Appendix D: Noise

To: Glen Price, NYCDCP
From: CSA Group
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Project: Atlantic Avenue Mixed Use Plan (AAMUP)
Reference: DRAFT - Noise Analysis Methodology and Assumptions (Revised)

A noise analysis will be conducted for the Atlantic Avenue Mixed-Use Plan.

The purpose of this memorandum is to describe the noise analysis approach for the Atlantic Avenue Mixed-Use Plan (AAMUP) neighborhood study. A total of 70 development sites (54 projected and 16 potential) have been identified within the rezoning area. Under the reasonable worst case development scenario (RWCDS) for the Proposed Actions, the total development expected to occur on the 70 development sites under the With-Action condition would include 6,657,597 square feet, including 5,320,984 square feet (5,278 units) of residential uses, 48,548 square feet of medical office uses, 340,854 square feet of other community facility uses, 347,132 square feet of local retail, 50,140 square feet of destination retail, 472,574 square feet of office, and 77,095 square feet of other (non-warehouse or self-storage) industrial uses.

The following outline of procedures and assumptions is based on guidelines contained in the 2021 *CEQR Technical Manual*.

It is assumed that noise impacts could result primarily from two sources:

1. Vehicular noise from project-generated traffic on sensitive receptors in the community
2. Ambient noise impacts (from existing local and highway traffic, ventilation equipment, trains, school play yards, stationary sources, etc.) on projected and potential development sites.

High ambient noise levels currently exist in the proposed project study area. These existing sources include industrial facilities, the elevated Franklin Avenue Shuttle, the LIRR Atlantic Branch and traffic on nearby roadways such as Atlantic Avenue, and other high-volume local streets (e.g., Bedford Avenue, Franklin Avenue, Grand Avenue and Classon Avenue,). As a result, the trip generation from the incremental development of the Proposed Actions would likely result in a low level of additional noise on streets with high traffic volumes currently. The exceptions to this may occur on other less traveled streets in the project area (e.g., Pacific Street, Dean Street and Bergen Street). It is assumed that the greatest concern for project-generated impacts would be related to the impact of existing and future noise generators on both existing residences and future residential and community facility development sites.

NOISE MONITORING

Vehicular Sources

To determine baseline noise levels caused traffic within the study area, noise monitoring is proposed. Once the RWCDS is available, locations will be selected based on their proximity to projected and potential development sites as well as their potential to result in a doubling in volume, or Passenger Car Equivalent (PCEs), from project-induced traffic. Care will also be taken to select sites that would result in the most representative assessment of the existing noise environment. Monitoring will be conducted during the Weekday AM, Midday, PM, and Saturday midday peak periods. It is assumed that monitoring will be conducted within a two (2) hour window for the weekday peak periods and a three (3) hour window for the weekend peak period. Noise monitoring will be conducted for 20-minute intervals. Simultaneous traffic counts will also be conducted as part of the noise monitoring procedure. In addition, it is assumed that no 24-hour period monitoring will be required for the traffic noise monitoring program. Noise monitoring will include the use of A-weighted sound levels, and the L_{10}, L_{50}, L_{90}, L_{min}, L_{max} and L_{eq} noise descriptors.

The instruments used for the monitoring will be Type I Sound Level Meters (SLM) according to ANSI Standard S1.4-1983 (R2006). Each SLM will have a valid laboratory calibration certificate when measurements occur. All measurement procedures will be based on the guidelines outlined in ANSI Standard S1.13-2005.

Noise locations will be selected based on potential and proposed locations on the RWCDS and existing field conditions. They will represent locations where field personnel will conduct monitoring. Based on the available information, the majority of the proposed development sites would represent industrial, commercial or manufacturing land uses. The exact monitoring locations will be finalized after DCP review of preliminary site selections.

Rail Sources

The elevated Franklin Avenue shuttle runs adjacent to several of the proposed building sites within the project study area. In addition, several proposed sites would be affected by LIRR Atlantic Branch trains running along Atlantic Avenue at both street level and slightly elevated grades. Therefore, as noise levels near portions of the rezoning would be dominated by the train lines, it is anticipated that measurements from two or three monitoring locations would be applicable to multiple sites similarly situated along the rail corridors as well as other roadway corridors similarly affected. Monitoring locations where trains represent the dominant noise source, would be measured for a 24-hour period to obtain day-night average noise level (L_{dn}).

Stationary Sources

It is assumed that building mechanical systems (i.e., HVAC systems) for all buildings associated with the project will be designed to meet all applicable noise regulations (i.e., Subchapter 5, Sec. 24-227 of the New York City Noise Control Code and the New York City Department of Buildings Code).

DETAILED ANALYSIS PROCEDURES

Vehicular Noise

The selected noise monitoring locations will be used to assess the noise impacts of project-induced vehicles. For traffic-induced noise impacts, projected increases in noise will be estimated in accordance with the *CEQR Technical Manual*, based on existing traffic noise levels and projected traffic and noise for the No-Action condition. A screening analysis will be conducted to demonstrate that the Proposed Actions will not result in any exceedances of noise guidelines.

Ambient Noise Analysis

Based on predicted With-Action L_{10} noise levels, the noise analysis will result in a determination of the required noise attenuation values for each of the projected and potential development sites. The methodology used to conduct these analyses will include the following:

- Initially, the selected noise monitoring locations will be assessed to determine what their future L_{10} noise levels will be.
- Future noise from traffic will be calculated by converting traffic into PCEs for existing, No-Action and With-Action conditions, using logarithmic proportional modeling and PCE traffic volumes.
- Predicted L_{eq} noise levels will be converted to L_{10} noise levels. The conversion assumes that relative change in L_{eq} noise level in decibels is the same as change in L_{10} noise level in decibels. The calculation to determine the decibel difference will be conducted between existing and No-Action traffic conditions and between No-Action and With-Action traffic conditions.
- Each projected and potential development site will then be assigned a future noise level based on their proximity to one of the worst case monitored noise sites.
- Based on future With-Action noise levels, the window/wall attenuation category would be selected to provide acceptable interior noise levels.

Train Noise Source

- As mentioned above, at locations where the Proposed Actions would be potentially affected by a dominant train noise source, 24-hour monitoring would be conducted to determine the Ldn. Based on these monitored noise levels, the window/wall attenuation category would be selected to provide acceptable interior noise levels. It is anticipated that the operation of the train would not be affected by the Proposed Actions and any future train noise level would be similar to the current conditions captured by the 24-hour monitoring program.

The logarithmic proportional modeling procedure will be used to predict future traffic related L_{eq} noise levels. For the projected and potential development sites, it is assumed that outdoor mechanical equipment would be designed to meet applicable regulations and no detailed analysis of potential stationary source noise impacts due to outdoor mechanical equipment will be performed. However, if stationary source analyses are required for existing loud sources, sound levels at nearby sensitive receptors will be predicted using the distance attenuation equation provided in the *CEQR Technical Manual*.

Analysis Periods

The analyses of mobile sources will predict future noise levels for the existing, No-Action condition, and With-Action condition. One build year will be studied, which has been tentatively identified by the New York City Department of City Planning as 2034. The peak hours will be weekday AM, Midday, PM and Saturday midday.

MITIGATION

If the analysis of future noise levels in any of the studied locations exceeding the CEQR specified acceptable indoor noise level, mitigation measures in the form of window/wall attenuation will be proposed. Mitigation measures will be based on the required level of attenuation.