Appendix 4

Construction Air Quality and Construction Noise Analyses 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 EIS Construction Air Quality Analysis Methodology
cc:	Project Team

The purpose of this memorandum is to describe the construction air quality analysis approach 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.

CONSTRUCTION AIR QUALITY ANALYSIS METHODOLOGY

Emissions from on-site construction equipment and on-road construction vehicles, as well as dust-generating construction activities, all have the potential to affect air quality. The analysis of potential construction air quality impacts will include an analysis of both on-site and on-road sources of air emissions, and the combined impact of both sources, where applicable.

In general, much of the heavy equipment used in construction is powered by diesel engines that have the potential to produce relatively high levels of nitrogen oxides (NO_x) and particulate matter (PM) emissions. Fugitive dust generated by construction activities is also a source of PM. Gasoline engines produce relatively high levels of carbon monoxide (CO). Since the United States Environmental Protection Agency (EPA) mandates the use of ultra-low sulfur diesel (ULSD) fuel for all highway and non-road diesel engines, sulfur oxides (SO_x) emitted from the Proposed Project's construction activities would be negligible. Therefore, the pollutants to be analyzed for the construction period are nitrogen dioxide (NO_2)—which is a component of NO_x that is a regulated pollutant, particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), and carbon monoxide (CO). **Table 1** shows the pollutants to be analyzed in the construction air quality analysis and the corresponding averaging periods.

Table 1
Pollutants for Analysis and Averaging Periods

Pollutant	Averaging Period
$PM_{2.5}$	24-hour
	Annual Local
	Annual Neighborhood
PM_{10}	24-hour
NO_2	Annual
CO	1-hour
	8-hour

Concentrations will be predicted using dispersion models to determine the potential for air quality impacts during on-site construction activities and due to construction-generated traffic on local roadways. Concentrations for each pollutant of concern due to construction activities at each sensitive receptor will be predicted during the most representative worst-case time period.

The potential for significant adverse impacts will be determined by comparing modeled PM_{10}, NO_2 and CO concentrations to National Ambient Air Quality Standards (NAAQS), and modeled $PM_{2.5}$ and CO increments to applicable *de minimis* thresholds. If the analysis concludes that there is a potential for significant adverse impacts, specific control measures required to reduce the effects of construction and to eliminate any significant adverse air quality impacts will be identified.

The detailed approach for assessing the effect of construction activities resulting from the Proposed Actions on air quality is discussed further below.

DATA SOURCES

The construction air quality analysis will be based on the preliminary construction phasing schedule for each building provided by the project team, as well as projections of the construction workforce, truck, and equipment projections.

ON-SITE CONSTRUCTION ACTIVITY ASSESSMENT

To determine which construction periods constitute the worst-case for the pollutants of concern (PM, CO, NO_2), construction-related emissions will be calculated for each calendar year throughout the duration of construction on a rolling annual and peak day basis for $PM_{2.5}$. $PM_{2.5}$ is selected for determining the worst-case periods for all pollutants analyzed, because the ratio of predicted $PM_{2.5}$ incremental concentrations to impact criteria is anticipated to be higher than for other pollutants. Therefore, initial estimates of $PM_{2.5}$ emissions throughout the construction years will be used for determining the worst-case periods for analysis of all pollutants. Generally, emission patterns of PM_{10} and NO_2 would follow $PM_{2.5}$ emissions, since they are related to diesel engines by horsepower. CO emissions may have a somewhat different pattern but would also be anticipated to be highest during periods when the most activity would occur.

Based on the emission profiles, the proximity of construction activities to sensitive receptors, the representative worst-case annual and short-term (i.e., 24-hour, 8-hour, and 1-hour) averaging periods identified in **Table 1** will be selected for analysis. Dispersion of the relevant air pollutants from the construction site during these periods will then be analyzed. Broader conclusions regarding potential concentrations during non-peak periods, which will not be modeled, will be presented as well, based on the multi-year emissions profiles and the reasonable worst-case period results.

Engine Emissions

The sizes, types, and number of units of construction equipment will be estimated based on the construction activity schedule developed. Emission rates for NO_X, CO, PM_{10}, and $PM_{2.5}$ from truck engines will be developed using the EPA Motor Vehicle Emission Simulator (MOVES4[1]) emission model. Emission factors for NO_x, CO, PM_{10}, and $PM_{2.5}$ from on-site construction engines will be developed using the NONROAD emission module included in the MOVES emission model. The emission factor calculations will take into account any emissions reduction measures (i.e., the application of diesel particulate filters, etc.) that is required on site.

On-Site Fugitive Dust

In addition to engine emissions, fugitive dust emissions from operations (e.g., excavation and transferring of excavated materials into dump trucks) will be calculated based on EPA procedures delineated in AP-42 Table 13.2.3-1. Since construction is required to follow the New York City Air Pollution Control Code regarding construction-related dust emissions, a 50 percent reduction in particulate emissions from fugitive dust will be conservatively assumed in the calculation (dust control methods such as wet suppression would often provide at least a 50 percent reduction in particulate emissions).

Analysis Periods

As discussed above, the construction periods with activities closest to sensitive receptors and with the most intense activities and highest emissions will be selected as the worst-case periods for analysis. The dispersion analysis will include modeling the worst-case annual and short-term (i.e., 24-hour, 8-hour, and 1-hour) averaging periods identified in **Table 1**. The worst-case short-term and annual periods will be selected once the estimated construction activities have been developed. These periods will be selected based on the maximum construction intensity predicted and their proximity to nearby sensitive receptors.

[1] EPA, Motor Vehicle Emission Simulator (MOVES), User Guide for MOVES2014a, November 2015. Overview of EPA's Motor Vehicle Emission Simulator (MOVES4). EPA-420-R-23-019. August 2023. There is no stand-alone user's guide for MOVES4 as information is incorporated into the interface.

Dispersion Modeling

Potential impacts from the worst-case construction sources will be evaluated using a refined dispersion model, the EPA/AMS AERMOD dispersion model. AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain and includes updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and handling of terrain interactions.

Source Simulation

For short-term model scenarios (predicting concentration averages for periods of 24 hours or less), all stationary sources, such as compressors, cranes, or concrete trucks, which idle in a single location while unloading, will be simulated as point sources. Other engines, which would move around the site on any given day, will be simulated as area sources. For periods of 8 hours or less (less than the length of a shift), it will be assumed that all engines would be active simultaneously. All sources, with the exception of tower cranes, would move around the site throughout the year and will therefore be simulated as area sources in the annual analyses.

Meteorological Data

The meteorological data set will consist of five consecutive years of latest available meteorological data: surface data collected at the nearest representative National Weather Service Station (JFK Airport) from 2015 to 2019 and concurrent upper air data collected at Brookhaven, New York. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and temperature inversion elevation over the five-year period. These data will be processed using the EPA AERMET program to develop data in a format which can be readily processed by the AERMOD model.

Background Concentrations

To estimate the maximum expected total pollutant concentrations, the calculated impacts from the emission sources must be added to a background value that accounts for existing pollutant concentrations from other sources. The background levels are based on concentrations monitored at the nearest New York State Department of Environmental Conservation (NYSDEC) ambient air monitoring stations, as shown in **Table 2**. Data from 2017 to 2019 is proposed for use due to uncertainties in the representativeness of background concentrations in 2020 and 2021 due to the effects of COVID-19.

Table 2
Maximum Background Pollutant Concentrations

Pollutant	Average Period	Location	Concentration	NAAQS
$PM_{2.5}$	24-hour	JHS 126	17.8 µg/m^3	35 µg/m^3
	Annual	JHS 126	7.6 µg/m^3	9 µg/m^3
PM_{10}	24-hour	Division Street	39.3 µg/m^3	150 µg/m^3
NO_2	Annual	Queens College	28.7 µg/m^3	100 µg/m^3
CO	1-hour	Queens College 2	1.72 ppm	35 ppm
	8-hour	Queens College 2	1.2 ppm	9 ppm
Source: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, 2017–2019.				

Receptor Locations

Receptors will be placed at locations that would be publicly accessible, at residences, schools, and other sensitive uses at both ground-level and elevated locations (e.g., residential windows) of existing buildings and buildings facilitated by the Proposed Actions that would have been completed and occupied during the analyzed phases of construction, at adjacent sidewalk locations, at publicly accessible open spaces. In addition, a ground-level receptor grid will be placed to enable extrapolation of concentrations throughout the study area at locations more distant from construction activities.

On-Road Sources

The construction worker commuting trips and construction truck deliveries would generally occur during off-peak hours. Furthermore, the construction trip increments would not be concentrated at any single location. Therefore, a standalone mobile-source analysis will not be required. Nevertheless, since emissions from on-site construction equipment and on-road construction-related vehicles may contribute to concentration increments concurrently, on-road emissions adjacent to the construction site will be included with the on-site dispersion analysis (in addition to on-site truck and non-road engine activity) to address all local project-related emissions cumulatively.

On-Road Vehicle Emissions

Vehicular engine emission factors will be computed using the EPA mobile source emissions model, MOVES4. This emissions model is capable of calculating engine emission factors for various vehicle types, based on the fuel type (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway type and grade, number of starts per day, engine soak time, and various other factors that influence emissions, such as inspection maintenance programs. The inputs and use of MOVES incorporate the most current guidance available from NYSDEC.

On-Road Dust Emissions

$PM_{2.5}$ emission rates will be determined with road dust to account for their impacts. However, fugitive road dust will not be included in the annual average $PM_{2.5}$ microscale analyses, as per current *CEQR Technical Manual* guidance used for mobile source analysis. Road dust emission factors will be calculated according to the latest procedure delineated by EPA[2]. An average weight of 20 tons and 2.5 tons will be assumed for construction trucks and worker vehicles in the analyses, respectively.

Traffic Data

Traffic data for the air quality analysis will be derived from existing traffic counts, projected future growth in traffic, and other information developed as part of the construction traffic analysis for the Proposed Project.

Impact Criteria

The 2021 *CEQR Technical Manual* states that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.[3] In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS would be deemed to have a potential significant adverse impact. In addition, to maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in non-attainment areas, *CEQR de minimis* threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above these thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

Potential Mitigation Measures

The analysis will assume all emissions reduction measures as required by law. These measures include dust control measures, idling restrictions, and the use of ultra-low sulfur diesel fuel. If the analysis concludes that there is a potential for significant adverse impacts, specific control measures required to reduce the effects of construction and to eliminate any significant adverse air quality impacts will be identified. These

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[2] EPA, Compilations of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Ch. 13.2.1, NC, http://www.epa.gov/ttn/chief/ap42, January 2011.

[3] New York City. *CEQR Technical Manual*. Chapter 1, section 222. December 2021; and New York State Environmental Quality Review Regulations, 6 NYCRR § 617.7

measures may include diesel equipment reduction, best available tailpipe reduction technologies, utilization of equipment that meets specified emission standards, and location of equipment away from sensitive uses. Any emission control measures proposed to be used during the construction will be documented in the EIS and related Project Component Related to the Environment (PCRE).

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To:	New York City Department of City Planning
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Date:	May 30, 2025
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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.

CONSTRUCTION NOISE ANALYSIS METHODOLOGY – SUMMARY

A detailed modeling analysis will be conducted to quantify potential construction noise effects at existing noise receptors (e.g., residences, schools, etc.) near the projected development sites as well as at completed and occupied proposed buildings. The construction noise methodology will involve the following process:

1. *Select analysis hours for construction mobile source noise analysis.* The 6:00 AM to 7:00 AM hour is selected as the analysis hour because this would be the hour when the highest number of construction worker auto and construction truck trips to and from the construction site would simultaneously occur.
2. *Conduct construction mobile source noise analysis.* At each of the roadway segments analyzed for construction traffic, the construction worker vehicle and construction truck trips during the analysis hour will be converted to Noise Passenger Car Equivalents (PCEs) and compared to the existing level of Noise PCEs to determine the potential increase in noise levels due to construction-generated trips.
3. *Select analysis hours for cumulative on-site equipment and construction truck noise analysis*. The 7:00 AM to 8:00 AM hour is selected as the analysis hour because this would be the hour when the highest number of truck trips to and from the construction site would overlap with on-site equipment operation.
4. *Select receptor locations for cumulative on-site equipment and construction truck noise analysis.* Selected receptors will represent open space, residential, commercial office, or other noise-sensitive uses potentially affected by the construction associated with the Proposed Actions during operation of on-site construction equipment and/or along routes taken to and from the projected development sites by construction trucks. Project elements (e.g., buildings, open spaces) that would be completed and occupied while construction under the Proposed Actions is still ongoing will also be included in the analysis as receptors.
5. *Establish existing noise levels at selected receptors.* Existing noise levels from the operational noise analysis will be relied upon for the construction noise analysis as well. A CadnaA model representing the existing conditions (including existing building geometry, existing condition traffic levels, and sources representing existing condition rail activity) will be validated or calibrated based on the measured existing noise levels and used to calculate baseline noise levels at the other noise receptor locations included in the analysis.
6. *Establish worst-case noise analysis periods under the anticipated construction schedule.* The worst-case noise analysis periods are the periods during the construction schedule that are expected to have the greatest potential to result in construction noise effect. The selected time periods are described below in the "Analysis Periods" section.
7. *Calculate construction noise levels for each analysis period at each receptor location*. Given the on-site equipment and construction truck trips expected during each of the analysis periods, and the location of the equipment, which is based on construction logistics diagrams and construction truck and worker vehicle trip assignments, a CadnaA model file including each analysis period will be created. All models will include each of the construction noise sources during the analysis period and hour, calculation points representing multiple locations on various façades and floors of the associated receptors previously identified, as well as the noise control measures that would be used on the construction site.

8. *Determine total noise levels and noise level increments during construction.* For each analysis period and each noise receptor, the calculated level of construction noise will be logarithmically added to the existing noise level to determine the cumulative total noise level. The existing noise level at each receptor will then be arithmetically subtracted from the cumulative noise level in each analysis period to determine the noise level increments.
9. *Compare construction noise increments to impact criteria*. For each analysis period and each noise receptor, the predicted noise increments due to construction will be compared to CEQR noise impact thresholds and additional incremental noise impact criteria as described below.
10. *Estimate interior noise levels*. At receptors representing interior locations where noise increments due to construction are predicted to exceed incremental construction noise impact thresholds, window/wall attenuation will be estimated based on field observations. Maximum predicted construction noise levels and estimated window/wall attenuation will be used to estimate interior noise levels.
11. *Establish construction noise duration*. For each receptor, the noise level increments and estimated interior noise levels in each analysis period will be evaluated to determine the duration during construction that the receptor would experience exceedances of impact criteria.
12. *Identify potential construction noise impacts.* At each receptor where exceedances of construction noise impact criteria are predicted, a determination will be made as to whether the Proposed Actions would have the potential to result in significant adverse construction noise impacts.

CONSTRUCTION MOBILE SOURCE ANALYSIS

A Noise PCE screening will be conducted for noise levels from construction mobile sources. The projected noise level increment from construction worker vehicle and construction truck trips construction will be compared to CEQR noise impact thresholds and additional incremental noise impact criteria as described below.

Construction truck trips that would occur during the construction workday (i.e., after 7:00 AM) will be included in the modeling of construction noise as discussed below.

NOISE RECEPTOR SITES

A noise-sensitive receptor is defined in Chapter 19, "Noise" Section 114 of the 2021 *CEQR Technical Manual* and includes indoor receptors such as residences, hotels, health care facilities, nursing homes, schools, houses of worship, court houses, public meeting facilities, museums, libraries, theaters, and commercial offices. Outdoor sensitive receptors include parks, outdoor theaters, golf courses, zoos, campgrounds, and beaches.

Within the study area, multiple receptor locations close to the construction areas will be selected for the construction noise analysis to represent buildings or noise-sensitive open space locations that have the potential to experience elevated noise as a result of construction. These receptors will be located adjacent to planned areas of activity or streets where construction trucks would pass. At some buildings, multiple façades will be analyzed as receptors. At high-rise buildings, noise receptors at multiple elevations will be analyzed. Receptors at street level will be used to represent open space locations at grade. The receptor sites selected for detailed analysis will represent locations where maximum project effects due to construction noise would be expected.

CONSTRUCTION NOISE MODELING

Noise effects from construction activities will be evaluated using the CadnaA model, a computerized model developed by DataKustik for noise prediction and assessment. The model can be used for the analysis of a wide variety of noise sources, including stationary sources (e.g., construction equipment, industrial equipment, power generation equipment), transportation sources (e.g., roads, highways, railroad lines, busways, airports), and other specialized sources (e.g., sporting facilities). The model takes into account the reference sound pressure levels of the noise sources at 50 feet, attenuation with distance, ground

contours, reflections from barriers and structures, attenuation due to shielding, etc. The CadnaA model is based on the acoustic propagation standards promulgated in International Standard ISO 9613-2. This standard is currently under review for adoption by the American National Standards Institute (ANSI) as an American Standard. The CadnaA model is a state-of-the-art tool for noise analysis and is approved for construction noise level prediction by the *CEQR Technical Manual*.

Geographic input data used with the CadnaA model will include CAD drawings that define site work areas, adjacent building footprints and heights, locations of streets, and locations of sensitive receptors. For each analysis period, the geographic location and operational characteristics—including equipment usage rates (percentage of time operating at full power) for each piece of construction equipment operating at the projected development sites, as well as noise control measures—will be input to the model.

Construction equipment source strength will be determined by the L_{max} levels presented in **Table 22-1** of the 2021 *CEQR Technical Manual.* For construction equipment not included in this table, manufacturer specifications or field measured noise levels will be used.

In addition, reflections and shielding by barriers erected on the construction site and shielding from adjacent buildings will be accounted for in the model. Construction-related vehicles will be assigned to the adjacent roadways. The model will produce A-weighted $L_{eq(1)}$ noise levels at each receptor location for each analysis period, as well as the contribution from each noise source. The $L_{10(1)}$ noise levels will be conservatively estimated by adding 3 dBA to the $L_{eq(1)}$ noise levels, as is standard practice.[1]

DETERMINATION OF NON-CONSTRUCTION NOISE LEVELS

Noise generated by construction activities (calculated using the CadnaA model as described above) will be added to baseline (i.e., non-construction) noise levels, including noise generated by non-construction traffic on adjacent roadways, to determine the total noise levels at each receptor location. Baseline noise levels will be calculated using the CadnaA model using existing condition traffic data and sources representing existing condition rail activity. The elevated railways in the study area will be represented in the CadnaA model by area sources, whose noise emission is calibrated based on measured existing rail noise levels. The existing condition CadnaA model will include receptors representing the noise measurement locations from the operational noise analysis to be used for the purpose of validating or calibrating the existing condition results. If the existing condition CadnaA model results at the measurement locations differ from estimated existing levels by more than 3 dBA (e.g., because of contribution from noise sources not included in the model, such as aircraft overflights), an adjustment factor will be added to analysis receptors most representative of the measurement location.

ANALYSIS TIME PERIOD SELECTION

The construction noise analysis will estimate construction noise levels based on projected activity and equipment usage as well as the level of construction traffic for various stages of construction under the Proposed Actions.

Based on the anticipated construction schedule and preliminary construction estimates developed for the proposed project, specific time periods during construction will be selected for detailed analysis. The periods selected will capture each major construction stage (e.g., excavation/foundation work, superstructure work, interior fit-out work) at the buildings and structures to be constructed under the Proposed Actions, including major overlaps of construction stages between individual sites. These will be the time periods with the potential to result in the maximum incremental construction noise at nearby receptors (i.e., time periods when multiple buildings would be under construction using noisy equipment) as well as resulting in the maximum levels of construction noise at the proposed buildings that would be completed and occupied during subsequent construction associated with the Proposed Actions. Each

[1] Federal Highway Administration Roadway Construction Noise Model User's Guide, Page 15. http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

analysis time period is expected to conservatively up to 13 months of time based on the duration of activities that would be underway during the time period. The 22 worst-case time periods selected for the detailed construction noise analysis are shown in **Table 1**.

Table 1
Construction Noise Analysis Periods

Analysis Months	Building/Projected Development Site	Construction Activity
Months 1-4	1B, 2	Demolition
Months 5-7		Foundation Construction
Months 8-14		Superstructure Construction
Months 15-19		Façade Installation
Months 20-32		Finishes
Months 33-37	n/a	No Construction
Months 38-41	1C	Demolition
Months 42-45		Foundation Construction
Months 46-52		Superstructure Construction
Months 53-56		Façade Installation
Months 57-66		Finishes
Month 67	n/a	No Construction
Months 68-70	1D	Demolition
Months 71-74		Foundation Construction
Months 75-80		Superstructure Construction
Months 81-85		Façade Installation
Months 86-95		Finishes
Months 96-98	1E	Demolition
Months 99-102		Foundation Construction
Months 103-108		Superstructure Construction
Months 109-113		Façade Installation
Months 114-124		Finishes

Note: Projected Development Site 1A would be developed alongside the buildings on Projected Development Sites 1B and 2. However, construction on Projected Development Site 1A is not included in the construction noise analysis periods because construction of the public open space and potential 1,000-gsf retail kiosk on Projected Development Site 1A would be short-term in duration.

CONSTRUCTION NOISE IMPACT CRITERIA

Chapter 22 of the *CEQR Technical Manual* breaks construction duration into "short-term" and "long-term" and states that construction noise is not likely to require analysis unless it "affects a sensitive receptor over a long period of time." Consequently, the construction noise analysis considers the potential for construction of a project to create high noise levels (the "intensity"), whether construction noise would occur for an extended period of time (the "duration"), and the locations where construction has the potential to increase noise ("receptors") in evaluating potential construction noise effects.

The noise impact criteria described in Chapter 19, Section 410 of the *CEQR Technical Manual* serve as a screening-level threshold for potential construction noise impacts. If construction resulting from the Proposed Actions would not result in any exceedances of these criteria at a given receptor, then that receptor would not have the potential to experience a construction noise impact.

If noise levels during construction would exceed the screening thresholds at a given receptor, the specific intensity and duration of construction noise level increases would be considered further to determine the potential for temporary significant adverse impacts. Noise level increases that would be considered "objectionable" (i.e., equal to or greater than 15 dBA) lasting 12 consecutive months or more and noise

level increases that would be considered "very objectionable" (i.e., equal to or greater than 20 dBA)[2] lasting three consecutive months or more could also be considered significant impacts.

For receptors representing interior spaces (i.e., not open space) where construction resulting from the Proposed Actions is predicted to result in objectionable noise level increments lasting 12 consecutive months or more or very objectionable noise level increments lasting three consecutive months or more, and where the façade attenuation can be determined based on readily available information, interior noise levels may also be considered in the determination of impact significance. Portions of the construction period during which predicted interior noise levels would be in the acceptable range (i.e., not greater than 45 dBA for residential and community facility uses or not greater than 50 dBA for commercial office uses), would not be counted toward the consecutive duration of construction noise impact as described above.

EVALUATION OF CONSTRUCTION NOISE LEVELS

The predicted exterior noise level increments during construction under the Proposed Actions at the analyzed receptor sites (including project elements completed and occupied prior to the completion of all construction resulting from the Proposed Actions) will be compared to the construction noise impact thresholds described above. At the noise-sensitive receptors that experience exceedances of these thresholds during the analysis periods as determined above, the duration of exceedance of each impact threshold will be determined. The significance of the exceedances will be determined based on the predicted magnitude and duration of the construction noise, as well as interior noise levels if applicable, at these locations according to the criteria described above. Based on the incremental noise level increase, overall exterior noise levels for each analysis period will also be determined. ✷

[2] Definition of "objectionable" and "very objectionable" noise level increases based on Table B from New York State Department of Environmental Conservation Assessing and Mitigating Noise Impacts policy manual, revised February 2001.