Proposed Site Compatibility Noise Assessment for an Existing Multi-Modal Environment in the City of New York

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Outline

- Residential Hall Project
- New York City CEQR Noise Guidelines
- Site Assessment Procedures
- Noise Monitoring
- Noise Analysis
- Summation and Q&A

Residential Hall Project

The 2 proposed buildings would be approximately 74 feet tall and 200 feet long and would accommodate a total of approximately 459 students. Building 1 would be situated south of Building 2 and would include Towers 1 and 2; Building 2 to the north would house Towers 3 and 4. The student housing is best described as "apartment style," with each unit containing multiple bedrooms, a living area/kitchen and a bathroom

Collaboration between Dormitory Agency of New York ("DASNY") and a private university

The proposed buildings would incorporate green building technology. It is expected that the Proposed Project would be Leadership in Energy and Environmental Design ("LEED") Silver certified.

New York City Noise Guidelines

City of New York City Environmental Quality Review (CEQR) (1991)

- Goal: to determine a proposed action's potential effects on sensitive noise receptors, including the effects on the interior noise levels of residential, commercial, and institutional uses. And to determine a proposed action's compatibility to the existing noise environment, if its an noise sensitive receptor
- Impacts: For significant impact during daytime hours (between 7 AM and 10 PM), 65 dB(A) Leq(1) may be considered as an absolute noise level that should not be significantly exceeded for outdoor receptors.
- If impact occurs?
- Refer to Tables 3R-3 and 3R-4 of the CEQR Manual

CEQR: Noise Exposure Guidelines For Use in City Environmental Impact Review and Required Attenuation Values To Achieve Acceptable Interior Noise Levels Tables

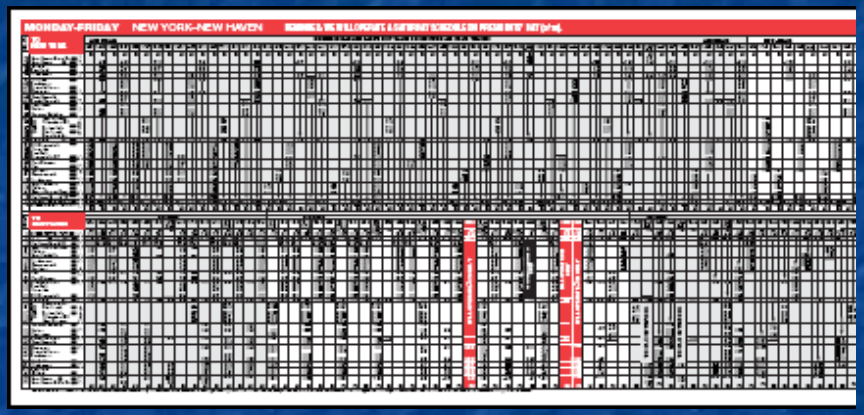
Receptor Type[1]	Time Period	Acceptable General External Exposure	Airport Environs[3]	Marginally Acceptable General External Exposure	Airport Environs[3]	Marginally Unacceptable General External Exposure	Airport Environs[3]	Clearly Unacceptable General External Exposure
1. Outdoor area requiring serenity and quiet[2]		$L_{10} < 55$ dBA	$L_{dn} < 60$ dBA		$60 < L_{dn} < 65$ dBA		(1) $65 < L_{dn} < 70$ dBA, (II) $70 < L_{dn} < 75$	
2. Hospital, Nursing Home		$L_{10} < 55$ dBA		$55 < L_{10} < 65$ dBA		$65 < L_{10} < 80$ dBA		$L_{10} > 80$ dBA
3. Residence, residential, hotel or motel	7:00 a.m. to 11:00 p.m.	$L_{10} < 65$ dBA		$65 < L_{10} < 70$ dBA		$70 < L_{10} < 80$ dBA		$L_{10} > 80$ dBA
	11:00 p.m. to 7 a.m.	$L_{10} < 55$ dBA		$55 < L_{10} < 70$ dBA		$70 < L_{10} < 80$ dBA		$L_{10} > 80$ dBA
4. School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, out-patient public health facility		Same as Residential Day (7:00 a.m. to 10:00 p.m.)		Same as Residential Day (7:00 a.m. to 10:00 p.m.)		Same as Residential Day (7:00 a.m. to 10:00 p.m.)		Same as Residential Day (7:00 a.m. to 10:00 p.m.)
5. Commercial or office		Same as Residential Day (7:00 a.m. to 10:00 p.m.)		Same as Residential Day (7:00 a.m. to 10:00 p.m.)		Same as Residential Day (7:00 a.m. to 10:00 p.m.)		Same as Residential Day (7:00 a.m. to 10:00 p.m.)
6. Industrial public areas only[3]	3	3		3		3		3

Noise Category	Marginally Acceptable	Marginally Unacceptable		Clearly Unacceptable		
Noise Level with Proposed Action[1]	$65<L_{10}< 70$	$70<L_{10}<75$	$75<L_{10}<80$	$80<L_{10}<85$	$85<L_{10}<90$	$90<L_{10}<95$
Required Attenuation[2]	25 dBA	(I) 30 dBA	(II) 35 dBA	(I) 40 dBA	(II) 45 dBA	(III) 50 dBA

Site Assessment Procedures

- Project Scale
- Study Area Characteristics
- Screening Distance
- Existing Noise Environment
- Level of Analysis

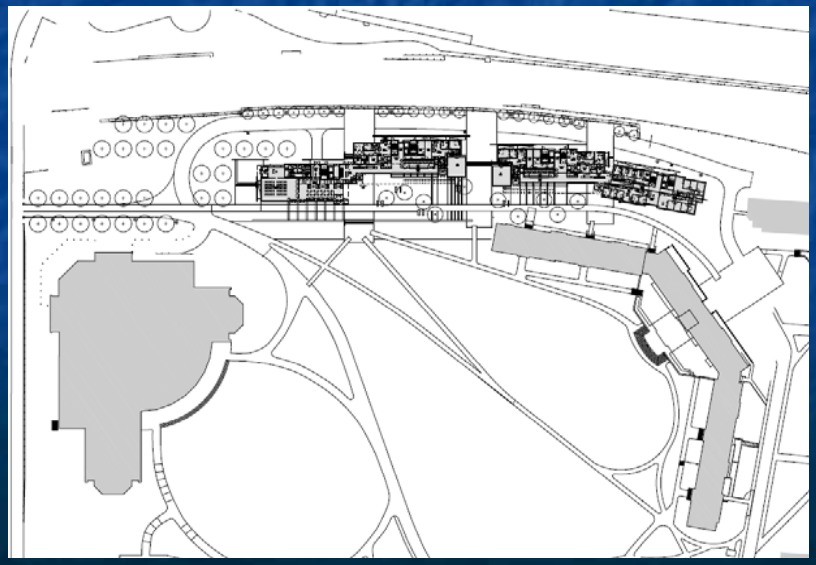
Study Area Characteristics



New Haven Line Schedule of Trains:

236 train per weekday with 146 non stops thru the University's Station

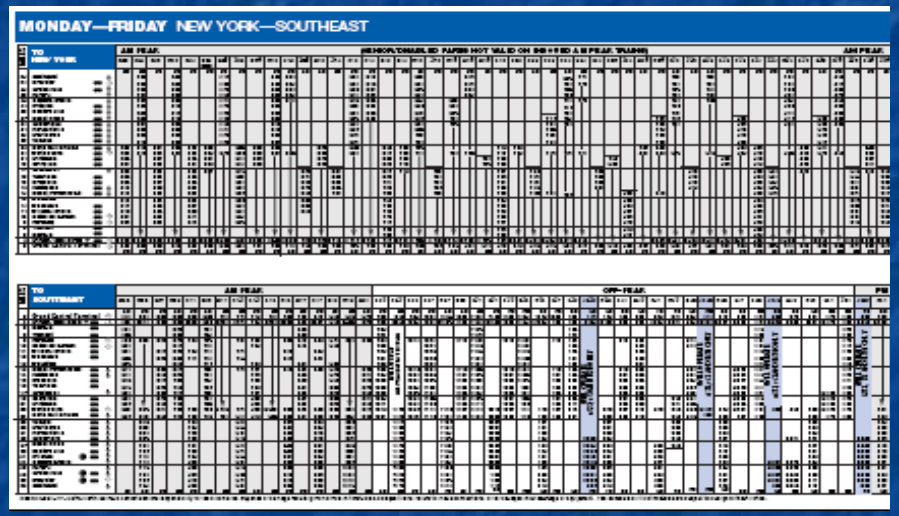
Webster Avenue: Major thoroughfare with 2 lanes of traffic in each direction



Study Area Characteristics Part II

Harlem Line Schedule of Trains:

199 train per weekday with 109 non stops thru the University's Station

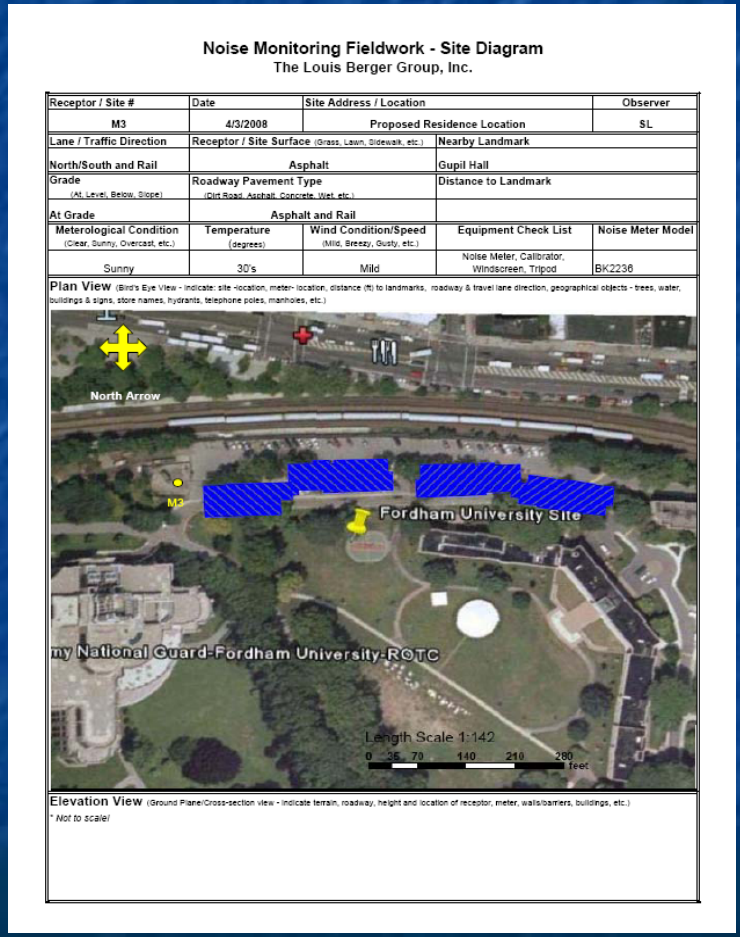


The Proposed Residence Hall will be approximately 60 feet from the closest train line and 180 feet from the Edge of Webster Avenue

Data Collection and Noise Field Work Site Diagram

- **Noise Monitoring:** Noise monitoring was conducted at the future residential hall location on the side facing the Metro North Hudson Train Lines and simultaneous noise monitoring was conducted at the closest representative building to the proposed site to determine the building shielding factor

- **Traffic and Train Count:** A digital video camera was set up near the train line to capture both the train and traffic counts during the short term monitoring



Noise Monitoring Fieldwork - Site Diagram
The Louis Berger Group, Inc.

Receptor / Site #	Date	Site Address / Location	Observer
M3	4/3/2008	Proposed Residence Location	SL

Lane / Traffic Direction	Receptor / Site Surface (Grass, Lawn, Sidewalk, etc.)	Nearby Landmark
North/South and Rail	Asphalt	Gupil Hall
Grade (At, Level, Below, Slope)	Roadway Pavement Type (Dirt Road, Asphalt, Concrete, Wet, etc.)	Distance to Landmark
At Grade	Asphalt and Rail	

Meterological Condition (Clear, Sunny, Overcast, etc.)	Temperature (degrees)	Wind Condition/Speed (Mild, Breezy, Gusty, etc.)	Equipment Check List	Noise Meter Model
Sunny	30's	Mild	Noise Meter, Calibrator, Windscreen, Tripod	BK2236

Plan View (Bird's Eye View - indicate: site -location, meter- location, distance (ft) to landmarks, roadway & travel lane direction, geographical objects - trees, water, buildings & signs, store names, hydrants, telephone poles, manholes, etc.)

Elevation View (Ground Plane/Cross-section view - indicate terrain, roadway, height and location of receptor, meter, walls/barriers, buildings, etc.)

** Not to scale!*

Site Photos

Noise Analysis Results

- Existing noise levels near proposed residence hall outdoor areas facing the train line and Webster Avenue
  - L_{10}: 66.3 – 70.5 dBA, Lmax: 81.4 – 83.6 dBA
- Simultaneous noise level measurements from closest representative building to the proposed site :
  - Facing Webster Avenue L_{10}: 62 & 65.6 dBA
  - Facing Campus L_{10}: 56.2 & 60 dBA
  - Average noise reduction due to the building 5.7 dBA

Summation

- The L10 noise levels on the south side of the proposed student residence halls would be as high as 70.5 dBA and would exceed Marginally Acceptable General External Exposure
- Given the predicted external noise level, a 30-dBA noise level attenuation would be required as shown in the CEQR Exterior Noise Guidelines and Attenuation Values Table
- In order to achieve the required attenuation, the installation of closed or inoperable windows and an HVAC system with the specified attenuation is recommended
- Provided that the 30-dBA attenuation is incorporated into the design of the Proposed Project, no significant adverse noise impacts would be expected to occur in the Future Build Condition
- The End……

Summation Part II

- As state previously, when the windows are closed, the interior noise levels would be at acceptable levels.
- However, during the seasonal transition months (October and May) when the temperatures would vary from day to night significantly, the building's LEED Certified HVAC system would be in either cooling-only or heating-only mode and open window may be needed to regulate airflow and temperature control
- When the windows along the buildings' west walls are open, noise standards may be exceeded. Elevated noise levels would mostly be confined to peak travel periods such as morning and evening rush hours; frequent train pass-bys and high volumes of vehicular traffic would be the primary noise sources. During morning and evening rush hours times, many building occupants would not be in the building (e.g., they would be attending classes, etc.).
- Furthermore, unacceptable noise levels would not be expected to occur during nighttime hours, when residents are most sensitive to elevated noise levels.
- In addition, this would not likely be an issue during the May transitional period, since the buildings would have a little or no occupancy given the academic schedule. There would be a limited number of days in the fall, after the building systems have switched from cooling mode to heating mode, that there may be select instances of conflict. Since this potential for conflict only would occur during atypical/limited times of the year and not on a usual basis, significant adverse effects on interior noise levels would not be expected.

Q&A