# APPENDIX E:
# OPERATIONAL NOISE ANALYSIS METHODOLOGY MEMORANDUM

**HMMH**
11 W 42nd Street, 2nd Floor
New York, NY 10036
www.hmmh.com

# TECHNICAL MEMORANDUM

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| **To:** | Glen Price<br>New York City Department of City Planning<br>120 Broadway<br>30th Floor<br>New York, NY 10271 |
| **From:** | Dayna Bowen, Tara Cruz |
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| **Subject:** | Midtown South Mixed-Use Study: Operational Noise Assessment Methodology and Assumptions |
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## 1. Introduction

The purpose of this memorandum is to describe the operational noise analysis approach for the preparation of the Midtown South Mixed-Use (MSMX) Study Environmental Impact Statement (EIS). A total of 68 development sites (61 projected and 7 potential) have been identified in the plan's project area. Under the reasonable worst case development scenario (RWCDS) for the Proposed Actions, by the analysis year 2034, the total development expected to occur on the 61 projected development sites under the With Action condition would consist of residential, retail, and community facility uses. The New York City Department of City Planning (DCP) is also applying a blanket 3 percent conversion factor, excluding projected and potential development sites and recent hotel development, of existing commercial/manufacturing space to residential space. No specific conversion sites or prototypical sites are identified. This memorandum presents a summary of the methodology and assumptions to be used for the operational noise analyses of the Proposed Actions.

## 2. Operational Noise Analysis Methodology and Assumptions

Pursuant to 2021 CEQR Technical Manual guidelines, when a project would 1) generate any mobile or stationary sources of noise, and/or 2) introduce a new receptor in an area with existing high ambient noise levels, there is a potential for significant adverse noise impact. The project site is approximately bounded by 40th Street to the north, 23rd Street to the south, Fifth Avenue to the east and Eighth Avenue to the west. In general, the project area is located in a vibrant section of Manhattan in manufacturing-zoned areas, with high traffic volumes and ambient noise levels.

The 2021 CEQR Technical Manual addresses two types of operational noise sources: mobile source (i.e., vehicle traffic noise, train noise, and aircraft noise) and stationary source (e.g., unenclosed HVAC systems, playgrounds, truck loading docks, etc.). According to the Transportation Planning Factors (TPF) and Travel Demand Forecast (TDF) Memorandum prepared for the RWCDS and residential conversions, dated November 11, 2024, the Proposed Actions are anticipated to generate a significant number of vehicles through project-affected intersections during one or more peak traffic hours. The following sections detail the methodology for evaluating operational noise sources and identifying potential impacts from the Proposed Actions on existing surrounding land use and potential impacts from the existing environment on the Proposed Actions.

## 2.1 Noise Measurements

The Proposed Actions will generate new receptors (e.g., residences and community facilities) in an area with existing high ambient noise levels. Therefore, short-term (20-minute) noise measurements will be conducted at representative, worst-case noise locations to identify peak existing ambient noise levels in the project study area. Each projected and potential development site will be assigned an ambient noise level ($L_{eq}$) based on their similarity and proximity to worst-case noise measurement locations. Noise measurement locations will be selected in consultation with DCP based on the final RWCDS. Identifying existing noise levels will be critical for assessing future noise levels and establishing (E) Designations to ensure development sites are constructed with appropriate window-wall attenuation to achieve acceptable interior noise levels.

Noise measurements will be conducted on a Tuesday, Wednesday, or Thursday of a non-holiday week during ideal weather conditions (no precipitation and sustained winds less than 12 mph) using ANSI Type I precision sound level meters. During each measurement period, a manual traffic volume and classification count will be conducted on all roadways that provide significant noise contributions at each site. Measurements will be completed during the following weekday periods: AM (8-9:30 am), Midday (MD – 1:30-3:30 pm), and PM (4-6:30 pm) peak traffic periods. Saturday MD (1:15-3:15 pm) measurements will also be conducted with concurrent traffic volume and classification counts. In addition, 24-hour noise measurements will not be required. The following A-weighted noise descriptors will be documented during the noise measurement program: $L_{max}$, $L_{min}$, $L_1$, $L_{10}$, $L_{50}$, $L_{90}$, and $L_{eq}$.

## 2.2 Mobile Sources

The 2021 CEQR Technical Manual addresses the following mobile sources of noise: vehicle traffic noise, train noise, and aircraft noise. The following sections describe the CEQR Technical Manual screening procedures that will be implemented to evaluate potential for impact to the Proposed Actions and from the Proposed Actions on existing surrounding noise-sensitive land use.

### *2.2.1 Vehicular Noise*

Based on the TPF and TDF memo, the Proposed Action's RWCDS is anticipated to result in a net incremental increase of approximately 360, 351, 436, and 736 vehicle trips during the weekday AM, MD, and PM and Saturday MD peak traffic hours, respectively. A Level 2 screening assessment was prepared for each peak hour, in which project-related vehicle trips were assigned to 46 intersections to identify locations for detailed traffic analysis. Traffic counts were also conducted in these locations in June 2024. Detailed traffic analysis locations will be selected in consultation with DCP and NYCDOT.

Due to the significant increase in project-generated vehicles, a CEQR noise Passenger Car Equivalent (PCE) screening will be necessary. Noise PCEs are not anticipated to double during any peak traffic period; therefore, a significant increase in noise levels (i.e., a 3 dBA or greater noise level increase) is not expected, and no further detailed assessment of project-related vehicular sources would be warranted.

To assess future noise levels based on project-generated vehicle trips, the following steps will be conducted:

- Existing and future No-Action and With-Action traffic volumes will be converted to noise PCEs using the vehicle-based weighting factors in the CEQR Technical Manual.

- The change in PCEs will be evaluated to determine if there are any locations where PCEs will double and thereby result in a potential significant noise level increase.
- Future No-Action and With-Action noise levels will be calculated using $L_{eq}$ noise measurement results assigned to each development site. The logarithmic proportional modeling equation presented in Section 332 of the 2021 CEQR Technical Manual will be used to calculate the future $L_{eq}$ noise levels.
- Predicted $L_{eq}$ noise levels will be converted to $L_{10}$ noise levels at each site. The conversion assumes that the change in $L_{eq}$ noise levels is the same as the change in $L_{10}$ noise levels. To calculate the future No-Action and With-Action $L_{10}$ noise levels, the difference between existing $L_{eq}$ and $L_{10}$ noise levels determined from the measurement program will be added to the future $L_{eq}$ noise levels.

### *2.2.2 Train Noise*

Based on CEQR Technical Manual guidelines, train activity generally does not have a significant impact on new noise-sensitive land use unless those land uses are within 1,500 feet and have a direct line of sight to existing train activity. In addition, increases in existing train activity within a direct line of sight and 1,500 feet of a receptor may also result in a significant mobile source noise impact. Given the project's location in midtown, there are no above-ground train sources that would affect proposed noise-sensitive land use. Further, the Proposed Actions would not increase train trips. Therefore, a rail noise assessment would not be warranted.

### *2.2.3 Aircraft Noise*

In accordance with CEQR Technical Manual guidelines, when a new receptor is located within a 65 dBA DNL contour from nearby airports, an aircraft noise assessment may be warranted. Aircraft noise exposure screening will be performed, which consists of reviewing Noise Exposure Maps (NEMs) for nearby airports to identify if the Proposed Actions create noise-sensitive receptors within the 65 DNL contours. It is not anticipated that a detailed assessment of aircraft noise will be warranted.

## 2.3 Stationary Sources

Stationary sources of noise typically include building HVAC systems, loading docks, playgrounds, etc. In accordance with CEQR Technical Manual guidelines, existing stationary sources of noise within 1,500 feet of a receptor and with a direct line of sight may result in the potential for noise impact. Sources of noise associated with the Proposed Action may also have the potential to impact existing noise-sensitive land use. Proposed HVAC systems are considered circulation devices and are therefore regulated by the NYC Noise Code. Based on CEQR guidelines, new HVAC sources do not require a detailed quantitative assessment. Additionally, based on a preliminary review of existing land use in the project study area, there are no major stationary sources of noise that would impact the Proposed Actions. Therefore, no detailed quantitative assessment of stationary noise sources is warranted. Stationary sources will be addressed qualitatively within the EIS.

## 2.4 Residential Conversions

DCP is applying a blanket 3 percent conversion factor, excluding projected and potential development sites and recent hotel development, of existing commercial/manufacturing space to residential space. No specific conversion sites or prototypical sites are identified; therefore, to ensure converted commercial/manufacturing space achieves acceptable With-Action interior noise levels for residential use, developers would be interested to make the design and construction of converted

residential spaces to achieve acceptable CEQR interior noise level limits and interior permissible noise level limits established within New York City Noise Code §24-218, §24-231, and §24-232 for residential receiving properties.

### 2.5 Impact Assessment and Mitigation

Future With-Action $L_{10}$ noise levels described above will be assessed against CEQR Noise Exposure Guidelines presented in Table 19-2 of the CEQR Technical Manual. For all sites predicted to experience 'marginally unacceptable' noise exposure, the appropriate level of window-wall attenuation will be identified to ensure acceptable interior noise levels are achieved. Building attenuation requirements will be identified based on window-wall attenuation values presented in the *CEQR Technical Manual*. Additionally, pursuant to Section 123-32 of the New York City Zoning Resolution, residential dwelling units in Special Mixed-Use Districts shall be provided with a minimum 35 dBA of window-wall attenuation to maintain an interior noise level of 45 dBA or less with windows closed and an alternate means of ventilation provided. (E) Designation language will be drafted in consultation with DCP. Considering that ZR 123-32 only provides an attenuation requirement for dwelling units, if a necessary window-wall attenuation value less than 35 dBA is identified based on results of the noise analysis, non-residential noise sensitive sites would require an (E) Designation to ensure an acceptable interior noise level.

## 3. Operational Noise Analysis Documentation

The operational noise analysis findings will be documented in the MSMX EIS. Summary tables of ambient noise levels at the representative receptor sites and illustrations depicting these locations will be provided. Summary tables of predicted future No-Action and With-Action noise levels will be included. Where necessary, (E) Designation language will be provided in the mitigation section. Noise measurement photos, traffic counts, and field notes will be included in an appendix to the MSMX EIS.