APPENDIX K

TRUCK SIMULATION SUMMARY REPORT

FOR THE DRAFT NEW SOLID WASTE MANAGEMENT PLAN

FINAL ENVIRONMENTAL IMPACT STATEMENT

MARCH 2005

Summary

The Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) Version 2.1 (TNM 2.1) overpredicts incremental noise from DSNY trucks. Therefore, at locations where a potential impact was predicted by TNM 2.1, the locations were further analyzed using a site-specific truck simulation noise analysis to better represent the noise levels that would be emitted by the DSNY collection vehicles traveling to and from the facilities analyzed in the SWMP FEIS to more accurately determine potential impacts.

The results of the off-site noise analysis study for the East 91st Street Converted MTS, North Shore Converted MTS, Hamilton Avenue Converted MTS, and West 135th Street Converted MTS show that noise levels were considerably less when the noise impact assessment was based on a site-specific truck simulation methodology as compared to the FHWA TNM 2.1.

1.0 Introduction and Background:

1.1 Screening and TNM 2.1 Analysis

An off-site noise screening, and if required, an off-site noise analysis was performed to determine the potential impacts from DSNY collection vehicles traveling on City streets along routes leading to and from the facilities analyzed in SWMP DEIS and this SWMP FEIS.

The 2001 CEQR Technical Manual includes guidelines for a screening-level analysis of off-site sources to determine if a detailed off-site noise analysis is required. A screening-level analysis was performed for major convergence points with one or more noise-sensitive receptors near those convergence points. The screening-level analysis is based on converting the future No-Build and future build traffic into passenger car equivalents (PCEs) using the noise-related PCE factors listed in Table 1-1 for each traffic category (from the 2001 CEQR Technical Manual). The future No-Build traffic is based on the existing traffic obtained from ATRs during 2003/2004, escalated to the build year of 2006 using the traffic escalation factors provided in the 2001 CEQR Technical Manual, which is based on information from the New York City Department of Transportation (NYCDOT) and New York City Department of Planning for each borough. The future build traffic is the future

No-Build traffic plus the facility related traffic (DSNY and other agency collection vehicles). For the off-site noise screening, collection vehicles were evaluated as heavy trucks (with a PCE of 47) based on their gross weight and added to the future No-Build traffic. If the future build PCEs were double the future No-Build PCEs, the facility related traffic was predicted to have the potential of causing an impact at a noise sensitive receptor, and a detailed off-site noise analysis was required.

Table 1-1
Noise Related PCE Factors

Traffic Category	PCE Factor (multiply each vehicle in the category by this factor)
Automobiles or Light Trucks	1
Medium Truck (gross weight 9,900 to 26,400 pounds)	13
Bus	18
Heavy Truck (gross weight more than 26,400 pounds)	47

Source: 2001 CEQR Technical Manual

For the detailed off-site noise analysis, the FHWA TNM 2.1 was used to predict potential off-site noise impacts. The noise levels predicted by TNM 2.1 for the future No-Build traffic and the future build traffic were compared to the 2001 CEQR Technical Manual off-site noise impact criteria of an increase of 3 dBA (hourly L_{eq}) or more over the future No-Build noise level.

A previous noise simulation study performed for the DSNY Interim Export Program concluded that TNM can overpredict the noise level assigned to the DSNY trucks. This conclusion was further supported based on discussions with the FHWA and other experienced professionals, who noted that: (1) the noise level assigned for heavy trucks in TNM 2.1 is based on a range of heavy trucks, some of which are much larger than the DSNY collection vehicles; and (2) TNM 2.1 does not account for the fact the ambient noise level in the City consists of other major sources of noise such as construction, people, music, air conditioners, etc., rather than just the noise from traffic. Upon review of the truck simulation approach by the NYCDEP, a site-specific truck simulation noise analysis was conducted for locations where a potential impact was predicted by TNM 2.1, to better represent the noise levels that would be emitted by the DSNY collection vehicles traveling to and from the facilities analyzed in the SWMP DEIS and this SWMP FEIS.

1.2 Background Noise Levels

During the study, nighttime background noise measurements were taken at different times of the year at City locations. Often, on the same street and during the same hour on a different day or time of the year, significantly different noise levels were obtained, although the traffic volumes were similar during these time periods. The monitored noise levels showed significant differences, which are attributed to the presence of noise sources other than traffic that are characteristic of the busy urban streets. The additional noise sources include:

- Window air conditioners during the summer months;
- Trucks (i e. delivery – food & newspapers, garbage collection);
- Construction / maintenance;
- Subways / buses;
- Emergency / police vehicles; and
- People

2.0 Site-Specific Truck Simulations Methodology

A site-specific truck simulation analysis was performed for the following facilities and locations where TNM 2.1 predicted a potential impact:

- East 91st Street Converted MTS
  - East 90th Street between 1st Avenue and York Avenue
  - York Avenue between East 90th Street and East 91st Street
- North Shore Converted MTS
  - College Point Boulevard South of Sanford
  - College Point Boulevard North of Roosevelt
- Hamilton Avenue Converted MTS
  - 20th Street West of 4th Avenue
- West 135th Street Converted MTS
  - West 133rd Street between Broadway and 12th Avenue
  - West 132nd Street between Broadway and 12th Avenue

2.1 Field Simulations

Truck simulations were conducted at sensitive receptor locations near the four Converted MTS facilities during the summers of 2003 and 2004. (See Attachment A for dates and times.) The truck simulation was performed for all hours with a predicted potential doubling of PCEs based on the screening-level analysis. The site-specific truck simulation analysis consisted of driving loaded DSNY collection vehicles along the routes past the sensitive receptors analyzed. For each hour and location analyzed, the estimated number of DSNY collection vehicles that would be traveling along those routes to and from the facilities (based on the traffic analysis, which includes a 20% contingency) were driven along the routes past the sensitive receptors. The future build noise levels with the additional DSNY collection vehicles were recorded on a digital noise measuring instrument. (See Section 2.2 for a description of the instrument). The future build DSNY collection vehicle noise levels were then removed from the recording to obtain the existing noise levels at that sensitive receptor. The difference between the existing and the future build noise levels was calculated and compared to the CEQR standard of 3dBA. It should be noted that the difference calculated was conservative because the calculation was based on the existing ambient noise level and not the future No-Build ambient noise levels, which are expected to be slightly higher as background traffic volumes increase.

2.2 Noise Measurement Instruments

The following digital noise measuring instruments were used to obtain the noise levels of the DSNY collection vehicles. Two types of noise meters were used in the study. The first meter ("01" dB) was used to perform a frequency analysis of noise emitted from the DSNY trucks. The second meter (B&K 2231) was used for short-term measurements of A-weighted noise levels (dBA) emitted from the DSNY trucks and the general environment.

1. "01"dB Environmental Noise Monitor:

   According to the manufacturer, "The 01dB is a system designed for easy operation in acoustic power determination according to the ISO-374x series of standards, taking into consideration envelope surfaces and environment correction factors. Extremely simple and easy to use, all calculations are automatically performed, while raw data are always available for later analysis and further investigation."

The "01" dB monitor was used to continuously monitor A-weighted (dBA) sound levels during the truck simulation measurements. The data acquisition system digitally recorded acoustic signals and performed statistical analysis of noise levels. In addition to 5, 10, 50, 90, and 95 percentile levels (L_{05}, L_{10}, L_{50}, L_{90}, L_{95}), the maximum and minimum noise levels (L_{max} and L_{min}) and the hourly equivalent continuous noise level (L_{eq}) at the end of each hour.

2. Bruel & Kjaer (B&K) Type 2231 Sound Level Meter:

   According to the manufacturer, "The Modular Precision Sound Level Meter 2231 is a type 1 precision instrument with a wide range of measurement capabilities. It also has a wide frequency range of 2 Hz to 70 kHz, which allows measurements in the infrasound and ultrasound regions."

This instrument was used to measure A-weighted (dBA) sound levels in conjunction with the "01" dB noise monitor. The meter performs statistical analysis of noise levels in addition to providing the equivalent continuous level during the short-term monitoring period (typically 20 minutes).

Both the "01 dB" Analyzer and the Sound Level Meter satisfy the requirements of standard S1.4 of the ANSI for laboratory grade noise measuring instruments. Each measurement system was calibrated before and after the monitoring sessions with a sound level calibrator whose calibration

was traceable to the National Institute of Standards and Technology. The measurement microphones were located at an approximate height of 5.5 feet above ground level by mounting the microphones on a tripod. The microphones were also fitted with windscreens to minimize noise generated by any occasional wind gusts. All measurements were performed under acceptable climatic and road surface conditions: low wind speed (less than 20 mph) and dry road surface.

Site-specific calculations were performed to determine the average acoustic energy from each individual truck movement (in terms of hourly L_{eq}) at each location. For locations where the truck simulations predicted a potential impact, the individual truck acoustic energy was used to estimate the number of DSNY collection vehicles that could be allowed at a location without causing noise impacts to a noise-sensitive receptor based on the CEQR standard. These calculations are provided in Attachment B.

3.0 Summary and Conclusions

The truck simulation method is a realistic method for determining the differences between the existing and the future noise levels in the City. Noise impact assessments based on truck simulations provide the ability to determine the number of additional heavy trucks that could be allowed at a given location without causing noise impacts. Use of the truck simulation method shows that the average number of allowable trucks that would not cause impacts can be 3 to 4 times greater than the number of trucks allowed when using TNM 2.1 to predict impacts. Therefore, by using the truck simulation methodology, it is possible to realistically estimate the maximum number of heavy trucks that can be allowed through sensitive residential areas of the City without causing significant increases in noise levels.

The results of the site-specific truck simulations are shown in the tables provided in Attachment A.

ATTACHMENT A
TRUCK SIMULATION RESULTS

East 91st Street Converted MTS

90th Street between First Avenue and York Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
7/29/03	2:00 - 3:00 am	Car – 10 MT – 1 HT – 6 Bus - 0	5	65.8	62.1	92.5	63.4	63.6	64.2	65.2	66.2	0.9	No
		Car – 10 MT – 1 HT – 1 Bus - 0	0	64.9	62.1	86.6	63.4	63.5	64.1	65	65.4		
7/29/03	3:00 - 4:00 am	Car – 15 MT – 0 HT – 7 Bus - 0	7	65.4	62.5	84.1	63.4	63.5	64.1	65.2	66.5	0.9	No
		Car – 15 MT – 0 HT – 0 Bus - 0	0	64.5	62.5	77.8	63.4	63.5	64.1	64.9	65.4		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.
2) It was noted that sound levels for this time in the morning are high, which can be attributed to the fan noise of the window-based air-conditioners, which are located in many apartments. This fan noise contributed to the base noise level.

East 91st Street Converted MTS

York Avenue between East 90th Street and East 91st Street

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
7/30/03	2:00 - 3:00 am	Car – 76 MT – 0 HT –13 Bus – 4	12	65.7	59.4	93.3	60.5	60.7	61.5	66.7	69.5	1.8	No
		Car – 76 MT – 0 HT – 1 Bus – 4	0	63.9	59.4	83.6	60.5	60.7	61.4	64.6	67.3		
7/30/03	3:00 - 4:00 am	Car – 60 MT – 0 HT –19 Bus – 3	19	66.5	59.6	96.1	60.5	60.7	61.7	66.8	69.8	3.6	Yes
		Car – 60 MT – 0 HT – 0 Bus – 3	0	62.9	59.6	81.9	60.5	60.7	61.4	64.2	66		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.
2) It was noted that sound levels for this time in the morning are high, which can be attributed to the fan noise of the window-based air-conditioners, which are located in many apartments. This fan noise contributed to the base noise level.

West 135th Street Converted MTS

West 133rd Street between Broadway and 12th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
7/31/03	1:00 – 2:00 am	Car – 66 MT – 0 HT – 14 Bus – 0	14	68.7	63.1	88.5	64.1	64.3	64.9	69.3	72.9	2.6	No
		Car – 66 MT – 0 HT – 0 Bus – 0	0	66.1	63.1	88.5	64.1	64.2	64.8	67	68.6		
7/31/03	2:00 - 3:00 am	Car – 47 MT – 0 HT – 13 Bus – 0	12	69.2	63.4	87.7	64.2	64.3	65	69.4	73.6	2.5	No
		Car – 47 MT – 0 HT – 1 Bus – 0	0	66.7	63.4	86.5	64.1	64.3	64.9	67.4	69.2		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.
2) It was noted that sound levels for this time in the morning are high, which can be attributed the exhaust fan noise of the MTA Bus Facility located across the street from the apartment complex. The fan noise contributed to the base noise level.

West 135th Street Converted MTS

West 133rd Street between Broadway and 12th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
7/31/03	3:00 – 4:00 am	Car – 30 MT – 0 HT – 12 Bus – 0	11	69.1	63.2	89.7	64.2	64.4	65.2	69.4	73.4	2.2	No
		Car – 30 MT – 0 HT – 1 Bus – 0	0	66.9	63.2	89.7	64.2	64.4	65.1	67.7	69.5		
7/31/03	4:00 – 5:00 am	Car – 58 MT – 2 HT – 13 Bus – 0	12	69.2	63.2	86.9	64.1	64.4	65.5	69.7	73.4	2.5	No
		Car – 58 MT – 2 HT – 1 Bus – 0	0	66.7	63.2	85.9	64.1	64.3	65.3	67.5	69.2		
7/31/03	5:00 – 6:00 am	Car – 112 MT – 3 HT – 14 Bus – 1	12	70.5	63.9	90.6	64.9	65.1	66.2	72.2	75.3	1.8	No
		Car – 112 MT – 3 HT – 2 Bus - 1	0	68.7	63.9	90.6	64.9	65	66	70.4	73.1		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.
2) It was noted that sound levels for this time in the morning are high, which can be attributed the exhaust fan noise of the MTA Bus Facility located across the street from the apartment complex. The fan noise contributed to the base noise level.

West 135th Street Converted MTS

West 133rd Street between Broadway and 12th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
6/16/04	9:00 – 10:00 am	Car – 175 MT – 3 HT – 18 Bus – 3	15	72.2	68	90.9	69.5	69.7	70.5	73.4	75.6	0.7	No
		Car – 175 MT – 3 HT – 3 Bus – 3	0	71.5	68	90.9	69.5	69.7	70.4	72.2	73.6		
6/16/04	10:00 - 11:00 am	Car – 165 MT – 7 HT – 23 Bus – 2	15	72.7	68.4	99.7	69.4	69.5	70.2	72.9	75.4	0.6	No
		Car – 165 MT – 7 HT – 8 Bus – 2	0	72.1	68.4	99.7	69.4	69.5	70.2	71.6	72.7		
6/16/04	11:00 - 12:00 pm	Car – 220 MT – 6 HT – 6 Bus – 4	*	72.4	68.5	103.4	69.3	69.4	70.1	71.9	73.7	*	*

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

2) It was noted that sound levels for this time in the morning are high, which can be attributed the exhaust fan noise of the MTA Bus Facility located across the street from the apartment complex. The fan noise contributed to the base noise level.

West 135th Street Converted MTS

West 132nd Street between Broadway and 12th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
6/16/04	1:00 – 2:00 am	Car – 62 MT – 0 HT – 9 Bus – 0	6	72.5	69.4	93.7	70.2	70.3	70.8	72.1	73.9	0.6	No
		Car – 62 MT – 0 HT – 3 Bus – 0	0	71.9	69.4	93.7	70.2	70.3	70.8	71.7	72.9		
6/16/04	2:00 - 3:00 am	Car – 30 MT – 0 HT – 6 Bus – 0	6	71.9	69.6	93.3	70.5	70.6	71.1	71.7	72.6	0.5	No
		Car – 30 MT – 0 HT – 0 Bus – 0	0	71.4	69.6	90.4	70.5	70.6	71.1	71.6	72		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.
2) It was noted that sound levels for this time in the morning are high, which can be attributed the exhaust fan noise of the MTA Bus Facility located across the street from the apartment complex. The fan noise contributed to the base noise level.

West 135th Street Converted MTS

West 132nd Street between Broadway and 12th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
6/16/04	3:00 – 4:00 am	Car – 15 MT – 0 HT – 7 Bus – 0	5	71.9	69.9	93.2	70.6	70.7	71.1	71.7	72.1	0.6	No
		Car – 15 MT – 0 HT – 2 Bus – 0	0	71.3	69.9	83.9	70.5	70.7	71.1	71.6	71.8		
6/16/04	4:00 – 5:00 am	Car – 28 MT – 0 HT – 8 Bus – 0	5	72.4	69.7	95.6	70.5	70.6	71.1	71.9	73.1	0.4	No
		Car – 28 MT – 0 HT – 3 Bus – 0	0	72	69.7	92.1	70.5	70.6	71.1	71.7	72.4		
6/16/04	5:00 – 6:00 am	Car – 40 MT – 2 HT – 2 Bus – 0	*	72.2	69.9	90.6	70.6	70.7	71.2	72	73.2	*	*

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

2) It was noted that sound levels for this time in the morning are high, which can be attributed the exhaust fan noise of the MTA Bus Facility located across the street from the apartment complex. The fan noise contributed to the base noise level.

West 135th Street Converted MTS

West 132nd Street between Broadway and 12th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
5/27/04	8:00 – 9:00 am	Car – 81 MT – 5 HT – 20 Bus – 1	13	72.5	68.3	97.9	69	69.2	70	73	74.6	0.5	No
		Car – 81 MT – 5 HT – 7 Bus – 1	0	72.0	68.3	97.9	69	69.2	69.9	72.3	73.4		
5/27/04	9:00 – 10:00 am	Car – 83 MT – 4 HT – 18 Bus – 6	15	72.7	68.6	93.9	69.4	69.6	70.3	73.5	75.5	0.9	No
		Car – 83 MT – 4 HT – 3 Bus – 6	0	71.8	68.6	93.5	69.4	69.5	70.2	72.7	74.1		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.
2) It was noted that sound levels for this time in the morning are high, which can be attributed the exhaust fan noise of the MTA Bus Facility located across the street from the apartment complex. The fan noise contributed to the base noise level.

West 135th Street Converted MTS

West 132nd Street between Broadway and 12th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels (2)								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
5/27/04	10:00 – 11:00 am	Car – 110 MT – 6 HT – 23 Bus – 17	15	73.3	68.5	91.1	69.4	69.6	70.3	74.3	77.1	0.9	No
		Car – 110 MT – 6 HT – 8 Bus – 17	0	72.4	68.5	91.1	69.4	69.6	70.3	73.4	75.2		
5/27/04	11:00 – 12:00 pm	Car – 95 MT – 6 HT – 5 Bus – 2	N/A	72.4	68.5	93.7	69.4	69.6	70.9	73.3	74.7	N/A	N/A

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.
2) It was noted that sound levels for this time in the morning are high, which can be attributed the exhaust fan noise of the MTA Bus Facility located across the street from the apartment complex. The fan noise contributed to the base noise level.

North Shore Converted MTS

College Point Boulevard South of Sanford

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels								Delta Leq (dBA)	Impact [1] (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
8/12/03	1:00 – 2:00 am	Car – 195 MT – 6 HT – 46 Bus – 5	31	72.2	55	100.4	57.9	58.8	63.7	73.7	77.4	2.3	No
		Car – 195 MT – 6 HT – 15 Bus – 5	0	69.9	55	99.1	57.4	58.4	62.4	71.2	74.4		
8/12/03	2:00 - 3:00 am	Car – 137 MT – 14 HT – 43 Bus – 1	22	72.3	54.3	102.7	56.6	57.5	62.2	72.2	76.2	1.3	No
		Car – 137 MT – 14 HT – 21 Bus – 1	0	71	54.3	95.8	56.4	57.3	61.4	70.4	73.7		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

North Shore Converted MTS
College Point Boulevard South of Sanford

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels								Delta Leq (dBA)	Impact [1] (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
8/12/03	3:00 – 4:00 am	Car – 128 MT – 10 HT – 35 Bus – 3	26	69.9	53.1	101	55.2	55.6	60.5	71.3	75.1	3.9	Yes
		Car – 128 MT – 10 HT – 9 Bus – 3	0	66	53.1	88.4	55.1	55.5	59.5	67.6	71.4		
8/12/03	4:00 - 5:00 am	Car – 161 MT – 10 HT – 32 Bus – 7	24	70.5	52.3	100.4	54	54.7	60.5	72.5	76.1	3.2	Yes
		Car – 161 MT – 10 HT – 8 Bus – 7	0	67.3	52.3	91.1	53.9	54.5	59	69.3	72.5		
8/12/03	5:00 – 6:00 am	Car – 226 MT – 10 HT – 40 Bus – 20	21	71.9	52.3	95.9	54.5	55.4	63.6	74.1	77.5	1.1	No
		Car – 226 MT – 10 HT – 19 Bus – 20	0	70.8	52.3	95.9	54.4	55.1	62.8	72.7	76		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

North Shore MTS

College Point Boulevard North of Roosevelt Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels								Delta Leq (dBA)	Impact [1] (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
8/13/03	12:00 – 1:00 am	Car – 193 MT – 8 HT – 14 Bus – 2	11	67.5	52.6	94.1	54.8	55.2	57.8	69.1	72.7	2.0	No
		Car – 193 MT – 8 HT – 3 Bus – 2	0	65.5	52.6	90.3	54.8	55.1	57.4	67.9	71.6		
8/13/03	1:00 - 2:00 am	Car – 121 MT – 8 HT – 32 Bus – 0	31	69.3	52.1	97.9	54	54.3	57.2	68.8	73	3.6	Yes
		Car – 121 MT – 8 HT – 1 Bus – 0	0	65.7	52.1	97.9	53.9	54.2	56.2	65.4	69.2		
8/13/03	2:00 – 3:00 am	Car – 115 MT –7 HT – 24 Bus – 2	22	68	51.6	94.7	53.5	53.9	56.5	67.9	72.6	3.1	Yes
		Car – 115 MT – 7 HT – 2 Bus – 2	0	64.9	51.6	94.7	53.4	53.8	55.9	65.5	69.6		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

North Shore MTS

College Point Boulevard North of Roosevelt Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
8/13/03	3:00 - 4:00 am	Car – 118 MT – 6 HT – 26 Bus – 16	26	69.4	51	97.5	53.3	53.7	56	69	73.7	2.4	No
		Car – 118 MT – 6 HT – 0 Bus – 16	0	67	51	97.5	53.2	53.6	55.4	66	70.1		
8/13/03	4:00 – 5:00 am	Car – 87 MT – 6 HT – 32 Bus – 2	24	69.5	51	100.6	53.1	53.6	56.2	69.6	74.8	1.8	No
		Car – 87 MT – 6 HT – 8 Bus – 2	0	67.7	51	100.6	53	53.5	55.6	67.3	71.9		
8/13/03	5:00 - 6:00 am	Car – 164 MT – 12 HT – 29 Bus – 5	21	69.6	53.1	94.8	55	55.5	58.7	70.8	75.4	1.4	No
		Car – 164 MT – 12 HT – 8 Bus – 5	0	68.2	53.1	94.8	54.9	55.4	58.1	69.3	73.3		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

Hamilton Avenue Converted MTS

20th Street West of 4th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels								Delta Leq (dBA)	Impact [1] (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
8/19/03	11:00 – 12:00 pm	Car – 34 MT – 6 HT – 3 Bus – 0	3	67.1	56.4	102	58.8	59.3	61.6	66.3	69.2	1.6	No
		Car – 34 MT – 6 HT – 0 Bus – 0	0	65.5	56.4	102	58.8	59.3	61.5	65.7	68.2		
8/20/03	12:00 - 1:00 am	Car – 24 MT – 0 HT – 8 Bus – 0	5	66.9	54.5	92	57.5	58.2	60.9	66.2	69.3	1.8	No
		Car – 24 MT – 0 HT – 3 Bus – 0	0	65.1	54.5	92	57.4	58.1	60.8	65.4	67.7		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

Hamilton Avenue Converted MTS

20th Street West of 4th Avenue

Date	Time Periods	Total Traffic Count per Hour	Number of DOS Trucks	Recorded Levels								Delta Leq (dBA)	Impact (1) (Yes / No)
				Leq	Lmin	Lmax	L95	L90	L50	L10	L5		
8/20/03	1:00 – 2:00 am	Car – 17 MT – 7 HT – 8 Bus – 0	4	67.2	53.3	93	56.9	57.6	60.7	66.5	70	1.9	No
		Car – 17 MT – 7 HT – 4 Bus – 0	0	65.3	53.3	88.8	56.9	57.6	60.6	65.9	68.6		
8/20/03	2:00 - 3:00 am	Car – 14 MT – 0 HT – 7 Bus – 0	6	67	52.1	93.7	56.2	57	60.3	65.7	68.1	3.6	Yes
		Car – 14 MT – 0 HT – 1 Bus – 0	0	63.4	52.1	88.9	56.1	56.9	60.1	64.9	66.6		
8/20/03	3:00 – 4:00 am	Car – 15 MT – 3 HT – 9 Bus – 0	4	68.1	53	93.3	56.2	57.1	61.1	67.7	72	1.1	No
		Car – 15 MT – 3 HT – 5 Bus – 0	0	67	53	87.6	56.1	57	61	67.2	71.2		

1) Per NYC CEQR guidelines, an increase in Leq (1 hr) equal to or greater than 3 dBA is considered an impact.

ATTACHMENT B
TRUCK ACOUSTIC ENERGY CALCULATIONS

Truck Energy Calculation based on Site-specific truck simulations

West 135th Street MTS

West 133rd Street btwn Broadway and 12th Avenue 7/31/2003

	existing	w/trucks	Total Truck Energy	# of DSNY Trucks	Single Truck Energy	Single Truck Energy	Noise Increase caused by Trucks	Impact
1:00 AM	66.1	68.7	3339300	14	238521.4	53.78	2.6	No
2:00 AM	66.7	69.2	3640286	12	303357.2	54.82	2.5	No
3:00 AM	66.9	69.1	3230517	11	293683.4	54.68	2.2	No
4:00 AM	66.7	69.2	3640286	12	303357.2	54.82	2.5	No
5:00 AM	68.7	70.5	3807082	12	317256.8	55.01	1.8	No
				Truck Noise Energy	**291235.2**	**54.6**		

West 132nd Street btwn Broadway and 12th Avenue using simulation data from 133rd St btwn Broadway and 12th St

	existing	# of DSNY Trucks	Total Truck Energy	Noise Level w/trucks	Noise Increase caused by Trucks	Impact	Adjusted Truck Number based on Linden Exit	Total Truck Energy	Noise Level w/trucks	Noise Increase caused by Trucks	Impact	
1:00 AM	64.8	6	62.4	66.8	2.0	No	8	63.7	67.3	2.5	No	Increased Proposed truck number by 2
2:00 AM	61.6	6	62.4	65.0	3.4	Yes	4	60.6	64.2	2.6	No	Decreased Proposed truck number by 2
3:00 AM	64.7	5	61.6	66.4	1.7	No						
4:00 AM	74.2	5	61.6	74.4	0.2	No						
5:00 AM	70.8	4	60.6	71.2	0.4	No						

Northshore MTS

College Point Boulevard South of Sanford 8/12/2003

	existing	w/trucks	Total Truck Energy	# of DSNY Trucks	Single Truck Energy	Single Truck Energy	Noise Increase caused by Trucks	Impact	Adjusted Truck Number based on Linden Exit	Total Truck Energy	Noise Level w/trucks	Noise Increase caused by Trucks	Impact
1:00 AM	69.9	72.2	6823497	31	220112.8	53.43	2.3	No	14	64.9	71.1	1.2	No
2:00 AM	71	72.3	4393182	22	199690.1	53.00	1.3	No	8	62.0	71.5	0.5	No
3:00 AM	66	69.9	5791301	26	222742.3	53.48	3.9	Yes	12	64.3	68.2	2.2	No
4:00 AM	67.3	70.5	5849867	24	243744.4	53.87	3.2	Yes	11	64.3	69.1	1.8	No
5:00 AM	70.8	71.9	3465522	21	165024.8	52.18	1.1	No					
				Truck Noise Energy	**210262.9**	**53.2**							

College Point Boulevard North of Roosevelt 8/13/2003

	existing	w/trucks	Total Truck Energy	# of DSNY Trucks	Single Truck Energy	Single Truck Energy	Noise Increase caused by Trucks	Impact	Adjusted Truck Number based on Linden Exit	Total Truck Energy	Noise Level w/trucks	Noise Increase caused by Trucks	Impact
12:00 PM	65.5	67.5	2075279	11	188661.8	52.76	2	No					
1:00 AM	65.7	69.3	4796028	31	154710.6	51.90	3.6	Yes	14	63.4	67.7	2.0	No
2:00 AM	64.9	68	3219278	22	146330.8	51.65	3.1	Yes	8	60.7	66.3	1.4	No
3:00 AM	67	69.4	3697764	26	142221.7	51.53	2.4	No	12	62.3	68.3	1.3	No
4:00 AM	67.7	69.5	3024073	24	126003.0	51.00	1.8	No	11	61.4	68.6	0.9	No
5:00 AM	68.2	69.6	2513174	21	119674.9	50.78	1.4	No					
				Truck Noise Energy	**146267.1**	**51.6**							

Hamilton Avenue
MTS
20th Street West of 4th Avenue 8/20/2003

	Existing Noise Level	Noise Level w/trucks	Total Truck Energy	# of DSNY Trucks	Single Truck Energy	Single Truck Energy	Noise Increase caused by Trucks	Impact	Adjusted Truck Number	Total Truck Energy	Noise Level w/trucks	Noise Increase caused by Trucks	Impact	
1:00 AM	65.3	67.2	1859633	4	464908.3	56.67	1.9	No						
2:00 AM	63.4	67	2824111	6	470685.1	56.73	3.6	Yes	4	62.7	66.1	2.7	No	Decrease Propose truck number by 2
3:00 AM	67	68.1	1444670	4	361167.5	55.58	1.1	No	6	63.4	68.6	1.6	No	Increase Proposed truck number by 2
4:00 AM	65.5	67.1	1580480	3	526826.6	57.22	1.6	No						
5:00 AM	65.1	66.9	1661852	5	332370.3	55.22	1.8	No						
				Truck Noise Energy	**431191.6**	**56.3**								

East 91st Street
MTS
East 90th Street between 1st Avenue and York Avenue 7/29/2003

	existing	w/trucks	Total Truck Energy	# of DSNY Trucks	Single Truck Energy	Single Truck Energy	Noise Increase caused by Trucks	Impact
2:00 AM	64.9	65.8	711598.5	5	142319.7	51.53	0.9	No
3:00 AM	64.5	65.4	648985.6	7	92712.2	49.67	0.9	No
				Truck Noise Energy	**117516.0**	**50.6**		

York Avenue between East 90th Street and East 91st Street

7/30/2003

	existing	w/trucks	Total Truck Energy	# of DSNY Trucks	Single Truck Energy	Single Truck Energy	Noise Increase caused by Trucks	Impact	Adjusted Truck Number	Total Truck Energy	Noise Level w/trucks	Noise Increase caused by Trucks	Impact	
2:00 AM	63.9	65.7	1260643	12	105053.6	50.21	1.8	No	17	62.5	66.3	2.4	No	Increase Proposed truck number by 5
3:00 AM	62.9	66.5	2516991	19	132473.2	51.22	3.6	Yes	14	62.7	65.8	2.9	No	Decrease Propose truck number by 5
				Truck Noise Energy	**118763.4**	**50.7**								