of Station	Inspections Resulting in Violation
Putrescible	2.4%
Non-Putrescible	3.4%

Source: NYSDEC inspection records, 2003.

If a non-compliance exists, a judgment is made by the NYSDEC whether or not to pursue it. If a violation is determined, a Notice of Violation -- a letter stating the violation -- is sent to the infringing facility. An enforcement conference between the NYSDEC and the facility is then

arranged to discuss the violation and possible settlement. If agreement is reached, an Order of Consent is signed indicating the negotiated fine, and the facility is responsible for the remediation of the non-compliance. However, if negotiations do not lead to an agreement, a Notice of Hearing and Complaint is sent and an Administrative Law Judge (ALJ) is assigned by NYSDEC to hear the case. During this formal process, a hearing will occur which will result in a Commissioner's Order.

A survey of inspection forms was conducted to provide a detailed profile of the specific infractions that most frequently occur. A review of NYSDEC inspection reports was conducted to obtain an understanding of the frequency of specific infractions. Blank NYSDEC inspection forms for putrescible and non-putrescible Transfer Stations can be found in Attachment B.

According to the NYSDEC inspection form survey, the most common infractions fall under the management and operation categories. Figure 3.2-1 compares putrescible and non-putrescible Transfer Station violation statistics by type of infraction. Overall, non-putrescible Transfer Stations experienced a higher violation count. However, both types of facilities experienced a significant number of management infractions.

The most common NYSDEC putrescible Transfer Station infraction was improper use or lack of authorization to use a specific area within or outside a facility (see Figure 3.2-2). This violation, issued during 3.5% of all inspections, includes any number of unspecific permit violations -- most commonly queuing infractions and the presence of an open door at the facility. Also, the presence of vectors (rodents or insects) and not containing waste operations in an enclosed area occurred during more than 1% of the inspections.

Noted at 13.6% of inspected non-putrescible Transfer Stations, the presence of leachate was the most frequently violated infraction (see Figure 3.2-3). The high statistic is due in part to one specific facility with continual water/runoff issues. Improper maintenance and operation, and the presence of queuing and dust, were found at more than 2% of inspected non-putrescible facilities.

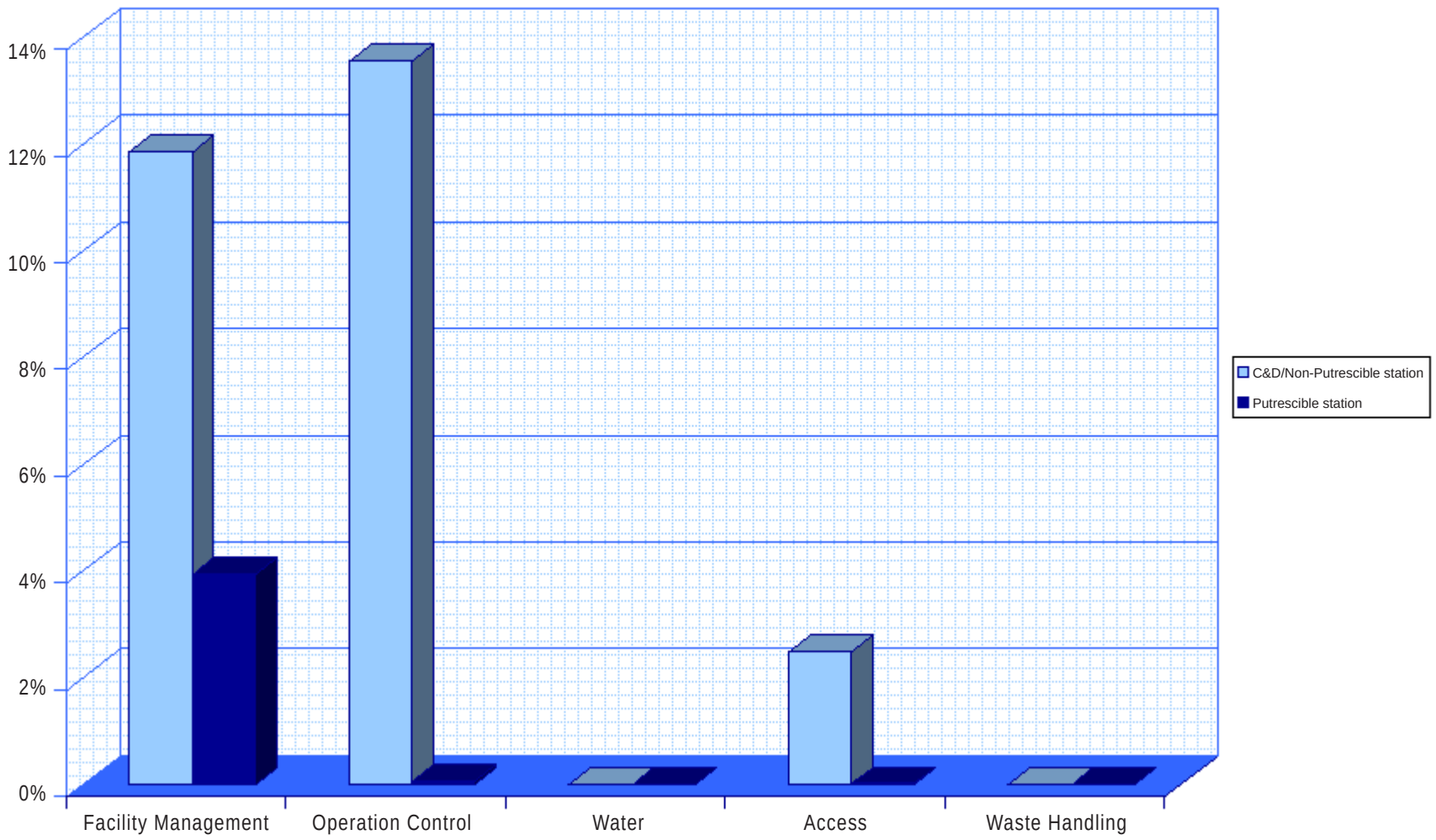

Figure 3.2-1 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

NYSDEC Infractions at Putrescible Transfer Stations (June 2002 - June 2003)

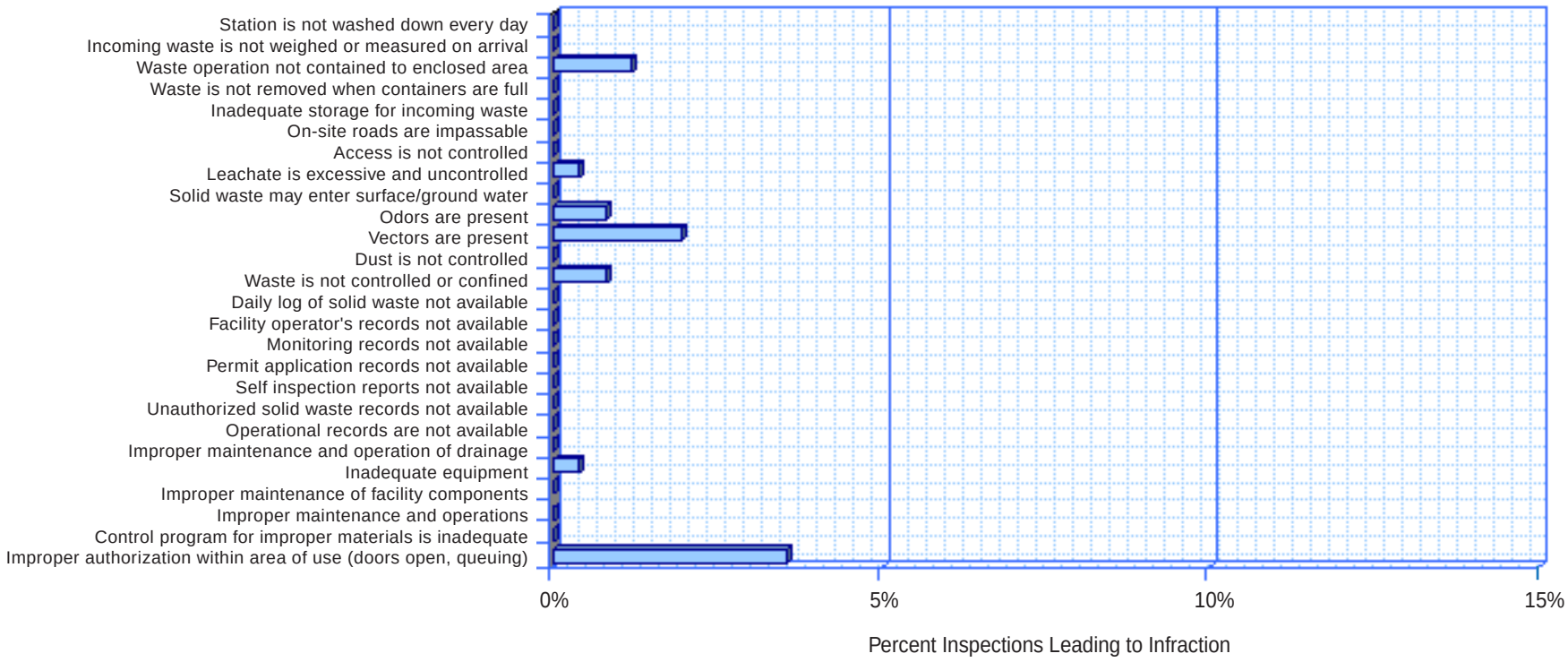

Figure 3.2-2 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

NYSDEC Infractions at C&D/Non-Putrescible Transfer Stations (June 2002 - June 2003)

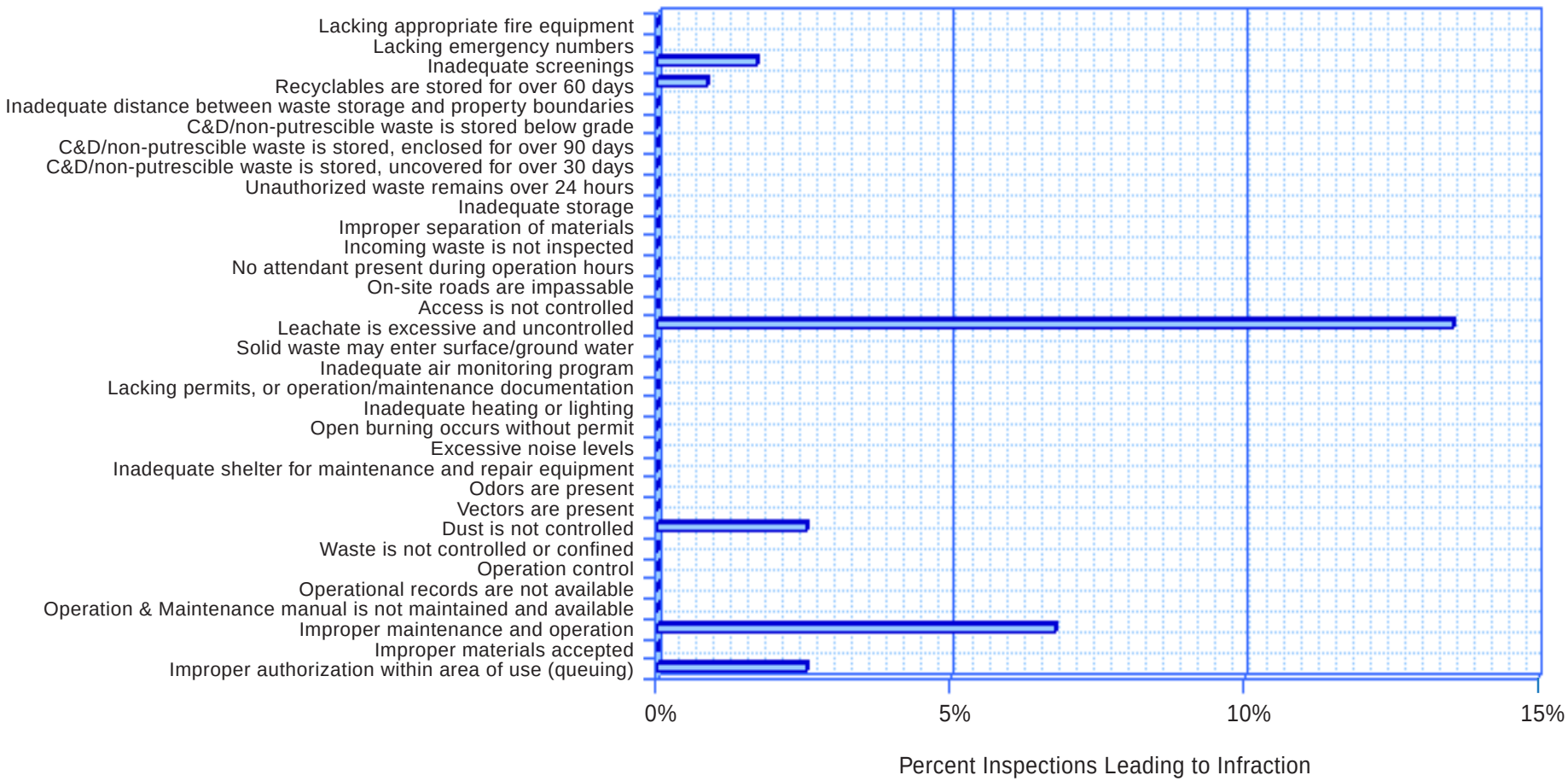

Figure 3.2-3 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

NYSDEC is also responsible for the permitting of putrescible and non-putrescible Transfer Stations. This process includes a series of inspections to ensure that the design, operation and maintenance of the facility are in accordance with the engineering report filed with the permit. An active station must be either permitted or operating under a consent order (a license to operate for 90 days). Based on the performance of the facility, the consent order can be extended. However, the NYSDEC is in the process of obtaining proper permits for all facilities. There are only four (4) facilities operating under Order, all of which are actively pursing permits from both NYSDEC and DSNY. An Emergency Authorization may be granted to specific stations to increase the amount of waste processed for a short period of time. Most commonly, Emergency Authorizations are issued following unusual circumstances, such as a large storm, a blackout or any other event that would cause an abnormally high volume of waste to be collected in the City.

As mentioned previously, NYSDEC has a role in the environmental review of the Transfer Station applications and permit modifications. A new environmental justice policy was recently put in place at NYSDEC that requires enhanced public outreach measures for Transfer Station applications for new facilities or for expansions in capacity at existing facilities located in areas of low income or predominantly minority populations.

3.3 New York City Police Department

The NYPD is responsible for enforcing the policies regulated by other agencies. The NYPD's Traffic Control Division is responsible for the enforcement of truck routes designated by the NYCDOT. 34 RCNY 4-13 stipulates that while the NYCDOT is charged with management and oversight responsibilities for the City truck route network, the NYCDOT will work with the NYPD to identify or respond to chronic route violations. Additionally, the NYPD's City Police Highway and Motor Carrier Units assist in the inspections carried out by NYSDEC's ECOs.

NYPD violation statistics could not be reviewed in this Study as infraction records do not differentiate between waste-related vehicles and all other vehicles. Table 3.3-1 outlines pertinent regulations and specific violations that the NYPD is responsible for enforcing. According to Table 3.3-1 (provided by the NYPD Motor Carrier Safety Unit), commercial vehicles are fined for violating state ECL, Sanitation Rules (Administrative Code), City Health Code, City Fire Department Regulations, City Vehicle and Traffic Laws or any number of Transportation Laws.

3.4 Regulatory Agency Coordination

Coordination between the regulating bodies (NYSDEC, DSNY, NYCDEP, NYPD and NYCDOT) does exist in terms of the environmental review of applications; however, the majority of enforcement is independent. The NYCDOT utilizes the NYPD's Traffic Control Division to enforce its policies, but no formal system of coordinating exists for agencies that have overlapping responsibilities. Discussions with NYSDEC confirmed that agencies do confer about the enforcement history of certain Transfer Stations and discuss consent orders when a certain violation/facility requires it. However, most often the violation falls under the jurisdiction of an individual agency and is therefore dealt with independently. DSNY usually does contact NYSDEC about "quality of life" issues, since they pertain to the public's exposure to air, odor or noise pollution and are therefore extremely sensitive. NYSDEC will then conduct their own inspection, and if a violation is found, they are able to issue a harsher fine.

Enforcement overlap occurs in cases that are forwarded from the City 311 (public complaint) number. Each Transfer Station is required to prominently post the 311 phone number for complaints. The public complaints are received and recorded by 311 personnel and then appropriated to the most fitting agency for follow-up. Commonly, sanitation issues are given to both DSNY and NYSDEC, and the issue of enforcement jurisdiction is left to the judgment of the individual agency. According to personnel at 311, no Transfer Station-related complaints have been recorded this year.

While both DSNY and NYSDEC conduct Transfer Station inspections throughout the year, the majority of Transfer Station enforcement, in the context of daily maintenance and performance, falls under the jurisdiction of DSNY and is carried out individually during weekly DSNY inspections.

Table 3.3-1
NYPD Enforcement

New York State Environmental Conservation Law
Waste Transportation Permit
Waste Manifest
Waste Discharge into Water
Coverage of all Vehicles Transporting Solid Waste
Vehicle and Traffic Law
License/registration renewals
Equipment Violations
Traffic Regulations
Dangerous Driving
City Waste Conveyance Permits
All violations
City Fire Department Regulations
Restricted routes and hours
City Administrative Code - Sanitation Rules
Spillage from trucks
Asbestos violations
Dumping
Health Code
All violations
Transportation Law - Commercial Vehicle Safety
Operation / Service of equipment
Operation / Service of vehicle

Source: NYPD Motor Carrier Safety Unit, 2003

4.0 FIELD OBSERVATION

Truck-route violations are important to monitor as off-route trucks may directly affect the quality of life in the surrounding community -- they bring loud, odorous trucks onto residential streets. (NYCDOT is currently undergoing a citywide study of truck traffic.) A field observation by Urbitran was conducted to sample the level of truck route compliance. This was achieved by counting Waste Hauling Vehicles that utilize non-truck routes at key intersections in the vicinity of Transfer Stations. Intersections with a high potential to be used illegally by waste-related vehicles -- either key local non-truck route intersections or crossings of local arteries and truck routes -- were selected as observation sites.

Major non-truck route intersections located in residential areas and in the vicinity of Transfer Station Study Areas were selected for counts, due to both the likelihood of use and the potential effect on local populations. Five study areas were established in residential areas throughout the City: Hunts Point and Port Morris in the Bronx, Red Hook and Williamsburg in Brooklyn, and Jamaica in Queens. Twelve key intersections were selected and five-way classification traffic counts were conducted to determine the usage patterns at each location. Table 4-1 indicates the percentage of trucks and Waste Hauling Vehicles that utilize the routes compared to overall usage.

As can be seen in Figure 4-1, which represents this disparity graphically, the percentage of truck traffic composition varied from approximately 60% to 6%, depending on the location. However, it cannot be determined how many of these trucks were used for local deliveries, which are allowed on truck routes. Additionally, packer trucks are allowed to be off truck routes if they are collecting in the vicinity. The Bronx and Red Hook intersections experienced remarkably less overall truck activity -- 6% to 18% -- while in the Williamsburg and Queens locations 62% of traffic was comprised of trucks. It can be hypothesized that this large discrepancy is due to the proximity of truck routes that run parallel or adjoin the intersections in Williamsburg and Queens. Additionally, the abundance of manufacturing land uses in these areas could possibly account for a higher number of local deliveries.

Table 4-1
Truck Route Usage by Trucks and Waste Hauling Vehicles at Non-Truck Route Intersections, Compared to Overall Usage

Location	Intersection	% Trucks	% Waste-Related
Red Hook	Huntington St. and Court St.	6.6%	0.4%
	Nelson St. and Smith St.	6.2%	0.5%
Hunts Point	Manida St. and Spofford Ave.	7.4%	0.5%
	Spofford Ave., Hunts Point Ave., Bryant Ave.	13.8%	0.3%
Port Morris	Lincoln Ave. and 136th St.	18.2%	2.0%
	St. Anns Ave. and 137th St.	12.6%	1.3%
Williamsburg	Humbolt Rd. and Conselyea St.	62.0%	6.1%
	Woodpoint Rd. and Conselyea St.	63.1%	5.5%
	Woodpoint Rd. and Maspeth Ave.	63.5%	5.9%
	Grand St. and Stewart Ave.	64.7%	5.9%
Jamaica	168th St. and Jamaica Ave.	64.9%	4.4%
	168th St. and Hillside Ave.	63.3%	0.4%

All non-truck route intersections experienced truck usage. However, Waste Hauling Vehicles comprised a small percentage, roughly 2% to 12% of trucks and an even smaller percentage of total vehicles – approximately 0.3% to 6% (see Table 4-1). As mentioned previously, trucks making local deliveries are permitted to use non-truck routes due to necessity and therefore it cannot be determined if all non-route truck usage is in violation. Regardless, the low percentage of Waste Hauling Vehicles indicates that while Waste Hauling Vehicle violations do occur, they do so at a significantly lower rate than the overall average truck route violations.

Truck Route Usage by Trucks and Waste Hauling Vehicles at Non-Truck Route Intersections, Compared to Overall Usage

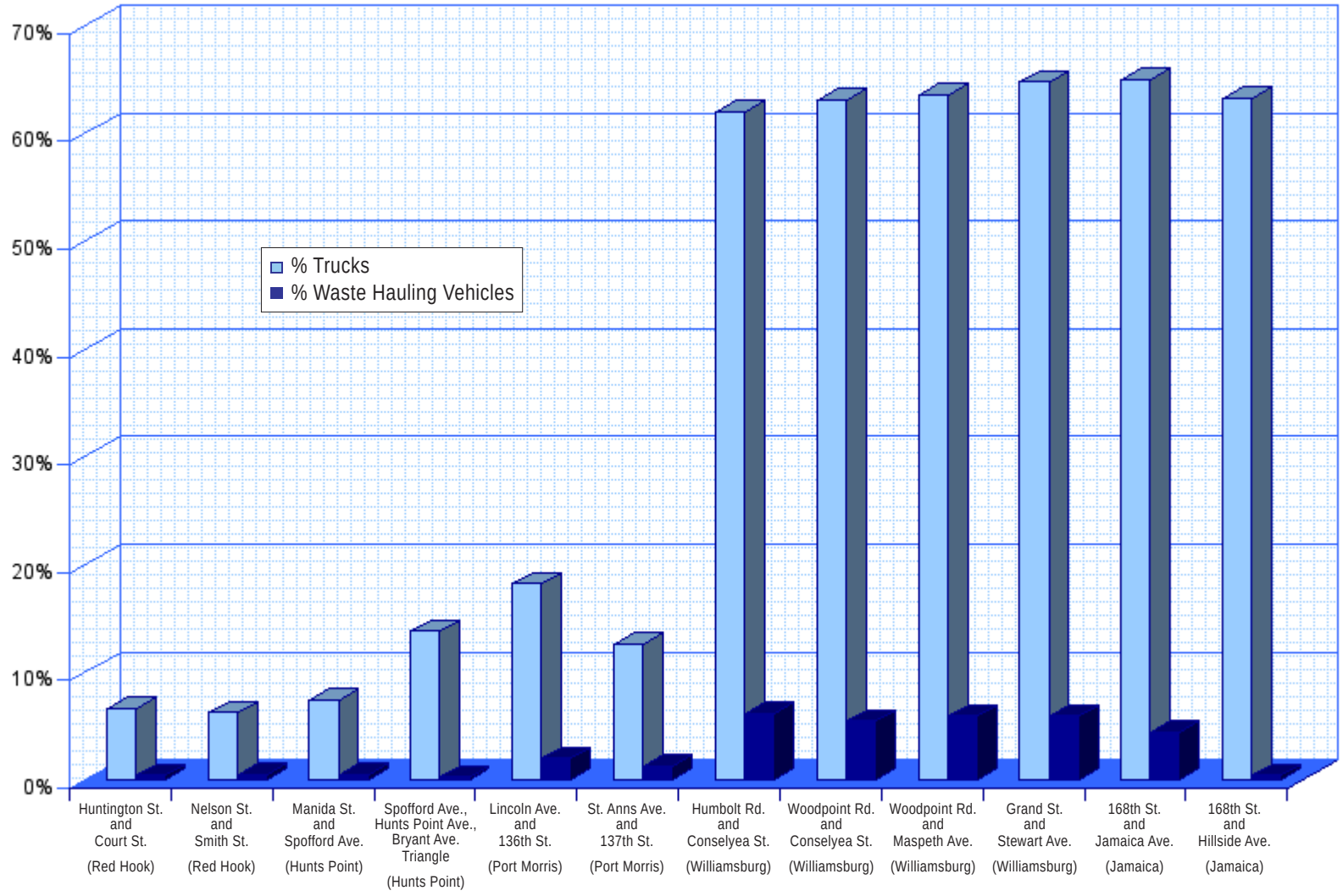

Figure 4-1 - Enforcement Effectiveness Evaluation

Transfer Station Legislation and Regulation

Prepared by Urbitran Associates

5.0 CONCLUSIONS AND OPTIONS

A review of the current enforcement practices at the City's Transfer Stations indicated that an overall bolstering of enforcement efforts in the last few years has led to increased adherence to regulations and permit conditions. DSNY longitudinal statistics report a decline in violations as well as number of facilities over the past decade, as a result of the increased frequency of inspections and the closure of negligent facilities. In 1990, 153 Transfer Stations were in operation as compared to 96 in 1996 and currently, in 2004, only 69. Enforcement practices at DSNY are highly adaptable and thus prepared to address concerns adequately and in a timely manner. Additionally, the existence of a progressive fine structure and fact that persistent offenses can lead to closure allows for persuasive enforcement. The enforcement record of this past year indicates that a comprehensive, attentive enforcement system can reduce environmental, operational and maintenance deficiencies, and continued enforcement -- especially pertaining to sensitive community "quality of life" issues -- is needed. The following proposes steps to improve the effectiveness of the enforcement system, with the objective of continuing the positive trend in Transfer Station compliance with regulations and permit conditions.

Currently, internal statistics concerning violation and infraction frequency are not catalogued within all the agencies responsible. DSNY keeps records of inspection and violation frequency in a recently created master database; however, infraction frequency statistics for each Transfer Station or violation type cannot be searched due to limitations in the system. This capability would be helpful to allow inspectors to track a station's progress over time in regards to a certain type of violation as well as to alert inspectors to specific infractions that need to be inspected for in the future. Upgrades to the DSNY system are underway and should continue.

Additionally, the creation of an electronic inspection form would create a comprehensive record of inspection results that would be easily accessible both internally and externally. An electronic form would increase efficiency during the inspection for the facility being inspected and the inspectors. Indicators such as location, weather, exact time and date, and facility permit status could be recorded automatically, eliminating human error. The inefficient task of digitally

inputting inspection data would no longer be necessary and the amount of space needed to store past inspection forms would be reduced. A computerized system would also allow an interface between individual inspection reports, creating linkages between relevant inspection issues or facility reports. The entire file of infraction and payment information could be electronically linked to each violation entry, making access to such data seamless.

Increased interaction, possibly including training in monitoring procedures, between DSNY and NYCDEP on air quality, odor and noise regulation, would strengthen enforcement of standards in these areas. Training the PIU officers at DSNY to conduct this analysis would be beneficial, as they conduct the majority of frequent inspections.

A complete history of each facility's violation past should be recorded and accessible to all agencies that might use the information to track further violations or adjust regulatory processes at certain facilities. Such a step would increase the likelihood of cooperation and eliminate overlaps and inefficiencies. Cooperation would be fostered between agencies at the City level trying to address similar issues but from different legislative or jurisdiction perspectives. Each agency would have access to inspection and violation data collected by other agencies and duplicate inspections or unnecessary overlaps would be eradicated. Furthermore, agencies would be alerted to infractions that were noticed by an agency without jurisdiction to address the violation, thereby increasing the efficiency of the regulatory process and reducing the number of violations that are reported but not properly addressed. With all of the enforcement information in one forum, the need for consistent forms becomes even more necessary. An attempt to streamline inspection criteria and forms within each agency should be made. Not only will this clarify to Transfer Station operators what is expected, but it will also ensure consistency within inspections over time.

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

fostered. The improvements in productivity over manual collection and input of inspection data, as well as the overall benefit of a fully coordinated multi-agency 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.

Other source-related inputs included in the ISCST3 model runs for each prototype were the building dimensions, which were established separately based on typical existing facility data. In addition, each modeled prototype was assigned a typical property area and configuration. A 25-meter spacing Cartesian receptor grid was placed over each of the three prototype facilities modeled, and extended out to two kilometers in all directions from the facility, to ensure that the grid was sufficiently large to encompass all predicted odor effects above the detection threshold (DT=5). Any of the receptors that fell within the property area assigned for each facility prototype were eliminated from model input, so that the model would produce concentration results only at receptors outside the defined property areas. To complete the modeling step for this Study, only three ISCST3 model runs were needed (one for each prototype size).

Odor effects from each prototype facility were modeled separately, as described above, and for those facilities located in close proximity, the patterns of predicted odor concentrations were overlaid on a map of the area. The contour plots of predicted odor concentrations show the potential effects of a single facility, and, where the contours from two or more facilities overlap, also show locations where multiple facilities may cause noticeable odors at different times. In cases where two or more facilities are directly upwind of a given receptor, the plots of potential odor effects indicate areas where cumulative short-term odor effects might occur from multiple facilities.

Contour plots for each facility were set up to show areas where concentrations may exceed a level of five times the theoretical, laboratory-determined, detection threshold (5 DT) and ten times the same laboratory-determined detection threshold (10 DT). Given background odors, a level of 5 DT is expected to create an odor that is on the threshold of detection, meaning that an average individual might just begin to perceive the odor over background odor levels. A Transfer Station odor impact of 10 DT is expected to be recognized as a "garbage-related odor" and perceived by most people as objectionable.

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 (1 DT), in comparison to clean, filtered background air. However, an odor concentration impact at 1 OU

would not likely be detected in outdoor air within New York City (City), which, based on background measurement taken during this Study, had on the order of a 5 DT, or 5 OU concentration even without local source effects. Adding a concentration of 1 OU to such air would probably not make a detectable difference to an average observer. It is expected that an added impact of 5 OU from a Transfer Station would be a more likely level of odor impact that would begin to be detected by an average observer. Also, it is expected that an added impact of 10 OU from a Transfer Station would be a more likely level of odor impact that would be recognized and found objectionable by an average observer.

ATTACHMENT A

SAMPLE DSNY INSPECTION FORMS (PUTRESCIBLE, NON-PUTRESCIBLE)

sanitation

NEW YORK CITY DEPARTMENT OF SANITATION

PERMIT AND INSPECTION UNIT
125 Worth Street, Room 723
New York, NY 10013
Telephone (646) 885-5027

DS 1552 (7-02)

PUTRESCIBLE SOLID WASTE TRANSFER STATION CHECK LIST

DATE:	TIME IN: ☐ AM ☐ PM	TIME OUT: ☐ AM ☐ PM		
NAME OF FACILITY:		TRANSFER STATION NO.		PERMIT NO.
ADDRESS:		CITY	STATE	ZIP
OPERATOR NAME		VIOLATION RULE SECTION		
OPERATION HOURS	OPERATION DAYS	VOLUME OF WASTE PER DAY		
WARNING(S) ISSUED: ☐ Yes ☐ No		SUMMONS ISSUED: ☐ Yes ☐ No		
PERMIT D.O.S. EXP. DATE: / /		PERMIT D.E.C. EXP. DATE: / /		

REASON INSPECTED: ☐ NEW PERMIT ☐ PERMIT RENEWAL ☐ ROUTINE ☐ VIOLATION RE-INSPECTION

Rule Secs.	VIOLATION	YES	NO	REMARKS
4(a)	Operating a PSWTS with a permit	☐	☐	
5(a)	Receipt, tipping, sorting, processing, compaction, or storage within a fully enclosed structure	☐	☐	
5(a)	Floor constructed of asphalt concrete or other impervious material	☐	☐	
5(a)	Tipping floor equipped with adequate drainage structure	☐	☐	
5(a)	Tipping area clearly marked.	☐	☐	
5(b)	Adequate ventilation	☐	☐	
5(b)	Filters of dust collectors for exhaust air	☐	☐	
5(b)	Gasoline / Diesel fuel used within a fully enclosed structure with adequate venting	☐	☐	
5(b)	Filters of vents working	☐	☐	
5(c)	Sufficient standby equipment	☐	☐	
5(e)	Sufficient sewage disposal system	☐	☐	
5(e)	Drinking water	☐	☐	
5(e)	Compliance with Art. 135, HC	☐	☐	
5(e)	Hose bib or back-flow device	☐	☐	
5(h)	Sufficient lighting	☐	☐	
5(h)	Too much lighting	☐	☐	
6(b)	Permitting unpermitted / unlicensed vehicle to deposit waste in facility.	☐	☐	
6(b)	Entrance / exit by vehicle with attendant on duty	☐	☐	
6(b)	Loading / unloading of vehicle with continuous supervision by attendant.	☐	☐	
6(c)	Equipment maintenance regularly done	☐	☐	
6(c)	Records of regularly scheduled maintenance	☐	☐	
6(d)	Using alternative site when necessary	☐	☐	
6(d)	Immediately notifying DOS of use of alternative site	☐	☐	
6(e)	Presence of rodents, insects or other pests	☐	☐	
6(e)	Written confirmation of weekly extermination available	☐	☐	
6(f)	Operational records maintained or available	☐	☐	
6(g)	Presence of material listed in section 1(a)(2)	☐	☐	
6(h)	Baled / loaded material removed within 48 hours	☐	☐	
6(h)	Non-baled / loaded material waste stored off tipping floor	☐	☐	
6(i)	Facility swept, washed, deodorized in specified 30-minute period	☐	☐	
6(j)	Deodorizing materials in use	☐	☐	
6(j)	Odors emitted in violation of Z.R. performance standard	☐	☐	
6(k)	Solid waste received in designated area	☐	☐	
6(k)	Solid waste spilling off tipping floor and not immediately removed	☐	☐	
6(l)	Equipment kept within property line	☐	☐	
6(m)	Drains cleaned and functioning	☐	☐	
6(m)	Leachate or wash water flowing into street	☐	☐	
6(n)	Excessive noise	☐	☐	
6(n)	Mufflers on motorized equipment	☐	☐	
6(o)	Adequate sign outside	☐	☐	
6(p)	Doors kept closed	☐	☐	
6(q)	Litter on street or area abutting facility	☐	☐	
6(r)	Compliance with siting or other operational rules	☐	☐	

DS 1652 back (7-02)

PILE #	L x	W x	H	=	/ 27 =	CUBIC YARDS
1						
2						
3						
4						
5						
TOTAL CUBIC YARDS =						

TOTAL VOLUME	MAXIMUM ALLOWABLE VOLUME	OVER VOLUME

GENERAL COMMENTS:

MATERIAL IN:	MATERIAL OUT:	DATE:

INSPECTED BY:	BADGE NO.
INSPECTED BY:	BADGE NO.
SUPERVISOR / CAPT., LT.	DATE:

sanitation

NEW YORK CITY DEPARTMENT OF SANITATION

PERMIT AND INSPECTION UNIT
125 Worth Street, Room 723
New York, NY 10013
Telephone (646) 885-5027

DS 1853 (7-02)

NON-PUTRESCIBLE SOLID WASTE TRANSFER STATION INSPECTION FORM

DATE:	TIME IN: ☐ AM ☐ PM		TIME OUT: ☐ AM ☐ PM		
NAME OF FACILITY:			TRANSFER STATION NO.		
ADDRESS:			CITY	STATE	ZIP
PERMIT D.O.S. EXP. DATE: / /			PERMIT D.E.C. EXP. DATE: / /		
REASON INSPECTED: ☐ NEW PERMIT ☐ PERMIT RENEWAL ☐ ROUTINE ☐ VIOLATION RE-INSPECTION					

1.	Transfer Station Status ☐ Open ☐ Closed	
2.	Is the sidewalk and surrounding area of the Transfer Station kept clean?	☐ Yes ☐ No
3.	Are there any transport vehicles waiting on the public roadway to dump or unload?	☐ Yes ☐ No
4.	What is the size of the Transfer Station's sign? _____Ft. x _____ Ft.	
	a) Does the Transfer Station's sign contain all the proper information?	☐ Yes ☐ No
5.	What is the height of the Transfer Station's fencing? _____ Ft.	
	a) Is it opaque? ☐ Yes ☐ No b) Does it surround the entire facility?	☐ Yes ☐ No
6.	Do you detect any odors?	☐ Yes ☐ No
7.	Is the sewage and wastewater system functioning?	☐ Yes ☐ No
8.	Does leachate or wastewater flow into the street?	☐ Yes ☐ No
9.	Is the water accessible to all areas of the pile(s)?	☐ Yes ☐ No
10.	Do you observe an unacceptable amount of dust?	☐ Yes ☐ No
11.	Does the operator use City hydrants?	☐ Yes ☐ No
	a) Do they have a permit? ☐ Yes ☐ No b) If yes, date it expires? ____/____/____	
12.	Is there a cross connection control in place?	☐ Yes ☐ No
13.	Do you observe any material(s) burning?	☐ Yes ☐ No
14.	Does the Transfer Station have sufficient equipment?	☐ Yes ☐ No
15.	What type of equipment is used for processing?	
16.	Are all pieces of equipment contained within the property line?	☐ Yes ☐ No
17.	Is any part of the NPSWTS operation conducted outside of the property line?	☐ Yes ☐ No
18.	Is an attendant supervising the loading and unloading of transport vehicles?	☐ Yes ☐ No
19.	Does the operator separate all designated recyclables?	☐ Yes ☐ No
20.	Are all transport vehicles, which are required to be licensed pursuant to Title 16A of the Administrative Code, appropriately licensed?	☐ Yes ☐ No
21.	a) Is there adequate ingress and egress for emergency vehicles?	☐ Yes ☐ No
	b) Is there adequate ingress and egress to properly perform an inspection?	☐ Yes ☐ No
22.	What is the date of the last exterminator visit? _____/_____/_____	
	a) Do you observe any vectors or rodents?	☐ Yes ☐ No

23. Are the transfer station door(s) kept closed when no vehicles are entering or leaving the facility? ☐ Yes ☐ No

24. Is the equipment maintenance record up to date? ☐ Yes ☐ No

25. Is the operator maintaining a daily log? ☐ Yes ☐ No

a) Does it contain the following information? ☐ Yes ☐ No

1) Date _____ / _____ / _____ Quantity received _____ Origin _____

2) Date _____ / _____ / _____ Quantity removed _____ Destination _____

3) Name and address of owners of transport vehicles ☐ Yes ☐ No

26. Is there any unacceptable material? ☐ Yes ☐ No If yes, describe and give amount of material.

27. NON - PUTRESCIBLE SOLID WASTE

Total Unacceptable L x W x H = / 27 = _____ c.y.

Non - Putrescible Solid Waste

PILE #	TYPE	L x	W x	H	=	/ 27 =	c.y.
1							
2							
3							
4							
5							
6							
7							
8							

TOTAL CUBIC YARDS =

28. TOTAL VOLUME	MAXIMUM ALLOWABLE VOLUME	OVER VOLUME

29. Were any summonses issued? ☐ Yes ☐ No If yes, describe the violation.

30. Were any warnings issued? ☐ Yes ☐ No If yes, describe the violation.

GENERAL COMMENTS:

I, hereby, acknowledge that on _____, 20 _____, I conducted an inspection of the above transfer station and my findings are contained herein.

INSPECTED BY:	BADGE NO.
INSPECTED BY:	BADGE NO.
SUPERVISOR / CAPT., LT.	DATE:

ATTACHMENT B

SAMPLE NYSDEC INSPECTION FORMS

47-15-1E (1/98)—q

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

DISTRIBUTION ROUTING
WHITE COPY—Regional Office
YELLOW COPY—Central Office
PINK COPY—Facility
GREEN COPY—Inspector

6 NYCRR Subpart 360-11
SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
(For Use at Transfer Stations)

FACILITY NAME	LOCATION	FACILITY NUMBER	DATE	TIME

INSPECTOR'S NAME	CODE	PERSONS INTERVIEWED AND TITLES

REGION	WEATHER CONDITIONS	DEC PERMIT NUMBER

SHEET	CONTINUATION SHEET ATTACHED	PART(S) 360-
_____ OF _____	☐ Yes ☐ No	_____ Attached

Violations of Part 360 are Subject to Applicable Civil, Administrative and Criminal Sanctions Set Forth in ECL Article 71, and as Appropriate, the Clean Water and Clean Air Acts. Additional and/or Multiple Violations May Be Described on the Attached Continuation Sheet.
This form is a record of conditions which are observed in the field at the time of inspection.
Items marked NI indicate no inspection and do not mean no violation has occurred.

☐ PART 360 PERMIT ☐ ORDER ON CONSENT ☐ REGISTERED ☐ EXEMPT ☐ COMPLAINT

C	NI	V	
			FACILITY MANAGEMENT
☐	☐	☐	1. Solid waste management facility is authorized and management occurs within approved area. 360-1.7(a)(1),(b); 360-1.8(h)(5).
			2. Incoming solid waste is monitored by a control program for unauthorized waste, and solid waste materials accepted are those authorized and approved for management at the facility:
☐	☐	☐	a. Control Program. 360-1.14(e)(1).
☐	☐	☐	b. Department Approved Facility for Specific Wastes. 360-1.14(r); 360-11.4(a),(m).
☐	☐	☐	c. Signs. 360-11.4(c)*.
			3. Operator maintains and operates facility components and equipment in accordance with the permit and their intended use:
☐	☐	☐	a. Maintenance of Facility Components/Site Grading. 360-1.14(f)(1)*.
☐	☐	☐	b. Adequate Equipment. 360-1.14(f)(2)*.
☐	☐	☐	c. Drainage. 360-1.14(f)*.
			4. Operational records are available where required:
☐	☐	☐	a. Unauthorized Solid Waste Records. 360-1.14(i)(1).
☐	☐	☐	b. Self Inspection Records. 360-1.14(i)(2).
☐	☐	☐	c. Permit Application Records. 360-1.14(i)(3).
☐	☐	☐	d. Monitoring Records. 360-1.14(i)(4).
☐	☐	☐	e. Facility Operator Records. 360-1.14(u)(1)*.
☐	☐	☐	f. Daily Log of Solid Waste. 360-11.4(i)*.
			OPERATION CONTROL
☐	☐	☐	5. Solid waste, including blowing litter, is sufficiently confined or controlled. 360-1.14(j); 360-11.4(e).
☐	☐	☐	6. Dust is effectively controlled, and does not constitute an off-site nuisance. 360-1.14(k).
☐	☐	☐	7. On-site vector populations are prevented or controlled, and vector breeding areas are prevented. 360-1.14(l); 360-11.4(e).
☐	☐	☐	8. Odors are effectively controlled so that they do not constitute a nuisance. 360-1.14(m); 360-11.4(e).
			WATER
☐	☐	☐	9. Solid waste is prevented from entering surface waters and/or groundwaters. 360-1.14(b)(1).
☐	☐	☐	10. Leachate is minimized through drainage control or other means and is prevented from entering surface waters. 360-1.14(b)(2).
			ACCESS
☐	☐	☐	11. Access to the facility is strictly and continuously controlled by fencing, gates, signs, natural barriers or other suitable means. 360-1.14(d)*.
☐	☐	☐	12. On-site roads are passable. 360-1.14(n)*.
			WASTE HANDLING
☐	☐	☐	13. Adequate storage of incoming solid waste is available. 360-11.4(g)*.
☐	☐	☐	14. Putrescible solid waste is removed when transfer containers are full, or within seven days of receipt. 360-11.4(l).
☐	☐	☐	15. Processing, tipping, sorting, storage, compaction, and related activities are in an enclosed or covered area (for transfer stations receiving more than 50,000 cubic yards or 12,500 tons of solid waste annually). 360-11.4(n)(1)*.
☐	☐	☐	16. Incoming waste is weighed or measured before unloading (for transfer stations receiving more than 50,000 cubic yards or 12,500 tons of solid waste annually). 360-11.4(n)(2)*.
			17. Station is cleaned or washed down each day to prevent odors or other nuisance conditions (for transfer stations receiving more than 50,000 cubic yards or 12,500 tons of solid waste annually). 360-11.4(n)(3)*.
			OTHER
			On Continuation Sheet identify any other violations.
			* Does not apply to a registered transfer station.

I hereby acknowledge receipt of the Facility Copy of this Inspection Report sheet.

_____
Individual in Responsible Charge (Please print)

_____
Inspector's Signature

_____
Signature Date

REGIONAL OFFICE COPY

GENERAL INSTRUCTIONS

1. This form is to be completed and signed at the inspected solid waste management facility prior to departure.
2. Complete this form in quadruplicate. Submit the Regional Office Copy to the Solid & Hazardous Materials Engineer in the Regional Office of the inspected solid waste management facility. Submit the Central Office Copy to the Division of Solid & Hazardous Materials, 50 Wolf Road, Albany, New York 12233-7258. Submit the Facility Copy to the person at the facility who is the individual in responsible charge for the facility's operation. Retain the Inspector's Copy.
3. Print legibly and provide all title block information.
4. Indicate the Part 360 Facility Code Number corresponding to the type of solid waste management facility inspected. Completion of separate forms will be necessary if a site has more than one solid waste management facility type requiring inspection.
5. Enter the time that inspection begins, based on a twenty-four hour clock (e.g. "0945" for 9:45 AM, "1200" Noon, or "1630" for 4:30 PM).
6. Designate "Code" as "S" if you are a New York State Department of Environmental Conservation (NYSDEC) inspector, "M" if you are an On-site Environmental Monitor for NYSDEC, "C" if you are an Environmental Conservation Officer for NYSDEC, or "I" if you are an inspector for the New York State Department of Health or a County Health Department.
7. Indicate weather conditions at the beginning of the inspection, and additionally, record significant changes which occur during the inspection.
8. The individual performing the inspection must sign at the locaton designated as "Inspector's Signature". At the location designated as "Individual in Responsible Charge", have person at the facility who is in responsible charge for the facility's operation sign and date the Facility Inspection Report. In cases where the individual in responsible charge will not sign, is not present, or was not requested to sign, print "REFUSED TO SIGN", "NOT PRESENT', or "SIGNATURE NOT REQUESTED", and provide the date, time and your initials.

FACILITY INSPECTION REPORT INSTRUCTIONS

9. Each requirement on a numbered line is a paraphase or representation of the Part 360 regulations. The inspector should read and be familiar with the actual Part 360 provisions as indicated by the citations, for the type of solid waste management facility being inspected.
10. Check only one box on each numbered line to indicate Compliance, Violation, or No Inspection. Disregard all requirements expressed on a line, and related citations, that are not applicable to the type of solid waste management facility being inspected.
    a. Marking "Compliance" on a line (checking "C") means that all requirements expressed on the line and related citations, for the type of solid waste management facility being inspected, are in compliance.
    b. Marking "Violation" on a line (checking "V") means that at least one requirement expressed on the line and any related citation is in violation. Provide comments to indicate those requirements and citations in violation, those in compliance and those not inspected.
    c. Marking "No Inspection" on a line (checking "NI") means that no violations have been found on the line and no inspection has been made with respect to at least one requirement expressed on the line and related citation, or that all requirements and related citations are not applicable. Provide comments to indicate those requirements and citations in compliance and those not inspected.
11. Where a variance has been granted for specific provisions of Part 360, the box to be checked will be on the numbered line containing the citation with the modified provisions. Take into account the modified provisions and any additional conditions imposed by the variance, as well as any applicable remaining provisions of the citation, to indicate Compliance, No Inspection, or Violation.
12. "OTHER" shall include pertinent operational permit, variance, registration and/or consent order conditions which can be visually observed or measured in the field and are not accounted for on the form. List on a Continuation Sheet all pertinent operational conditions and provide comments to indicate the compliance status of each.

CONTINUATION SHEET INSTRUCTIONS

13. Complete and attach when necessary to provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations. Uncorrected violations must be described in detail and located on the sketch. Do not include non-factual information, such as opinions or recommendations. Where more space is required, attach additional Continuation Sheets.
14. Draw sketches neatly, indicating each location of on-site and off-site violation, photograph, and sample, and adding sufficient information (e.g. access roads, working face, approximate North direction, property lines, wind direction, approximate distances, etc.) to convey the purpose of the sketch.
15. Number each photograph, recording the time, direction of the photo, and approximate distance form the camera to object photographed on the sketch. Number each sample, recording the sample time on the sketch.

NOTE: ECL—New York State Environmental Conservation Law; Part 360—6 NYCRR Part 360 Solid Waste Management Facilities. (These regulations govern solid waste management in New York State).

47-21-3 (1/98)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

6 NYCRR PART 360-16 -- INSPECTION REPORT
CONSTRUCTION AND DEMOLITION DEBRIS PROCESSING FACILITY

FOR DISTRIBUTION	
FACILITY COPY	White
REGIONAL OFFICE COPY	Yellow

FACILITY NAME	FACILITY NO.	DATE	TIME	REGULATORY STATUS
				PERMITTED ☐ REGISTERED ☐* UNDER ORDER ☐ EXEMPT ☐
FACILITY LOCATION	REGION	WEATHER CONDITIONS		*For Registered Facilities inspect only for the items printed in red.

Violations of Part 360 are subject to applicable civil, administrative and criminal sanctions set forth in ECL Article 71.
Items marked NI indicate no inspection and do not mean no violation has occurred.

C	NI	V		FACILITY MANAGEMENT
☐	☐	☐	1.	Facility is authorized and solid waste management occurs within approved area. 360-1.7(a), 360-1.8(h)(1),(5), 360-16.1
☐	☐	☐	2.	Facility accepts only those solid waste materials authorized for management at the facility. 360-1.14(e),(r), 360-16.1(a),(d), 360-16.3(h)(4), 360-16.4(b)
☐	☐	☐	3.	Facility components are maintained and operated in accordance with authorization. 360-1.14(f), 360-16.4(a)
☐	☐	☐	4.	O&M Manual is maintained and available for reference and inspection. 360-16.4(a)
☐	☐	☐	5.	Operational records are available where required. 360-1.4(c), 360-1.8(h)(8), 360-1.14(e)(2),(i), 360-16.4(b)(2),(ii),(l)
				OPERATION CONTROL
☐	☐	☐	6.	Solid waste is sufficiently confined or controlled. 360-1.14(j), 360-16.3(h)(4), 360-16.4(b)(5)
☐	☐	☐	7.	Dust is effectively controlled. 360-1.14(k), 360-16.3(g)(5), 360-16.3(h)(5), 360-16.4(b)(5)
☐	☐	☐	8.	Vectors and vector breeding areas are effectively prevented/ controlled. 360-1.14(l), 360-16.3(h)(5), 360-16.4(b)(5)
☐	☐	☐	9.	Odors are effectively controlled. 360-1.14(m), 360-16.3(h)(5), 360-16.4(b)(5)
☐	☐	☐	10.	Adequate shelter for mobile equipment for routine maintenance and repair is provided. 360-1.14(o)
☐	☐	☐	11.	Noise levels are controlled to prevent transmission of sound levels above the allowable levels off-site. 360-1.14(p), 360-16.3(h)(5), 360-16.4(b)(5)
☐	☐	☐	12.	Open burning occurs only in accordance with a Department issued burning permit. 360-1.14(q)
☐	☐	☐	13.	Facility has adequately heated and lighted shelters, safe drinking water supply, sanitary toilet facilities and radio or telephone communications. 360-1.14(t)
☐	☐	☐	14.	Facility operator has a copy of all applicable permits, conditions, contingency plan, operations and maintenance report and the most recent annual report. 360-1.14(u)(1)
☐	☐	☐	15.	An air monitoring program is implemented to monitor dust, odors or other air pollutants at and emanating from the facility, where required by the Department. 360-16.4(b)(5)(iv)
				WATER
☐	☐	☐	16.	Solid waste is prevented from entering surface waters and/or groundwaters. 360-1.14(b)(1)
☐	☐	☐	17.	Leachate is minimized and discharge to waters is prevented/ controlled. 360-1.14(b)(2), 360-16.3(f)(2), 360-16.4(g)

C	NI	V		ACCESS
☐	☐	☐	18.	Access to the facility is adequately controlled. 360-1.14(d), 360-16.4(h)
☐	☐	☐	19.	On-site roads are passable. 360-1.14(n), 360-16.3(g)(4)
☐	☐	☐	20.	Attendant is present during all operational hours to control access and receive solid waste, where permanent operating equipment exists. 360-1.14(c)
				WASTE HANDLING
☐	☐	☐	21.	Incoming waste is inspected before acceptance and the C&D debris accepted is weighed or measured before unloading. 360-16.4(b)(2)
☐	☐	☐	22.	Proper separation of materials and adequate supervision is provided to ensure that waste wood is unadulterated and not contaminated if it is to be pulverized or processed separately from other C&D. 360-16.4(c)(3).
☐	☐	☐	23.	Adequate storage for incoming C&D debris is available. 360-16.4(f)(1)
☐	☐	☐	24.	Unauthorized solid waste material received at the facility is removed within 24 hrs. 360-16.4(f)(1)
☐	☐	☐	25.	Processed and unprocessed C&D debris is not stored uncovered at the facility for a period exceeding 30 days. 360-16.4(f)(2) *
☐	☐	☐	26.	Processed and unprocessed C&D debris is not stored in enclosed or covered storage for a period exceeding 90 days. 360-16.4(f)(2) *
☐	☐	☐	27.	Processed and unprocessed C&D debris storage piles do not exceed 20 feet in height and the area at the base of the pile does not exceed 5,000 square feet. 360-16.4(f)(3)
☐	☐	☐	28.	C&D debris storage piles are not located in excavations or below normal grade. 360-16.4(f)(3), 360-16.4(f)(5)
☐	☐	☐	29.	A minimum separation distance of 25 feet is maintained between C&D debris storage piles and a minimum separation distance of 50 feet is maintained between C&D debris storage piles and property boundaries. 360-16.4(f)(3)
☐	☐	☐	30.	Recyclables recovered from the C&D debris are not stored at the facility for a period exceeding 60 calendar days. 360-16.4(f)(4)
☐	☐	☐	31.	Screenings which meet all the requirements for an alternative daily cover material and screenings which received an approval of a petition for a beneficial use determination are not stored uncovered at the facility for a period exceeding 15 calendar days. 360-16.4(d)(1), 360-16.4(f)(6)
				OTHER
☐	☐	☐	32.	Telephone numbers to emergency response agencies are conspicuously posted in all areas at facility where telephones are available. 360-1.14(s)
☐	☐	☐	33.	All C&D debris storage, processing, handling and tipping areas include appropriate functioning fire detection and/or protection equipment. 360-16.4(b)(4)

* except the storage of recognizable uncontaminated concrete and other masonary waste, asphalt pavement, brick, soil or rock that has not been in contact with a spill from a petroleum product, hazardous waste or industrial waste and that is not commingled with any other solid waste. 360-16.4(f)(5)

Continuation sheet(s) attached?: ☐Yes ☐ No
If Yes, indicate number of continuation Sheets attached _____

_____
Name of Inspector/Title (Please print)

_____
Signature

_____
Name of Facility Representative/Title (Please print)

_____
Signature (acknowledging receipt of FACILITY COPY)

FACILITY COPY

GENERAL INSTRUCTIONS

1. This form is a record of conditions which are observed in the field at the time of the inspection. As such, the form is to be completed and signed at the inspected solid waste management facility prior to departure.

2. Complete this form in duplicate. Submit the Regional Office Copy to the Solid & Hazardous Materials Engineer in the Regional Office of the inspected solid waste management facility and submit the Facility Copy to the person at the facility who is the individual in responsible charge for the facility's operation.

3. Print legibly and provide all title block information.

4. Indicate the Part 360 Facility Number corresponding to the type of solid waste management facility inspected. Completion of separate forms will be necessary if a site has more than one solid waste management facility type requiring inspection.

5. Enter the time that inspection begins, based on a twenty-four hour clock (e.g., "0945" for 9:45 AM, "1200" for Noon, "1630" for 4:30 PM).

6. Indicate weather conditions at the beginning of the inspection, and additionally, record significant changes which occur during the inspection.

7. Check the appropriate box related to the regulatory status of the facility (i.e., permitted, registered, under order or exempt). In the case of a registered facility, inspect only for the items printed in red.

8. The individual performing the inspection must sign on the signature line at the location designated as "Name of Inspector/Title." On the signature line at the location designated as "Name of Facility Representative/Title," have the person at the facility who is in responsible charge for the facility's operation sign the Inspection Report. In cases where the individual in responsible charge will not sign, is not present, or was not requested to sign, print "REFUSED TO SIGN," "NOT PRESENT," or "SIGNATURE NOT REQUESTED," and provide the date, time and your initials.

FACILITY INSPECTION REPORT INSTRUCTIONS

9. The information on each numbered line is a paraphrase or representation of the Part 360 regulations. The inspector should read and be familiar with the actual Part 360 provisions as indicated by the citations.

10. In all cases, check one box on each numbered line (items printed in red only for registered facilities) to indicate Compliance, No Inspection, or Violation, and provide comments on a Continuation Sheet, if necessary. Where there are multiple requirements or citations on any numbered line, indicated the compliance status as follows:

    If all of the indicated citations are in compliance, check "C."
    If there is No Inspection for the entire numbered line, check, "NI."
    If there is No Inspection for one or more of the citations and the remaining citations are in compliance, check "NI" and provide comments on a Continuation Sheet to indicate which citations are in compliance and which citations have not been inspected.
    If one or more citation is in Violation, Check "V," circle those words and/or citations that have been violated, and provide comments on a Continuation Sheet to indicate which citations are in violation, which citations are in compliance and/or which citations have not been inspected.

    Where a variance has been granted from specific provisions of Part 360, the box to be checked will be on the numbered line containing the citation with the modified provisions. Take into account the modified provision and any additional conditions imposed by the variance, as well as any applicable remaining provisions of the citation, to indicate Compliance, Violation, or No Inspection.

CONTINUATION SHEET INSTRUCTIONS

11. Complete and attach when necessary to provide site sketches, clarification, supplemental information, locations of photographs or samples, and/or locations of violations. Uncorrected violations should be described in detail and located on a sketch. Do not include non-factual information, such as opinions or recommendations. Where more space is required, attached additional Continuation Sheets.

12. Draw sketches neatly, indicating each location of on-site and off-site violation, photograph, and sample, and adding sufficient information (e.g., access roads, approximate North direction, property lines, wind direction, approximate distances, etc.) to convey the purpose of the sketch.

13. Number each photograph, recording the time, direction of photo, and approximate distance from camera to object photographed on the sketch. Number each sample, recording the sample time on the sketch.

47-15-1 (1/98)—q

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID & HAZARDOUS MATERIALS

DISTRIBUTION ROUTING
WHITE COPY—Regional Office
YELLOW COPY—Central Office
PINK COPY—Facility
GREEN COPY—Inspector

SOLID WASTE MANAGEMENT FACILITY INSPECTION REPORT
Continuation Sheet

FACILITY NAME	LOCATION	FACILITY NUMBER	DATE	TIME

INSPECTOR'S NAME	CODE	PERSONS INTERVIEWED AND TITLES

REGION	WEATHER CONDITIONS	DEC PERMIT NUMBER

SHEET	CONTINUATION SHEET ATTACHED	PART(S) 360-
_____ OF _____	☐ Yes ☐ No	_____ Attached

Violations of Part 360 are Subject to Applicable Civil, Administrative and Criminal Sanctions Set Forth in ECL Article 71, and as Appropriate, the Clean Water and Clean Air Acts.
Additional Violations May Be Noted on Sheet One of this Inspection Report.
Provide site sketches, clarification, supplemental information, locations of photographs or samples and/or locations of violations.
(Uncorrected violations must be described in detail and located on a sketch).

I hereby acknowledge receipt of the Facility Copy of this Inspection Report sheet.

_____
Individual in Responsible Charge (Please print)

_____
Inspector's Signature

_____
Signature

Date

REGIONAL OFFICE COPY

GENERAL INSTRUCTIONS

1. This form is to be completed and signed at the inspected solid waste management facility prior to departure.
2. Complete this form in quadruplicate. Submit the Regional Office Copy to the Solid & Hazardous Materials Engineer in the Regional Office of the inspected solid waste management facility. Submit the Central Office Copy to the Division of Solid & Hazardous Materials, 50 Wolf Road, Albany, New York 12233-7258. Submit the Facility Copy to the person at the facility who is the individual in responsible charge for the facility's operation. Retain the Inspector's Copy.
3. Print legibly and provide all title block information.
4. Indicate the Part 360 Facility Code Number corresponding to the type of solid waste management facility inspected. Completion of separate forms will be necessary if a site has more than one solid waste management facility type requiring inspection.
5. Enter the time that inspection begins, based on a twenty-four hour clock (e.g. "0945" for 9:45 AM, "1200" Noon, or "1630" for 4:30 PM).
6. Designate "Code" as "S" if you are a New York State Department of Environmental Conservation (NYSDEC) inspector, "M" if you are an On-site Environmental Monitor for NYSDEC, "C" if you are an Environmental Conservation Officer for NYSDEC, or "I" if you are an inspector for the New York State Department of Health or a County Health Department.
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    a. Marking "Compliance" on a line (checking "C") means that all requirements expressed on the line and related citations, for the type of solid waste management facility being inspected, are in compliance.
    b. Marking "Violation" on a line (checking "V") means that at least one requirement expressed on the line and any related citation is in violation. Provide comments to indicate those requirements and citations in violation, those in compliance and those not inspected.
    c. Marking "No Inspection" on a line (checking "NI") means that no violations have been found on the line and no inspection has been made with respect to at least one requirement expressed on the line and related citation, or that all requirements and related citations are not applicable. Provide comments to indicate those requirements and citations in compliance and those not inspected.
11. Where a variance has been granted for specific provisions of Part 360, the box to be checked will be on the numbered line containing the citation with the modified provisions. Take into account the modified provisions and any additional conditions imposed by the variance, as well as any applicable remaining provisions of the citation, to indicate Compliance, No Inspection, or Violation.
12. "OTHER" shall include pertinent operational permit, variance, registration and/or consent order conditions which can be visually observed or measured in the field and are not accounted for on the form. List on a Continuation Sheet all pertinent operational conditions and provide comments to indicate the compliance status of each.

CONTINUATION SHEET INSTRUCTIONS

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14. Draw sketches neatly, indicating each location of on-site and off-site violation, photograph, and sample, and adding sufficient information (e.g. access roads, working face, approximate North direction, property lines, wind direction, approximate distances, etc.) to convey the purpose of the sketch.
15. Number each photograph, recording the time, direction of the photo, and approximate distance form the camera to object photographed on the sketch. Number each sample, recording the sample time on the sketch.

NOTE: ECL—New York State Environmental Conservation Law; Part 360—6 NYCRR Part 360 Solid Waste Management Facilities.

ATTACHMENT C

DSNY PERMIT AND INSPECTION UNIT
TRUCK ENFORCEMENT SUMMONS GUIDE

CONTENTS

AIR, DOT, SANITATION, WATER, NOISE VIOLATIONS

CODE	SECTION	VIOLATION
A24	24-141	CAUSING OR PERMITTING ODORS/ AIR CONTAMINANTS TO BE RELEASED INTO THE PUBLIC AIR
A27	24-143	SMOKE OR OFFENSIVE VAPORS FROM VEHICLE EXHAUST PIPE
A38	24-149	OPEN FIRES
A51	24-163	IDLING ENGINE FOR OVER (3) THREE MINUTES
A87	24-143	VISIBLE AIR POLLUTION/SMOKE AND OFFENSIVE VAPORS
D17	19-123	NO STREET PROTECTION – COMMERCIAL REFUSE CONTAINER
D31	19-138 (B)	DEFACEMENT OF SIDEWALK OR ROADWAY
S03	16-118 (1)	LITTERING
S04	16-118 (1)	SWEEP OUT
S05	16-118 (1)	THROW OUT
S06	16-118 (2)	DIRTY SIDEWALK
S07	16-118 (2)	SIDEWALK OBSTRUCTION

AIR, DOT SANITATION, WATER, NOISE VIOLATIONS, cont.

CODE	SECTION	VIOLATION
S08	16-118 (3)	DUST/OTHER FLYING MATERIAL
S09	16-118 (4)	SPILLAGE FROM TRUCK/RECEPTACLE
S10	16-118 (6)	NOXIOUS LIQUIDS
S13	16-119	ILEGAL DUMPING OPERATOR
S14	16-119	ILLEGAL DUMPING OWNER
S23	16-122 (B)	STREET OBSTRUCTION
S24	16-122 (C)	STREET OBSTRUCTION VEHICLE
W51	24-308 (A)	OPERATING NEW YORK CITY HYDRANT: NO PERMIT
W55	24-308	ILLEGAL USE OF NEW YORK CITY HYDRANT
N13	24-221 (B)	UNLAWFUL USE OF AIR HORN
N23	24-226	CREATING NOISE WITH A COMMERCIAL REFUSE CONTAINER ON A PUBLIC STREET
N24	24-227	UNREASONABLE NOISE FROM ENGINE EXHAUST
N28	24-228	UNREASONABLE NOISE NEXT TO A SCHOOL, COURT HOUSE, HOSPITAL

TRANSFER STATION VIOLATIONS

NONPUTRESCIBLE

CODE	SECTION	VIOLATION
S36	16-130 (B)	OPERATING WITHOUT PERMIT
S37	4-06 (B)	FAILED TO OPERATE IN COMPLIANCE WITH PERMIT
S37	4-06 (C)	FAILED TO SUPPLY SUFFICIENT STAND BY EQUIPMENT
S37	4-06 (F)	CROSS CONNECTION
S37	4-06 (G)	INSUFFICIENT SPACE FOR TRANSPORT VEHICLES TO ENTER AND EXIT SAFELY
S37	4-06 (I)	INGRESS/EGRESS FOR EMERGENCY VEHICLES
S37	4-06 (J)	INGRESS/EGRESS TO FACILITATE A COMPLETE INSPECTION
S37	4-06 (N)	MAINTENANCE LOG – FAILED TO MAINTAIN
S37	4-06 (M)	FAILED TO OPERATE IN A SAFE MANNER
S37	4-06 (O)	VECTORS
S37	4-06 (P)	OPERATIONAL RECORDS
S37	4-06(R)	UNACCEPTABLE MATERIAL (PSW IN A NPSWTS)
S37	4-06 (S)	ODORS
S37	4-06 (T)	OFF SITE PLAN
S37	4-06 (U)	UNACCEPTABLE MATERIAL (OTHER NPSW THEN SET FORTH IN PERMIT)
S37	4-06 (W) (2)	PILE HEIGHT (IN EXCESS OF PERMITTED HEIGHT)

NONPUTRESCIBLE cont.

CODE	SECTION	VIOLATION
S37	4-06 (X)	OVER VOLUME (IN EXCESS OF PERMITTED VOLUME
S37	4-06 (Y)	OPAQUE FENCING
S37	4-06 (Z)	EQUIPMENT OUTSIDE – FAILED TO MAINTAIN WITHIN PROPERTY LINE
S37	4-06 (aa)	DRAINAGE SYSTEM – FAILED TO MAINTAIN: CLEAN AND FUNCTIONING LEACHATE
S37	4-06(cc)	SIGN – NO SIGN/IMPROPER INFORMATION
S37	4-06 (dd)	OPEN DOORS/GATES FAILED TO KEEP CLOSED
S37	4-06 (ee)	LITTER ABUTTING NPSWTS
S37	4-06 (hh)	NO CARTMEN PLATES – TRANSPORT VEHICLES
S37	4-06 (ii)	ATTENDANT – NO ATTENDANT ON DUTY
S37	4-06 (jj)	BURNING MATERIAL – AT TRANSFER STATION AT TIME OF INSPECTION
S37	4-33 (A)	OPERATING NPSWTS IN A M-1 ZONE

FILL MATERIAL

CODE	SECTION	VIOLATION
S37	4-08 (B)	FAILED TO OPERATE IN COMPLIANCE WITH PERMIT
S37	4-08 (C)	FAILED TO SUPPLY SUFFICIENT STAND BY EQUIPMENT
S37	4-08 (F)	CROSS CONNECTION
S37	4-08 (G)	INSUFFICIENT SPACE FOR TRANSPORT VEHICLES TO ENTER AND EXIT SAFELY
S37	4-08 (I)	INGRESS/EGRESS FOR EMERGENCY VEHICLES

FMTS cont. CODE	SECTION	VIOLATION
S37	4-08 (J)	INGRESS/EGRESS TO FACILITATE A COMPLETE INSPECTION
S37	4-08 (L)	ILLUMINATION – LIGHTING
S37	4-08 (M)	FAILED TO OPERATE IN A SAFE MANNER I.E. DUST ETC.
S37	4-08 (N)	MAINTENANCE LOG – FAILED TO MAINTAIN
S37	4-08 (O)	VECTORS
S37	4-08 (P)	OPERATIONAL RECORDS
S37	4-08 (R)	UNACCEPTABLE MATERIAL (OTHER THAN FILL MATERIAL)
S37	4-08 (S)	ODORS
S37	4-08 (T)	OFF SITE PLAN
S37	4-08 (V)	OVER VOLUME (IN EXCESS OF PERMITTED VOLUME)
S37	4-08 (W) (2)	PILE HEIGHT (IN EXCESS OF 40' MORE THAN 300' FROM A RESDIENTIAL ZONE)
S37	4-08 (W)(3)	PILE HEIGHT (IN EXCESS OF 8' LESS THAN 300' FROM A RESIDENTIAL ZONE)
S37	4-08 (Y)	OPAQUE FENCING
S37	4-08 (Y) (1)	OPAQUE FENCING10' (MORE THAN 300' OF A RESIDENTIAL ZONE)
S37	4-08 (Y) (2)	OPAQUE FENCING 15' (LESS THAN 300' OF A RESIDENTIAL ZONE)
S37	4-08 (Z)	EQUIPMENT OUTSIDE – FAILED TO MAINTAIN WITHIN PROPERTY LINE
S37	4-08 (aa)	DRAINAGE SYSTEM-FAILED TO MAINTAIN: CLEAN AND FUNCTIONING - LEACHATE

FMTS cont.

CODE	SECTION	VIOLATION
S37	4-08 (cc)	SIGN – NO SIGN/IMPROPER INFORMATION
S37	4-08 (dd)	OPEN DOORS/GATES-FAILED TO KEEP CLOSED
S37	4-08 (ee)	LITTER ABUTTING FMTS
S37	4-08 (hh)	NO CARTMEN PLATES – TRANSPORT VEHICLE
S37	4-08 (ii)	ATTENDANT-NO ATTENDANT ON DUTY VEHICLES ENTERING/EXITING FMTS
S37	4-08 (ii) (2)	ATTENDANT-NO ATTENDANT LOADING/UNLOADING TRANSPORT VEHICLES
S37	4-08(jj)	BURNING MATERIAL-AT TRANSFER STATION AT TIME OF INSPECTION

PUTRESCIBLE SOLID WASTE

CODE	SECTION	VIOLATION
S38	16-130 (B)	OPERATING WITHOUT A PERMIT
S39	4-17 (A)	OPERATING OUT OF SITE PLAN
S39	4-17 (A)	OVER VOLUME (IN EXCESS OF PERMITTED VOLUME)
S39	4-17 (B)	NO CARTMEN PLATES – TRANSPORT VEHICLE
S39	4-17 (C)	EQUIPMENT MAINTENANCE – FAILED TO MAINTAIN (LOG)
S39	4-17 (E)	EXTERMINATOR LOG – FAILED TO MAINTAIN
S39	4-17 (E)	VECTORS
S39	4-17 (F)	OPERATIONAL RECORDS
S39	4-17 (H)	48 HOUR RULE - FAILED TO REMOVE WITHIN 48 HOURS

PSW cont.

CODE	SECTION	VIOLATION
S39	4-17 (I)	TIPPING FLOOR – NOT SWEPT, WASHED, DEODORIZED AND FREE OF PSW
S39	4-17 (J)	ODORS – ORDERS EMITTING
S39	4-17 (J)	NO DEODORIZING MATERIAL – NOT IN USE/OR FROZEN
S39	4-17 (K)	OFF TIPPING FLOOR – PSW OFF DESIGNATED AND MARKED TIPPING FLOOR
S39	4-17 (L)	EQUIPMENT OUTSIDE – FAILED TO MAINTAIN WITHIN PROPERTY LINE
S39	4-17 (M)	DRAINAGE SYSTEM – FAILED TO MAINTAIN: CLEAN AND FUNCTIONING LEACHATE
S39	4-17 (O)	SIGN – NO SIGN/IMPROPER INFORMATION
S39	4-17 (P)	OPEN DOORS/GATES-FAILED TO KEEP CLOSED
S39	4-17 (Q)	LITTER ABUTTING PSWTS
S40	16-130 (B)	OPERATING A DUMP/FMO WITHOUT PERMIT
S41	16-130 (B)	OPERATING A FMO WITHOUT PERMIT

VEHICLE & TRAFFIC LAWS

CODE	SECTION	VIOLATION
306	B	UNINSPECTED VEHICLE
306	E	FICTITIOUS INSPECTION CERTIFICATE
319	1	FAIL TO PRODUCE PROOF OF INSURANCE
319	2	KNOWINGLY PRODUCE INVALID PROOF OF INSURANCE

VTL cont.

CODE	SECTION	VIOLATION
319	3	UNINSURED VEHICLE
375	1	UNLAWFUL USE OF HORN
375	2A	FAIL TO USE FRONT HEADLIGHTS
375	2A1	HEAD LIGHTS – 2 NEEDED
375	2A3	TAIL LIGHTS – 2 NEEDED
375	2A4	INADEQUATE/NO PLATE LAMP
375	10A	NO SIDE VIEW MIRROR – NYS REGISTERED VEHICLES ONLY
375	17	NO EMERGENCY LIGHTLY EQUIPMENT (i.e., FLARES, REFLECTING TRIANGLES, ETC.)
375	18	INOPERABLE DIRECTIONAL SIGNALS
375	22	BROKEN/FRACTURED/DISCOLORED GLASS
375	25A	INADEQUATE/NO SPLASH/ STONE GUARDS
375	25B	IMPROPERLY MOUNTED SPLASH/STONE GUARDS
375	28	UNNECESSARY SMOKE/VAPORS FROM EXHAUST PIPE
375	24	T.V. WITHIN VIEW OF DRIVER (ON/OFF) WHILE VEHICLE IS BEING OPERATED
375	31	MUFFLER – EXCESSIVE NOISE
375	35C	UNSAFE TIRES (METAL OBJECTS PROTRUDING FROM TIRES – NO TREADS)
375	40B	OPERATING MOTOR VEHICLE WITHOUT STOP LAMPS

VTL cont.

CODE	SECTION	VIOLATION
375	49A	NO TRUCK WARNING LIGHT – ROLL/ON ROLL/OFF MANUFACTURED ON 09/09/92 & NYS REGISTERED
375	49B	NO TRUCK WARNING LIGHT TRACTOR MANUFACTURED ON 09/02/92 & NYS REGISTERED
376	2	EXPOSED WIRING/BATTERY
380-A	1	TRANSPORTATION OF LOOSE CARGO WITHOUT COVER
397	A	RADAR/LASER DETECTOR OPERATING IN TRUCK WITH GVWR OF 18001 LBS. OR MORE
401	1A	OPERATE UNREGISTERED MOTOR VEHICLE
401	3	FAILURE TO NOTIFY CHANGE OF ADDRESS
401	4	FAILURE TO PRODUCE VEHICLE REGISTRATION CARD i.e. VEHICLE HAS NO REGISTRATION STICKER
402	1	IMPROPER PLATES / DIRTY/ UNREADABLE/ OBSTRUCTED/ INSECURELY FASTENED
402	3	TRAILER PLATES/DIRTY / UNREASONABLE / OBSTRUCTED / INSECURELY FASTENED / NOT DISPLAYED
402	4	OPERATING MOTOR VEHICLE WITH IMPROPER PLATES
501	5aii	OPERATING A VEHICLE WITH A PERMIT/ UNSUPERVISED W/O LICENSED DRIVER
509	1	UNLICENSED OPERATION OF A MOTOR VEHICLE
509	2	OPERATION OF A MOTOR VEHICLE WITHOUT PROPER LICENSE

VTL cont.

CODE	SECTION	VIOLATION
509	4	PERMIT UNLICENSED OPERATION OF A MOTOR VEHICLE
512	7	FAILURE TO SURRENDER REVOKED VEHICLE PLATES (MISDEMEANOR)
511	1A	AGGRAVATED UNLICENSED OPERATION OF A MOTOR VEHICLE 3RD DEGREE (MISDEMEANOR) (OPERATING VEHICLE WITH A SUSPENDED LICENSE UP TO 2 SUSPENSIONS ON 2 DATES)
511	2	AGGRAVATED UNLICENSED OPERATION OF A MOTOR VEHICLE 2ND DEGREE (MISDEMEANOR) (OPERATING VEHICLE WITH A SUSPENED LICENSE 3 OR MORE SUSPENSIONS ON 3 OR MORE DATES)
511	3	AGGRAVATED UNLICENSED OPERATION OF A MOTOR VEHICLE 1ST DEGREE (FELONY) (OPERATING VEHICLE WITH A SUSPENDED LICENSE 10 OR MORE SUSPENSIONS ON 10 OR MORE DATES
512		OPERATING VEHICLE WHILE REGISTRATION SUSPENDED/ REVOKED (MISDEMEANOR)
530	6	IMPROPER USE OF RESTRICTED LICENSES
1102		FAILURE TO COMPLY – FAILURE TO OBEY POLICE OFFICER (i.e. DRIVER REFUSES TO STOP VEHICLE OR FOLLOW DIRECTIONS)
1110		FAILURE TO OBEY TRAFFIC CONTROL DEVICE
1110	A	DISOBEY TRAFFIC CONTROL DEVICE
1111	D	RED TRAFFIC LIGHT; STOP BEYOND STOP LINE/ CROSSWALK
1111	D1	STEADY RED: FAIL TO STOP i.e. SIGN DISPLAYING NO TRUCKS EXCEPT LOCAL DELIVERY

VTL.

CODE	SECTION	VIOLATION
1122	A	PASSING/OVERTAKING ON THE RIGHT
1122	B	FAIL TO GIVE RIGHT OF WAY TO VEHICLE
1125	C2	DRIVING WHILE TALKING ON CELLULAR PHONE
1126	A	CROSSING DOUBLE YELLOW LINE
1127	A	DRIVING WRONG DIRECTION ON A ONE WAY STREET
1128	A	UNSAFE LANE CHANGE
1146		FAIL TO EXERCISE CARE TO AVOID BIKE/PEDESTIAN OR ANIMAL
1160	D	SIGNS: RIGHT/LEFT TURNING: DISOBEY INSTRUCTIONS OR RESTRICTIONS
1172	A	DISOBEY STOP SIGN
1192	1	DRIVING WHILE UNDER THE INFLUENCE OF ALCOHOL/DRUGS
1192	2	DRIVING WHILE UNDER THE INFLUENCE OF ALCOHOL/DRUGS
1192	3	DRIVING WHILE UNDER THE INFLUENCE OF ALCOHOL/DRUGS
1192	4	DRIVING WHILE UNDER THE INFLUENCE OF ALCOHOL/DRUGS
1192	5	DRIVING WHILE UNDER THE INFLUENCE OF ALCOHOL/DRUGS
1202		STOP/STAND/PARK WITHIN A SPECIFIC AREA
1210	A	LEAVE MOTOR VEHICLE UNATTENDED
1211	A	UNSAFE BACKING

VTL cont.

CODE	SECTION	VIOLATION
1212		RECKLESS DRIVING MISDEMEANOR
1219		ALLOWING GLASS/ INJURIOUS SUBSTANCES TO BE LITTERED i.e. SPILLAGE FROM TRUCK ONTO HIGHWAY
1220	A	REFUSE ON HIGHWAYS PROHIBITED i.e. SPILLAGE FROM TRUCK /LITTERING
1221		DRIVE THROUGH SAFETY ZONE DEFINED IN SECT. 141 OF NYS VTL
1222		UNSAFE RIDING ON TRUCKS
1222	1C	UNSECURED TAIL GATE; NOT CLOSED
1225		AVOIDING TRAFFIC DEVICE OR INTERSECTION/LIGHT (VIA SIDEWALK, LOT, DRIVEWAY)
1225	A	DRIVING ON PUBLIC SIDEWALK
1227	1	OPEN ALCOHOLIC CONTAINER IN VEHICLE i.e. AFTER VEHICLE STOP –YOU CAN SEE AN OPEN CAN/BOTTLE OF BEER IN PLAIN VIEW NEAR DRIVER/PASSENGER
1229	C3	NO SEAT BELT WHILE OPERATING VEHICLE
2261	1	UNINSURED LIMITED USE MOTOR VEHICLE

NEW YORK CITY TRAFFIC RULES (WRITTEN ON TRAFFIC SUMMONS)

CODE	SECTION	VIOLATION
4-07	A	FAILURE TO YIELD OR YIELD RIGHT OF WAY
4-07	B1	OBSTRUCT TRAFFIC
4-07	D	UNSAFE BACKING

NYC TRAFFIC SUMMONS cont.

CODE	SECTION	VIOLATION
4-08	P1	IDLING OF VEHICLE ENGINE PROHIBITED
4-09	C	COLORED LIGHTS (OTHER THAN WHITE/YELLOW) PROHIBITED ON FRONT OF VEHICLE
4-12	A3	LICENSE/REGISTRATION / INSURANCE CARD; FAILURE TO PRESENT TO POLICE OFFICER
4-13	A3	FAIL TO PRODUCE BILL OF LADING (i.e. TRIP TICKET/ MANIFEST OF ORIGIN (PICKUP) AND DESTINATION (DROP OFF) TO TRANSFER STATION
4-13	B1	FAIL TO ADHERE TO THROUGH TRUCK ROUTES (QUEENS)
4-13	B2	FAIL TO ADHERE TO LOCAL TRUCK ROUTES (QUEENS)
4-13	C2	FAIL TO ADHERE TO THROUGH TRUCK ROUTES (STATEN ISLAND)
4-13	C3	FAIL TO ADHERE TO LOCAL TRUCK ROUTES (STATEN ISLAND)
4-13	D1	FAIL TO ADHERE TO THROUGH TRUCK ROUTES (MANHATTAN)
4-13	D2	FAIL TO ADHERE TO LOCAL TRUCK ROUTES (MANHATTAN)
4-13	E1	FAIL TO ADHERE TO THROUGH TRUCK ROUTES (BROOKLYN)
4-13	E2	FAIL TO ADHERE TO LOCAL TRUCK ROUTES (BROOKLYN)
4-13	F1	FAILURE TO ADHERE TO THROUGH TRUCK ROUTES (BRONX)
4-13	F2	FAIL TO ADHERE TO LOCAL TRUCK ROUTES (BRONX)

NYC TRAFFIC RULES cont.

CODE	SECTION	VIOLATION
4-14	A2	COMMERCIAL VEHICLE ON PARKWAY
4-14	B3	TRANSPORT REFUSE THROUGH A CITY PARK

PARKING VIOLATIONS

CODE	SECTION	VIOLATION
10	4-08 (B)	NO STANDING
12	4-08 (C) (1)	NO STANDING – SNOW EMERGENCY
14	4-08 (C)	NO STANDING
16	4-08 (K) (2)	NO STANDING (EXCEPT TRUCKS LOADING AND UNLOADING)
17	4-08 (C) (4)	NO STANDING (EXCEPT AUTHORIZED VEHICLES)
19	4-08 (C) (3)	NO STANDING (BUS STOP)
20	4-08 (D)	NO PARKING
21	4-08 (D) (1)	NO PARKING STREET CLEANING DAY/NIGHT
24	4-08 (D) (5)	NO PARKING (EXCEPT AUTHORIZED VEHICLES)
40	4-08 (E) (2)	PARK WITHIN 15FT. OF FIRE HYDRANT
45	4-08 (E) (1)	TRAFFIC LANE
46	4-08 (F) (1)	DOUBLE PARKING
48	4-08 (E) (9)	BIKE LANE
49	4-08 (E) (6)	EXCAVATION (VEHICLE OBSTRUCTING TRAFFIC)
50	4-08 (E) (5)	PARKED IN CROSS WALK
51	4-08 (E) (3)	SIDEWALK

PVB cont.

CODE	SECTION	VIOLATION
52	4-08 (E) (4)	INTERSECTION – PARKED IN THE
53	4-08 (F) (6)	NO PARKING SAFETY ZONE
56	4-08 (E) (8)	DIVIDED HIGHWAY
58	4-08 (G) (3)	MARGINAL STREET/WATER FRONT
60	4-08 (M) (2)	ANGLE PARKING
61	4-08 (M) (1)	PARKED THE WRONG WAY
63	4-08 (F) (3)	NIGHTTIME STANDING OR PARKING IN A PARK
66	4-08 (K) (4)	DETACHED TRAILER
70	4-08 (J) (3)	NO REGISTRATION (NYS) STICKER
71	4-08 (J) (6)	NO (NYS) INSPECTION STICKER
72	4-08 (J) (7)	MUTILATED INSPECTION STICKER
73	4-08 (J) (4)	MUTILATED REGISTRATION STICKER
74	4-08 (J) (2)	NO PLATES
75	4-08 (J) (5)	NO MATCH PLATE/STICKER AND OR REGISTRATION STICKER
78	4-08 (K) (3)	NIGHTIME PARKING ON A RESIDENTIAL STREET FROM 9 P.M. TO 5 A.M.
80	4-08 (N) (8)	STAND/PARK W/O PROPER EQUIPMENT i.e. – NO HEAD LIGHTS, NO BRAKE LIGHTS, NO WHEEL CHOCKS FOR DETACHED TRAILER
82	4-08 (K) (1)	NAME & ADDRESS NOT DISPLAYED ON SIDE DOORS OF TRUCK
83	4-08 (J) (1)	IMPROPER REGISTRATION (NYS ONLY) (SPECIFY)

PVB cont.

CODE	SECTION	VIOLATION
84	4-08 (K) (7)	PLATFORM LIFT IN LOWERED POSITION
85	4-08 (K) (5)	COMMERCIAL PARKING OVER 3 HOURS
86	4-08 (L) (1)	MIDTOWN STANDING/PARKING – 3 HOUR LIMIT
92	4-08 (N) (2)	WASHING/REPAIRING VEHICLE
96	4-08 (F) (5)	RAILROAD CROSSING (INDICATE FEET FROM) (WITHIN 50 FEET)
97	4-08 (G) (2)	PARK IN A VACANT LOT W/O OWNER'S CONSENT
98	4-08 (F) (2)	PARK IN DRIVEWAY
99	4-08 (N) (5)	UNATTENDED/ENGINE ON/KEYS IN

CRIMINAL SUMMONS

CODE	SECTION	VIOLATION
10-127	B	COMMERCIAL VEHICLE; NAME/ADDRESS NOT DISPLAYED ON SIDE DOORS OF TRUCK
11-809	A	NO NYC TAX STAMP; DISPLAYED ON COMMERCIAL VEHICLE FRONT PASSENGER WINDSHIELD AND/OR EXPIRED

SANITATION PROVISIONS

16-117	1 C-SUMMONS FINE 250.00-500.00 UNDER LL 40	UNLICENSED CARTMEN i.e. CARTMEN TRANSPORTATION SOLID WASTE ON CITY STREET WITH NO B.I.C PLATES IN VIOLATION OF D.O.S. COMMISSIONER RULES AND REGULATIONS PROHIBITING

PENAL LAW

240.2	1-7 CONSULT PENAL LAW TO SEE WHICH SUB-DIVISION APPLIES TO THE OFFENSE THAT OCCURED	DISORDERLY CONDUCT -
240.26	1-3 CONSULT PENAL LAW TO SEE WHICH SUB-DIVISION APPLIES TO THE OFFENSE THAT OCCURRED	HARASSMENT – 2ND DEGREE