Appendix 3

Operational Noise Analysis Methodology Memorandum

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Memorandum

To:	New York City Department of City Planning
From:	AKRF, Inc.
Date:	May 30, 2025
Re:	Herkimer-Williams Operational Noise Analysis Methodology Approach
cc:	Project Team

INTRODUCTION

This memorandum presents a summary of the methodology and assumptions to be used for the operational noise analysis for the Proposed Actions. Approval of the Proposed Actions would facilitate the redevelopment of portions of four blocks in the East New York neighborhood of Brooklyn Community District (CD) 5. The Project Area includes Block 1555, Lots 1 and 19; Block 1576, Lots 1, 9, 13, 32, and 34; and Block 1577, Lots 1, 7, 17, 26, 32, 35, 51, 53, 56, and 58. The Project Area encompasses a total of approximately 190,474 sf of lot area and contains the entirety of three blocks (i.e., Blocks 1555, 1576, and 1577), with frontages generally bounded by Fulton Street (80-feet-wide) to the north, Van Sinderen Avenue (70-feet-wide) to the west, Atlantic Avenue (120-feet-wide west of Havens Place and greater than 120-feet-wide between Havens Place and Williams Avenue) to the south, and East New York Avenue (115-feet-wide) to the east. The Project Area is bifurcated in the east-west direction by Herkimer Street (70-feet-wide) and in the north-south direction by Williams Place (60-feet-wide).

The Proposed Actions would facilitate the redevelopment of several projected development sites within the Project Area. The projected development sites are Projected Development Site 1A (Block 1555, Lot 19), Projected Development Site 1B (Block 1576, Lots 1 and 34), Projected Development Site 1C (Block 1577, Lots 17 and 26), Projected Development Site 1D (Block 1577, Lots 32, 35, 51, and 53), and Projected Development Site 1E (Block 1577, Lots 1, 7, 56, and 58). Additionally, Projected Development Site 2 comprises Block 1576, Lot 9. Projected Development Sites 1A through 1E are under the ownership or control of the Applicant and are coterminous with the LSGD. Projected Development Site 2 is owned by Calvary Church and is not under the ownership or control of the Applicant and is not included within the LSGD. Within the Project Area, no redevelopment would occur on Block 1555, Lot 1 and Block 1576, Lots 13 and 32; therefore, these lots are not considered projected development sites.

PROJECT DESCRIPTION

In the future with the Proposed Actions, the Applicant proposes to demolish the existing buildings at Projected Development Sites 1A through 1E (with the exception of the existing three-story office building

on Block 1576, Lot 34 on Projected Development Site 1B) to facilitate the development of four new mixed-use buildings and potentially, a small retail kiosk. Additionally, on Projected Development Site 2, which is not included within the LSGD, the Applicant anticipates demolishing the existing building and developing a new as-of-right mixed-use building. In total, across the six projected development sites, the Proposed Development comprises five new buildings and potentially, a small retail kiosk containing a combined total of approximately 1,589,202 gsf, including approximately 435,766 gsf of commercial office space, 113,760 gsf of commercial retail space, 834,763 gsf of residential space (1,112 DUs), 22,985 gsf of community facility (house of worship) space, and 98,483 gsf of light industrial space for Use Groups III-X, as well as approximately 174 accessory parking spaces (approximately 83,445 gsf) and 20,080 sf of PAA space.

NOISE ANALYSIS METHODOLOGY – SUMMARY

This memorandum presents a summary of the proposed approach to the noise analysis for the Proposed Actions. Specifically, the proposed methodology includes the following:

- Selection of noise receptor locations;
- Establishment of existing ambient noise levels and traffic volumes and vehicle classifications;
- Determination of noise levels in the future with the Proposed Actions based on expected future changes in vehicular traffic volumes;
- Determination of whether there are any locations where there is the potential for the Proposed Actions to result in significant adverse noise impacts (i.e., doubling Noise Passenger Car Equivalents [PCEs]);
- Calculation of total future noise levels; and
- Determination of minimum necessary levels of building attenuation to provide acceptable interior noise levels at the projected development sites under guidelines contained in the 2021 *New York City Environmental Quality Review* (*CEQR) Technical Manual*.

SELECTION OF NOISE RECEPTOR LOCATIONS

As the first step in this process, a field visit was performed to identify potential noise receptor locations. According to AKRF's field observations, elevated rail activity is the dominant existing noise source throughout the study area, although vehicular traffic and stationary sources (e.g., building HVAC equipment) also contribute to existing noise levels.

A total of nine receptor sites were selected for the noise analysis. The proposed noise receptor locations were selected based on the locations of the projected development sites and existing neighborhood characteristics (e.g., along rail lines, along major road corridors, etc.).

NOISE MONITORING

AKRF plans to conduct a noise survey to measure existing noise levels at nine locations surrounding the Project Area. The noise receptor sites are shown in **Figure 1** and described in **Table 1**. Traffic counts will be conducted for the roadway immediately adjacent to the receptor site during each spot noise level measurement.

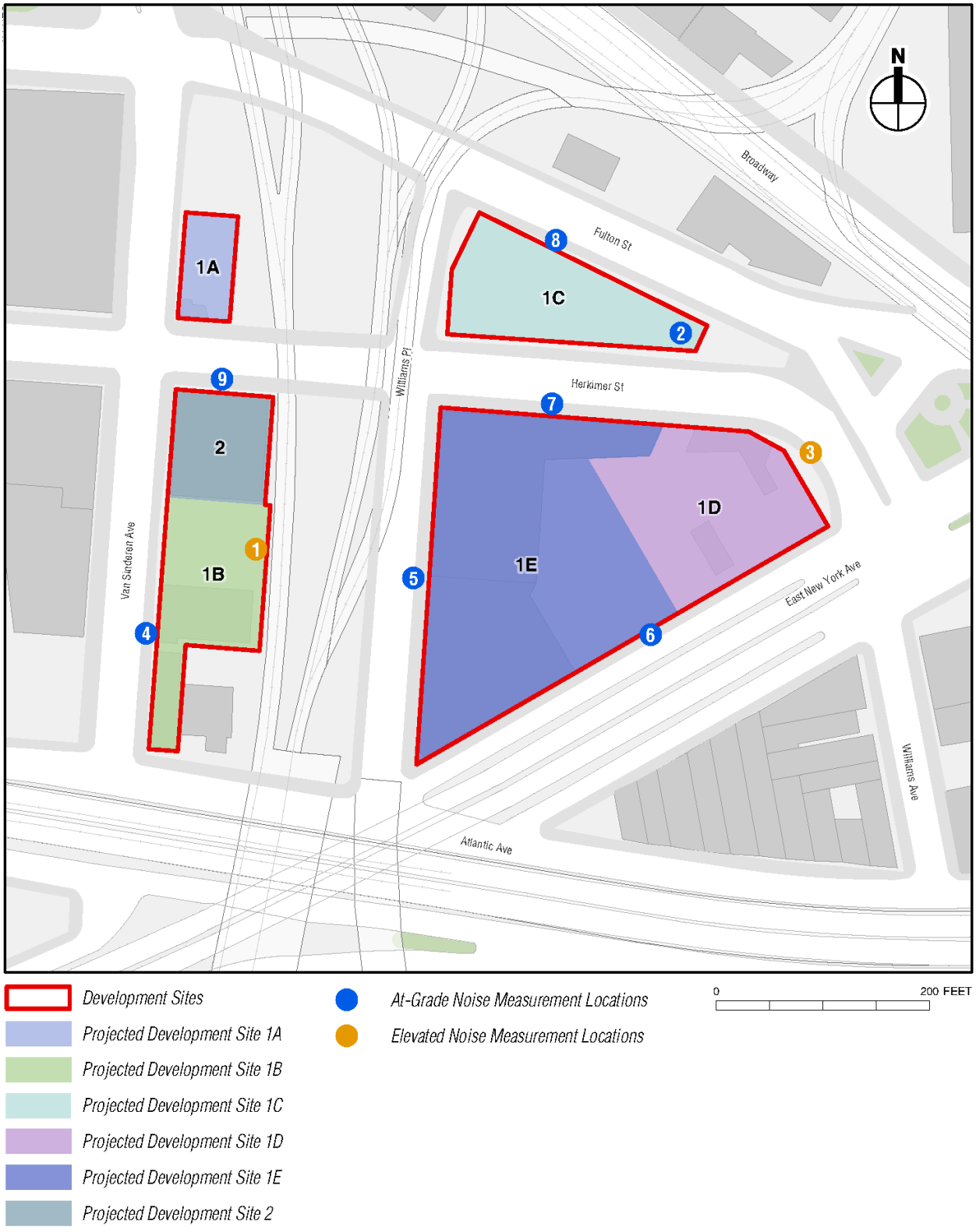


Figure 1: Proposed Noise Measurement Locations

Table 1
Proposed Noise Measurement Locations

Site	Location	Measurement Program
1	Block 1576 Mid-Block Along Rail Line [Elevated]	Weekday Continuous 24-hour Measurement
2	Block 1577 East Boundary between Fulton and Herkimer Streets	Weekday Continuous 24-hour Measurement
3	Herkimer Street north of East New York Avenue [Elevated]	Weekday AM, MD, and PM 60-minute Spot Measurements
4	Van Sinderen Avenue between Herkimer Street and Atlantic Avenue	Weekday AM, MD, PM and Saturday MD 60-minute Spot Measurements
5	Williams Place between Herkimer Street and Atlantic Avenue	Weekday AM, MD, and PM 60-minute Spot Measurements
6	East New York Avenue between Williams Place and Herkimer Street	Weekday AM, MD, PM and Saturday MD 60-minute Spot Measurements
7	Herkimer Street east of Williams Place	Weekday AM, MD, and PM 60-minute Spot Measurements
8	Fulton Street east of Williams Place	Weekday AM, MD, and PM 60-minute Spot Measurements
9	Herkimer Street between Van Sinderen Avenue and Williams Place	Weekday AM, MD, and PM 60-minute Spot Measurements

At receptor site 1, a 24-hour continuous noise level measurement will be conducted on the existing building approximately 100 feet above grade. At receptor site 2, a 24-hour continuous noise level measurement will be conducted approximately 5 feet above grade at Projected Development Site 1C. At receptor sites 3 through 9, 60-minute spot noise measurements will be conducted during the typical weekday AM (7:00 AM—9:00 AM), midday (12:00 PM—2:00 PM), and PM (4:00 PM—6:00 PM) peak periods. Additionally, at receptor site 3, the microphone will be placed on a pole at a height of approximately twelve feet above the ground surface and approximately six feet or more away from any large sound-reflecting surface to avoid major interference with sound propagation. Lastly, at receptor sites 4 and 6, where vehicular traffic is expected to be the dominant source, an additional 60-minute measurement will be conducted during the Saturday (12:00 PM—2:00 PM) peak period. At locations where rail activity is confirmed to be the dominant source of noise, L_{dn} noise level will be determined. For the 24-hour measurement locations, L_{dn} will be directly measured. For the spot measurement locations, L_{dn} will be determined by prorating the spot-measurement noise levels based on the hour-to-hour difference in noise levels at the 24-hour measurement location most similar to each spot measurement location.

All measurements will be performed according to noise measurement guidance contained in the *CEQR Technical Manual*. Weekday noise level measurements will only be collected between Tuesday and Thursday. Where feasible, traffic volumes on the adjacent roadway will be counted during the noise level measurements. The resultant vehicular traffic counts will be converted to Noise PCEs and compared to existing condition traffic levels from the Transportation analysis to identify potential atypical conditions during data collection. At locations where vehicular traffic is the dominant source of noise, if Noise PCEs calculated using traffic data counted during noise measurements differ significantly from the Noise PCEs estimated using existing-condition traffic data from the Transportation study at the same location, and traffic on the immediately adjacent roadway segment is the dominant source of noise, the difference between existing Noise PCEs will be examined further, and the measured noise levels may be invalidated requiring the measurement to be repeated until there are no longer significant differences between the existing Noise PCEs or the measured noise levels to be adjusted.

Measurements will be performed using Class 1 Sound Level Meter (SLM) instruments according to ANSI Standard S1.4-2014. The SLMs will have laboratory calibration dates within one year of the date of the

measurements. All measurement procedures will be based on the guidelines outlined in ANSI Standard S1.13-2005.

It is also proposed that the air traffic noise would not be removed from the noise measurements. This would ensure that recommended attenuation levels within the study area take the aircraft noise into account in order to determine acceptable interior noise levels.

NOISE PREDICTION METHODOLOGY

Future noise levels with the Proposed Actions (With Action Condition) and without the Proposed Actions (No Action Condition) will be estimated at locations where vehicular traffic is the dominant source of noise using the using a proportional modeling technique. The proportional modeling technique is an analysis methodology recommended in the *CEQR Technical Manual*. The selected time periods are when the Proposed Actions would be expected to result in the maximum traffic generation, and therefore result in the maximum potential for noise level increases.

PROPORTIONAL MODELING

Using the proportional modeling technique, the prediction of future noise levels where traffic is the dominant noise source is based on a calculation using existing noise levels and predicted changes in traffic volumes to determine No Action Condition and With Action Condition noise levels. Vehicular traffic volumes are converted into Noise Passenger Car Equivalent (Noise PCE) values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 13 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) is assumed to generate the noise equivalent of 47 cars, and one bus (vehicles designed to carry more than nine passengers) is assumed to generate the noise equivalent of 18 cars.

Future noise levels are calculated using the following equation:

$F\ NL - E\ NL = 10 * \log_{10} (F\ PCE / E\ PCE)$

where:

F NL = Future Noise Level

E NL = Existing Noise Level

F PCE = Future Noise PCEs

E PCE = Existing Noise PCEs

Sound levels are measured in decibels and therefore increase logarithmically with sound source strength. In this case, the sound source is traffic volumes measured in Noise PCEs. For example, assume that traffic is the dominant noise source at a particular location. If the existing traffic volume on a street is 100 PCE and if the future traffic volume were increased by 50 PCE to a total of 150 PCE, the noise level would increase by 1.8 dBA. Similarly, if the future traffic were increased by 100 PCE, or doubled to a total of 200 PCE, the noise level would increase by 3.0 dBA.

FAÇADE NOISE ATTENUATION REQUIREMENTS

The *CEQR Technical Manual*, in Table 19-3, has set noise attenuation quantities for buildings based on exterior $L_{10(1)}$, L_{dn}, and DNL noise levels to maintain acceptable interior noise levels. With rail traffic as the dominant source of noise at the projected development sites, the acceptable interior noise level thresholds for the EIS noise analysis will be an L_{dn} level of 40 dBA or lower for residential or community facility areas with sleeping accommodations, and 45 dBA for commercial office uses. Where vehicular traffic is the dominant noise source or there are no sleeping accommodations, the acceptable interior noise level thresholds for the EIS will be an exterior $L_{10(1)}$ of 45 dBA or lower for residential or community facility areas and 50 dBA for commercial office uses.