Chapter 20: Construction

A. INTRODUCTION

As described in Chapter 1, "Project Description," the City of New York, acting through the New York City Department of City Planning (DCP), together with the Department of Housing Preservation and Development (HPD), the Department of Parks and Recreation (NYC Parks), the Department of Citywide Administrative Services (DCAS), and the Economic Development Corporation (EDC) is proposing a number of land use actions (the "Proposed Actions") to implement land use and zoning recommendations as presented in the Gowanus Neighborhood Plan (the "Neighborhood Plan" or "Plan"). The area subject to the Proposed Actions ("the Project Area") is generally bounded by Bond, Hoyt, and Smith Streets to the west; 3rd and 4th Avenues to the east; Huntington, 3rd, 7th, and 15th Streets to the south; and Warren, Baltic, and Pacific Streets to the north. A total of 63 projected development sites and 70 potential development sites have been identified in the Project Area on which new buildings could be constructed over an approximately 14-year construction period through the year 2035. Since potential development sites are less likely to be developed over the analysis period, they are not evaluated for construction impacts.

Construction activities under the Proposed Actions, as is the case with most any construction projects, are expected to result in temporary disruptions in the surrounding area. For analysis purposes, a reasonable worst-case conceptual construction phasing and schedule for the development anticipated to occur under the Proposed Actions was established to illustrate how development could occur over approximately the next 14 years. The conceptual construction schedule conservatively accounts for overlapping construction activities and simultaneously operating construction equipment, thus capturing the cumulative nature of potential construction impacts which would result at nearby receptors.

According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, a development with an overall construction period lasting two years or longer and that is near to sensitive receptors (i.e., residences, open spaces, etc.) should undergo an impact assessment. Each of the individual projected development sites are estimated to take approximately one to three years to complete, depending on the size of the development. There is also the potential for construction activities to be underway at multiple sites in the Project Area with overlapping construction timelines within the same geographic area. Accordingly, an assessment of potential construction impacts was prepared in accordance with the guidelines of the *CEQR Technical Manual*, and is presented in this chapter. The assessment of potential impacts of construction activity focuses on transportation, air quality, noise and vibration, as well as consideration of other technical areas including land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, and hazardous materials.

PRINCIPAL CONCLUSIONS

Construction of projected developments assumed in the Reasonable Worst-Case Development Scenario (RWCDS) developed for the Proposed Actions would result in temporary disruptions in the surrounding area. As described in detail below, construction activities associated with the Proposed Actions would result in temporary significant adverse impacts on noise and historic and cultural resources and could potentially result in temporary significant adverse transportation impacts. Additional information for key technical areas is summarized below.

TRANSPORTATION

Construction travel demand is expected to peak in the second quarter of 2027, and the first quarter of 2032 was selected as a reasonable worst-case analysis period for assessing potential cumulative transportation impacts from operational trips for completed portions of the project and construction trips associated with construction activities. Both of these periods are therefore analyzed for potential transportation impacts during construction.

Traffic

During construction, traffic would be generated by construction workers commuting via autos and by trucks making deliveries to projected development sites. In 2027 and 2032, traffic conditions during the 6 to 7 AM and 3 to 4 PM construction peak hours are expected to be generally better than during the analyzed operational peak hours with full build-out of the Proposed Actions in 2035. Consequently, there would be less likelihood of significant adverse traffic impacts during both the 2027 peak construction period and the 2032 cumulative analysis period than with full build-out of the Proposed Actions in 2035. It is expected that the mitigation measures identified for 2035 operational traffic impacts would be similarly effective at mitigating any potential impacts from construction traffic during both the 2027 period for peak construction activity and the 2031 construction and operational cumulative analysis period.

Transit

The construction sites are located in an area that is well served by public transportation, with a total of seven subway stations or station complexes and 10 bus routes located in the vicinity of the Project Area. In 2027 and 2032, transit conditions during the 6 to 7 AM and 3 to 4 PM construction peak hours are expected to be generally better than during the analyzed operational peak hours with full build-out of the Proposed Actions in 2035 as incremental demand would be lower during construction, and most construction trips would not occur during the peak hours of commuter demand. Consequently, there would be less likelihood of significant adverse subway and bus transit impacts during both the 2027 peak construction period and the 2032 cumulative analysis period than with full build-out of the projected development in 2035. It is anticipated that possible mitigation measures for the subway station and line haul impacts from the Proposed Actions' operational demand in 2035—i.e., stairway widening, increasing the number of turnstiles and adjusting service frequency—would also be effective at mitigating any potential impacts from construction subway trips during both the 2027 peak construction period and the 2032 construction and operational cumulative analysis period. Should any significant adverse subway station and/or line haul impacts occur in either of these periods, they would potentially remain unmitigated pending the implementation of practicable mitigation measures.

Pedestrians

In the 2027 peak construction period, pedestrian trips by construction workers would be widely dispersed among the nine projected development sites that would be under construction in this period. They would also primarily occur outside of the weekday AM and PM commuter peak periods and the weekday midday peak period when area pedestrian facilities typically experience the greatest demand. No single sidewalk, corner, or crosswalk is expected to experience 200 or more peak-hour trips, the threshold below which significant adverse pedestrian impacts are considered unlikely to occur based on *CEQR Technical Manual* guidelines. Consequently, significant adverse pedestrian impacts in the 2029 peak construction period are not anticipated.

In the 2032 construction and operational cumulative analysis period, pedestrian conditions during the 6 to 7 AM and 3 to 4 PM construction peak hours are expected to be generally better than during the analyzed operational peak hours with full build-out of the Proposed Actions in 2035. The Proposed Actions' significant adverse sidewalk and crosswalk impacts would therefore be less likely to occur during this construction period than with full build-out of the Proposed Actions in 2035. It is expected that the mitigation measures identified for the 2035 operational pedestrian impact in Chapter 21, "Mitigation," would be similarly effective at mitigating any potential impacts from construction pedestrian trips during the 2032 construction and operational cumulative analysis period.

Parking

Construction worker parking demand would be equivalent to approximately 463 spaces in the 2027 peak construction period and 335 spaces during the 2032 analysis period for cumulative construction and operational travel demand. While this demand would potentially contribute to a parking shortfall in the midday within ¼-mile of projected development sites, it would not be considered a significant adverse parking impact under *CEQR Technical Manual* criteria given the availability of alternative modes of transportation near the Project Area.

AIR QUALITY

Measures required to reduce pollutant emissions during construction include all applicable laws, regulations, and the City's building codes as well as New York City Local Law 77. These include dust suppression measures, idling restriction, and the use of ultra-low sulfur diesel (ULSD) fuel and best available tailpipe reduction technologies. With the implementation of these emission reduction measures, the dispersion modeling analysis of construction-related air emissions for both on-site and on-road sources determined that particulate matter ($PM_{2.5}$ and PM_{10}), annual-average nitrogen dioxide (NO_2), and carbon monoxide (CO) concentrations would be below their corresponding *de minimis* thresholds or National Air Quality Ambient Standards (NAAQS), respectively. Therefore, construction under the Proposed Actions would not result in significant adverse air quality impacts due to construction sources.

NOISE AND VIBRATION

Noise

Based on the projected construction predicted at each development site, construction generated noise is expected to exceed the *CEQR Technical Manual* noise impact thresholds as well as result in "objectionable" and "very objectionable" noise level increases at some receptors. One peak construction period per year was analyzed, from 2021 to 2035. Receptors where noise level increases were predicted to exceed the construction noise evaluation thresholds for extended durations were identified.

The noise analysis results show that the predicted noise levels could exceed the *CEQR Technical Manual* impact criteria throughout the Project Area due to construction.

As projected development sites are completed and occupied while other nearby or adjacent projects are under construction, construction activities are predicted to result in “clearly unacceptable noise levels” and interior noise levels exceeding the 45 dBA criterion considered acceptable by up to 18 dBA. Construction could produce noise levels that would be noticeable and potentially intrusive during the most noise-intensive nearby construction activities. While the highest levels of construction noise would not persist throughout construction, and noise levels would fluctuate, resulting in noise increases that would be intermittent, these locations would experience construction noise levels whose magnitude and duration could constitute significant adverse impacts.

At locations predicted to experience an exceedance of the noise impact threshold criteria, the exceedances would be due principally to noise generated by on-site construction activities (rather than construction-related traffic). As previously discussed, the noise analysis examined the reasonable worst-case peak hourly noise levels resulting from construction in an analyzed month, and is therefore conservative in predicting increases in noise levels. Typically, the loudest hourly noise level during each month of construction would not persist throughout the entire month. Finally, this analysis is based on RWCDS conceptual site plans and construction schedules. It is possible that the actual construction may be of less magnitude, or that construction on multiple projected development sites may not overlap, in which case construction noise would be less intense than the analysis predicts.

Vibration

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are historic buildings that are S/NR-Listed or New York City Landmarks (NYCLs) and NYCT structures immediately adjacent to the projected development sites. Since these historic buildings and structures would be within 90 feet of the projected development sites, vibration monitoring would be required per New York City Department of Buildings (DOB) Technical Policy and Procedure Notices (TPPN) #10/88 regulations, and peak particle velocity (PPV) during construction would be prohibited from exceeding the 0.50 inches/second threshold.

For non-historic buildings and other structures immediately adjacent to projected development sites, vibration levels within 25 feet may result in PPV levels between 0.50 and 2.0 in/sec, which is generally considered acceptable for a non-historic building or structure.

In terms of potential vibration levels that would be perceptible and annoying, the equipment that would have the most potential for producing levels that exceed the 65 vibration decibels (VdB) limit is also the pile driver. However, the operation would only occur for limited periods of time at a particular location and therefore would not result in any significant adverse impacts.

Consequently, there is no potential for significant adverse vibration impacts with the Proposed Actions.

HISTORIC AND CULTURAL RESOURCES

The Proposed Actions would result in direct significant adverse impacts to the State and National Registers of Historic Places (S/NR)-eligible Gowanus Canal Historic District as a result of demolition of contributing buildings. In addition, the Proposed Actions may result in construction-related impacts to contributing properties located within the boundaries of the S/NR-Eligible Gowanus Canal Historic District from adjacent construction. As described in greater detail Chapter 7, "Historic and Cultural Resources," the Proposed Actions would result in significant adverse impacts on archaeological resources.

GOVERNMENTAL COORDINATION AND OVERSIGHT

Construction oversight involves several city, state, and federal agencies. **Table 20-1** lists the primary involved agencies and their areas of responsibility. For projects in New York City, primary construction oversight lies with the New York City Department of Buildings (DOB), which oversees compliance with the New York City Building Code. The areas of oversight include installation and operation of equipment such as cranes, sidewalk bridges, safety netting, and scaffolding. In addition, DOB enforces safety regulations to protect workers and the general public during construction. The New York City Department of Parks and Recreation (NYC Parks) is responsible for the oversight, enforcement, and permitting of the replacement of street trees that are lost due to construction. The New York City Department of Environmental Protection (DEP) enforces the *New York City Noise Code*, reviews and approves any needed Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP), water and sewer connections, as well as any necessary abatement of hazardous materials. The New York City Fire Department (FDNY) has primary oversight of compliance with the *New York City Fire Code* and the installation of tanks containing flammable materials. The New York City Department of Transportation (DOT) Office of Construction Mitigation and Coordination (OCMC) reviews and approves any traffic lane and sidewalk closures. The New York City Transit (NYCT) is responsible for subway access and, if necessary, bus stop relocations. NYCT also regulates vibrations that might affect the subway system. The Landmarks Preservation Commission (LPC) approves the historic and cultural resources analysis, the Construction Protection Plan (CPP), and monitoring measures established to prevent damage to historic structures. New York City maintains a 24-hour-a-day telephone hotline (311) so that construction concerns can be registered with the City.

Table 20-1
Summary of Primary Agency Construction Oversight

Agency	Areas of Responsibility
New York City	
Department of Buildings	Building Code, site safety, and public protection
Department of Parks & Recreation	Street trees
Department of Environmental Protection	Noise Code, RAPs/CHASPs, water and sewer connections, hazardous materials
Fire Department	Compliance with Fire Code, fuel tank installation
Department of Transportation	Lane and sidewalk closures
New York City Transit	Subway access, bus stop relocation
Landmarks Preservation Commission	Archaeological and architectural protection
New York State	
Department of Labor	Asbestos Workers
Department of Environmental Conservation	Hazardous materials and fuel/chemical storage tanks
United States	
Environmental Protection Agency	Air emissions, noise, hazardous materials. Superfund site remediation and cleanup
Occupational Safety and Health Administration	Worker safety

At the state level, the New York State Department of Labor (DOL) licenses asbestos workers. The New York State Department of Environmental Conservation (DEC) regulates disposal of hazardous materials, and construction and operation of bulk petroleum and chemical storage tanks. At the federal level, the U.S. Environmental Protection Agency (EPA) has wide-ranging authority over environmental matters, including remediation and cleanup of the Superfund site (the Gowanus Canal), which will be undertaken independent of the Proposed Actions. EPA also regulates air emissions, noise, and hazardous materials, although much of its responsibility is delegated to the state and city levels. The Occupational Safety and Health Administration (OSHA) sets standards for work site safety and construction equipment.

B. CONCEPTUAL CONSTRUCTION PHASING AND SCHEDULE

A total of 63 projected development sites have been identified in the Project Area on which new buildings could be constructed or existing buildings enlarged and/or converted over an approximately 14-year construction period. At this time, there are no finalized construction programs or designs for the projected developments. Actual construction methods and materials may vary, depending on how the construction contractors choose to implement work to be most cost effective, within the requirements set forth in bid, contract, and construction documents. Construction specifications will require that construction contractors comply with applicable environmental regulations and obtain necessary permits for the duration of construction. Construction of each projected development would follow applicable federal, state, and local laws for building and safety, as well as local noise ordinance, as appropriate.

For analysis purposes, a conceptual construction phasing and schedule for the RWCDS development expected under the Proposed Actions was prepared by DCP to illustrate how development may proceed through 2035. Because the projected development sites in the rezoning area are predominantly in private ownership, the timing of the development of those sites is unknown. As such, the RWCDS presented in Chapter 1, "Project Description" does not describe which of the sites would be developed first to assume a particular sequence of development. Market and site factors would ultimately determine that build-out.

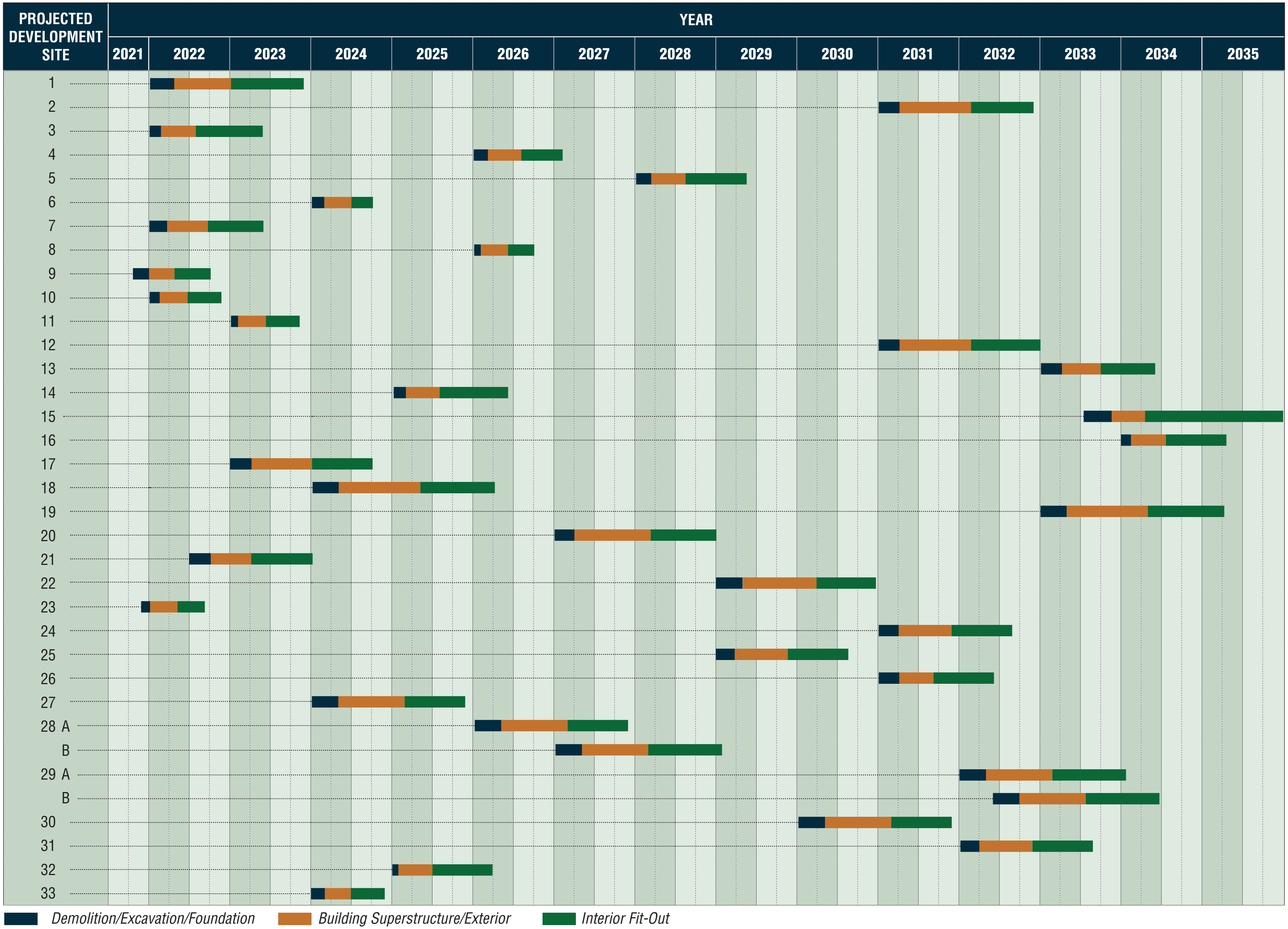
In estimating the duration of the construction for each development site, it is generally assumed that development sites less than 230,000 square feet in size would take less than 24 months to complete, whereas projected development sites with more floor area are assumed to take longer. The conceptual construction schedule conservatively accounts for overlapping construction activities at development sites in proximity to one another to capture the cumulative nature of construction impacts with respect to number of worker vehicles, trucks, and construction equipment at any given time, within reasonable construction scheduling constraints for each of the development sites in the rezoning area.

Figure 20-1 presents the conceptual construction sequencing for use in the analysis of the Proposed Actions. In the conceptual construction schedule, construction activities are assumed to begin in the first quarter of 2021 and continue over a 14-year period through 2035. It is conservatively assumed that construction of all projected development sites would be completed by the end of the 2035 analysis year. Based on their size, construction of a majority of the projected development sites (48 out of the 63 sites) is considered to be short term (i.e., up to 24 months) per the *CEQR Technical Manual*.

C. CONSTRUCTION DESCRIPTION

63 projected development sites have been identified in the Project Area as likely to be developed with new building(s) during the 14-year analysis period. Building construction in New York City

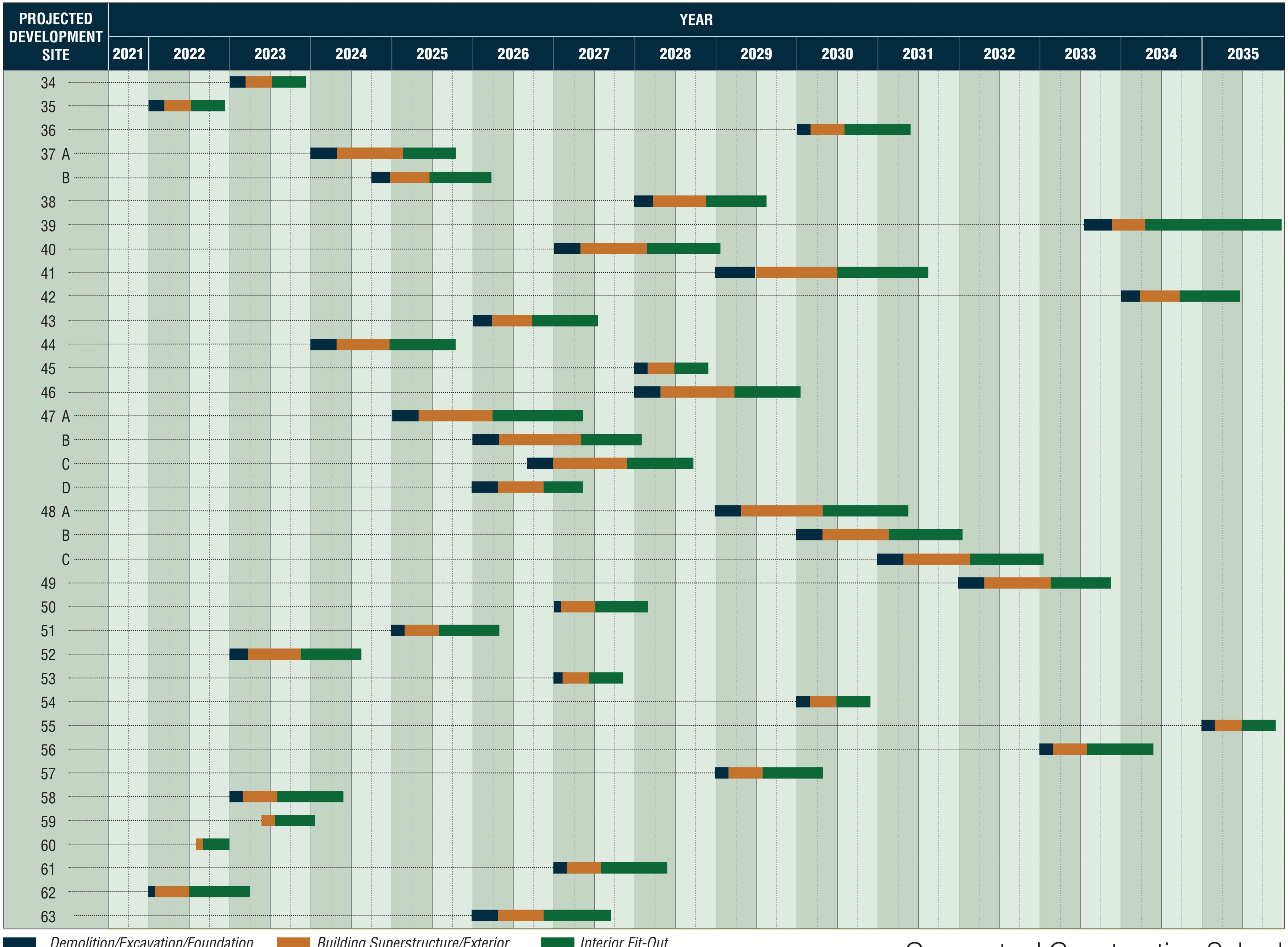
1.13.21



Conceptual Construction Schedule

Figure 20-1a

1.13.21



Conceptual Construction Schedule

Figure 20-1b

typically follows the following pattern. The first task is construction startup, which involves installing public safety measures (i.e., signs and fences) and siting of work trailers. Then, if there are existing buildings on the development site, any potential hazardous materials such as asbestos are abated and then the buildings are demolished. Excavation of the soils is next along with the construction of the foundation. When the below-grade construction is completed, construction of the core and shell of the new buildings begins. The core is the central part of the building and is the main part of the structural system. It contains the elevators and the mechanical systems for heating, ventilation, and air conditioning (HVAC). The shell is the outside of the building. As the core and floor decks of the building are being erected, installation of the mechanical and electrical internal networks starts. The core and shell stages of construction are typically referred to as the "superstructure." As the building progresses upward, the exterior façade is installed, and interior fit-out activities begins. These typical activities for building construction are described in greater detail below.

GENERAL CONSTRUCTION STAGES

DEMOLITION, EXCAVATION AND FOUNDATION

Construction begins with the demolition of existing buildings where applicable. First, demolition scaffolds would be erected around these buildings. The buildings to be demolished would be abated of any hazardous materials before the start of demolition. A New York City-certified asbestos investigator would inspect the building for asbestos-containing materials (ACM), and if present, those materials would be removed by a DOL-licensed asbestos abatement contractor prior to interior demolition. Asbestos abatement is strictly regulated by DEP, DOL, EPA, and OSHA to protect the health and safety of construction workers and nearby residents. Depending on the extent and type of ACMs (if any), these agencies would be notified of the asbestos removal project and may inspect the abatement site to ensure that work is being performed in accordance with applicable regulations. Any activities with the potential to disturb lead-based paint (LBP) would be performed in accordance with the applicable OSHA regulation (including federal OSHA regulation 29 CFR 1926.62—*Lead Exposure in Construction*). In addition, any suspected poly-chlorinated biphenyls (PCB)-containing equipment (such as fluorescent light ballasts) that would be disturbed would be evaluated prior to disturbance. Unless labeling or test data indicate the contrary, such equipment would be assumed to contain PCBs, and would be removed and disposed of at properly licensed facilities in accordance with all applicable regulatory requirements.

General demolition is the next step, beginning with removal of any economically salvageable materials that could be reused. Then the interior of the buildings are deconstructed to the floor plates and structural columns. Netting around the exterior of the building is typically used to prevent falling materials. Hand tools, excavators with hoe ram attachments, and front-end loaders are typically used in the demolition of the existing structures. Demolition debris is sorted prior to being disposed of at landfills to maximize recycling opportunities.

Regarding excavation activities, where necessary, sheeting are installed to stabilize soil around the excavation area and excavators are then used to excavate soil. The soil is loaded onto dump trucks with front-end loaders for transport to a licensed disposal facility or for reuse on any portion of the development site that needs fill. This stage of construction also includes the construction of the new building's foundation and below-grade elements. Foundation work could typically include pile driving and columns and concrete walls would be built to the grade level.

Dewatering

Water from rain and snow collected in the excavation area during construction would be removed as necessary using a dewatering pump. If dewatering is required, it would be performed in accordance with DEP sewer use requirements.

SUPERSTRUCTURE AND EXTERIOR

The superstructure of a building includes the building's framework such as beams, slabs, and columns. Construction of the interior structure, or core, of the building includes: elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; core stairs; and restrooms. A mobile crane or a tower crane (for larger buildings) are typically brought onto the development site during the superstructure stage to lift structural components, façade elements, and other large materials. Superstructure activities typically also require the use of rebar benders, welding equipment and a variety of trucks. In addition, temporary construction elevators (hoists) are used for the vertical movement of workers and materials during superstructure activities.

INTERIOR FIT-OUT

Interior fit-out activities typically includes the construction of interior partitions, installation of lighting fixtures, and interior finishes (e.g., flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators, and lobby finishes. Final cleanup and building system (e.g., electrical system, fire alarm, plumbing, etc.), testing and inspections are also part of this stage of construction. Equipment used during interiors and finishing generally include hoists, forklifts, scissor lifts, delivery trucks, and a variety of small hand-held tools.

GENERAL CONSTRUCTION PRACTICES

HOURS OF WORK

Building construction would generally be carried out in accordance with City laws and regulations, which allow construction activities between 7:00 AM and 6:00 PM on weekdays. Weekday construction work typically begins at 7:00 AM, with most workers arriving between 6:00 AM and 7:00 AM. Normal workdays end at 3:30 PM, but it can be expected that, in order to complete certain time-sensitive tasks (i.e., finishing a concrete pour for a floor deck), the workday may occasionally be extended beyond normal work hours. Any extended workdays generally last until approximately 6:00 PM and do not include all construction workers on-site, but only those involved in the specific task requiring additional work time.

Weekend or night work may also be required for certain construction activities such as the erection of the tower crane and/or to make up for weather delays. Appropriate work permits from DOB must be obtained for any necessary work outside of the allowable construction hours as detailed above and no work outside of these hours could be performed until such permits are obtained. The numbers of workers and pieces of equipment in operation for weekend work would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. The weekend workday, if necessary, would typically be a Saturday.

ACCESS, STAGING AREAS, AND SITE SAFETY

Access to a development site during construction is typically controlled at the perimeter. The work areas would be fenced off with limited access points for workers and construction vehicles. After work hours, the gates are closed and locked. As is typical with New York City construction in a dense urban setting, curb lanes and sidewalks are expected to be narrowed or closed for varying periods of time. Maintenance and Protection of Traffic (MPT) plans would be developed for any temporary curb-lane and/or sidewalk closures as required by DOT. Approval of these plans and implementation of the closures would be coordinated with DOT's OCMC. It is expected that construction staging of materials and equipment would be primarily within the development sites themselves, or the adjacent curb-lane.

A variety of measures are typically required by the City and implemented to ensure public safety during project construction. These include sidewalk bridges during above-grade construction activities to provide overhead protection for pedestrians; construction safety signs to alert the public of ongoing construction activities; flaggers posted as necessary to control trucks entering and exiting the construction area, to provide guidance to pedestrians, and/or to alert or slow down the traffic; and implementing all DOB safety requirements to minimize disruption to the community.

RODENT CONTROL

Construction contracts typically include provisions for a pre-construction rodent control program. Before the start of construction, the contractor surveys and baits the appropriate areas and provides for proper site sanitation, as necessary. During construction, the contractor also carries out a maintenance program, as needed. Signage is posted, and coordination conducted with the appropriate public agencies.

NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Construction is labor intensive, and the number of workers varies with the general construction task and/or building size. Likewise, material deliveries and removals generate truck trips, and the number also varies depending on the task and/or the building size. Workers and truck projections were based on representative sites of similar size and use and information for similar known construction projects in the City.[1] Projected development sites were categorized based on similar size and use, and the most intense month from each stage of construction (demolition / excavation / foundation, superstructure/exterior, and interior) for each site was identified and used as a scaling factor for projections. Each of the 63 projected development sites was then assigned to the appropriate size category, and worker and truck projections were scaled on a per square foot basis. A similar methodology was applied to projected development sites that are assumed to undergo construction in both the No Action and With Action conditions.

The No Action condition construction worker and truck estimates were then subtracted from the estimates for the With Action condition, so as not to overestimate the construction effects associated with the Proposed Actions. The resultant estimate of the number of trucks and workers per quarter are summarized in **Table 20-2**. As indicated in the table, the number of workers would

[1] For purposes of this analysis, construction impact analysis data from the 2017 *East Harlem Rezoning FEIS* were used.

peak in the second quarter of 2027, with an estimated 883 workers per day. The number of trucks would peak in the first quarter of 2027, with an estimated 112 trucks per day.

Table 20-2
Average Incremental Number of Daily Construction Workers and Trucks by Year and Quarter

Year	2021				2022				2023			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	---	---	---	3	97	127	152	152	173	186	154	135
Trucks	---	---	---	2	12	10	23	21	25	16	22	17
Year	**2024**				**2025**				**2026**			
Quarter	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**
Workers	328	444	478	452	581	597	597	473	599	506	497	574
Trucks	59	57	53	52	76	67	69	58	94	63	56	72
Year	**2027**				**2028**				**2029**			
Quarter	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**
Workers	819	**883**	746	686	681	592	600	518	667	628	841	818
Trucks	**112**	100	82	75	83	63	64	56	101	88	87	83
Year	**2030**				**2031**				**2032**			
Quarter	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**
Workers	879	832	771	697	841	844	782	775	638	529	595	604
Trucks	97	84	78	70	104	92	83	82	84	62	69	65
Year	**2033**				**2034**				**2035**			
Quarter	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**	**1st**	**2nd**	**3rd**	**4th**
Workers	571	523	613	606	562	532	404	370	332	223	176	174
Trucks	78	63	80	79	76	65	47	44	40	27	19	18
Year					**Average**				**Peak**			
Quarter												
Workers					486				883			
Trucks					58				112			

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO ACTION CONDITIONS)

As described in Chapter 1, “Project Description,” in the future without the Proposed Actions (the No Action condition), the identified projected development sites are assumed to either remain unchanged from existing conditions, or being developed as-of-right (new construction, conversions, or enlargements) under the existing zoning.

As described in Chapter 1, “Project Description,” in 2010, EPA placed the Gowanus Canal on its National Priorities (Superfund) List and subsequently developed a remediation plan that focuses on hazardous materials in the Canal, which is primarily non-aqueous phase liquid (NAPL) and associated polycyclic aromatic hydrocarbons (PAHs) that was discharged from the three former MGPs. The Superfund remedy calls for the removal by dredging of contaminated sediment that has accumulated as a result of industrial and sewer discharges from the bottom of the Canal. The dredged segments would then be capped. In 2013, EPA issued a Record of Decision (ROD) identifying actions to be undertaken by various parties to remediate contamination in the Canal. As part of the ROD, EPA mandated the design and construction of two CSO facilities known as the Head End Facility and the Owls Head Facility. The environmental effects associated with the construction of the two CSO facilities are presented in the 2018 *Gowanus Canal Combined Sewer Overflow (CSO) Facilities Final Environmental Impact Statement (FEIS)*. As presented in the

Gowanus Canal CSO Facilities FEIS, that project's expected year of completion is 2028 and a variety of measures would be implemented to minimize the construction effects on the community.

E. THE FUTURE WITH THE PROPOSED ACTIONS (WITH ACTION CONDITION)

Construction under the Proposed Actions—as is the case with most large construction projects—would result in some temporary disruptions in the surrounding area. The following analysis describes the overall temporary effects on transportation, air quality, noise and vibration, land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, and hazardous materials.

TRANSPORTATION

It is anticipated that the Proposed Actions would result in the construction of predominantly mixed-use developments on 63 projected development sites in the Project Area through 2035. These developments would replace vacant land, as well as existing and anticipated as-of-right development on the projected development sites. During construction periods, projected development sites would generate trips from workers traveling to/from the construction sites and from the movement of materials and equipment. Given typical construction hours, worker trips would be more concentrated in the early morning and mid-afternoon periods on weekdays than during peak travel periods.

TRAFFIC

As discussed above, average daily on-site construction workers and trucks were forecast for new construction anticipated on each of the projected development sites under No Action and With Action conditions. The construction worker and truck estimates in the No Action condition were then subtracted from the With Action condition estimates to determine the net incremental demand attributable to construction associated with the Proposed Actions. As shown in **Table 20-2**, the average number of workers would peak at an estimated 883 per day in the second quarter of 2027, while the average number of trucks per day would peak at an estimated 112 in the first quarter of 2027. These represent peak days of work, and other days during the construction period would have fewer construction workers and trucks on-site. Overall, the second quarter of 2027 is expected to be the peak period for total construction travel demand (worker trips and truck trips combined).

While construction traffic is expected to peak in the second quarter of 2027, the first quarter of 2032 was selected as the reasonable worst-case analysis period for assessing potential cumulative traffic impacts from operational trips from completed portions of the projected developments and construction trips associated with construction activities. An assessment of traffic generated during these two peak periods is presented below.

Peak Construction Worker Travel Demand and Truck Trips—2027 (Second Quarter)

Modal split and vehicle occupancy rates for construction workers were based on 2000 U.S. Census data for construction workers in tracts encompassing the Project Area. Based on these data, it is anticipated that approximately 37 percent of construction workers would use public transportation in their commute to and from the construction sites in the Project Area, which is well served by subway and bus transit. Approximately 60 percent of workers are expected to travel by personal automobile with an average occupancy of approximately 1.14 persons per vehicle, and 3 percent are expected to walk or bicycle. **Table 20-3** shows a forecast of incremental hourly construction worker auto and construction truck trips during the 2027 (second quarter) peak construction period. The temporal distribution for these vehicle trips was based on typical work shift allocations and conventional arrival/departure patterns for construction workers. Each worker vehicle was assumed to arrive in the morning and depart in the afternoon or early evening; whereas, truck deliveries would occur throughout the construction day. To avoid congestion and ensure that materials are on-site for the start of each shift, construction truck deliveries would often peak during the hour before the regular day shift, overlapping with construction worker arrival traffic. Each truck delivery was assumed to result in two truck trips during the same hour (one inbound and one outbound). For analysis purposes, truck trips were converted into Passenger Car Equivalents (PCEs) based on one truck being equivalent to an average of two PCEs.

As shown in **Table 20-3**, in the second quarter of 2027, construction-related traffic is expected to peak during the 6 to 7 AM and 3 to 4 PM periods. During the 6 to 7 AM peak hour there would be a total of 472 PCE vehicle trips, including 421 inbound trips and 51 outbound trips. During the 3 to 4 PM peak hour there would be a total of 380 PCE trips, including five inbound trips and 375 outbound trips.

Table 20-3
2027 (Second Quarter) Peak Incremental Construction Vehicle Trip Projections (in PCEs)

	Auto Trips					Truck Trips					Total Vehicle Trips		
	In		Out			In		Out					
Hour	%	#	%	#	Total	%	#	%	#	Total	In	Out	Total
6-7 AM	80%	370	0%	0	370	25%	51	25%	51	102	421	51	472
7-8 AM	20%	93	0%	0	93	10%	20	10%	20	40	113	20	133
8-9 AM	0%	0	0%	0	0	10%	20	10%	20	40	20	20	40
9-10 AM	0%	0	0%	0	0	10%	20	10%	20	40	20	20	40
10-11 AM	0%	0	0%	0	0	10%	20	10%	20	40	20	20	40
11 AM-12 PM	0%	0	0%	0	0	10%	20	10%	20	40	20	20	40
12-1 PM	0%	0	0%	0	0	10%	20	10%	20	40	20	20	40
1-2 PM	0%	0	0%	0	0	5%	10	5%	10	20	10	10	20
2-3 PM	0%	0	5%	24	24	5%	10	5%	10	20	10	34	44
3-4 PM	0%	0	80%	370	370	2.5%	5	2.5%	5	10	5	375	380
4-5 PM	0%	0	15%	69	69	2.5%	5	2.5%	5	10	5	74	79
5-6 PM	0%	0	0%	0	0	0%	0	0%	0	0	0	0	0

Table 20-4 presents a comparison of 2027 peak incremental construction vehicle trips with the numbers of incremental operational trips that generated under full build-out of the proposed rezoning in 2035. As shown in **Table 20-4**, during the 7:45 to 8:45 PM and 4:30 to 5:30 PM peak hours for operational traffic and the 3 to 4 PM construction peak hour, the number of 2027 construction vehicle trips would be substantially less than the number of 2035 operational vehicle trips—i.e., 1,238, 1,282, and 102 fewer trips, during each of these periods, respectively. During the 6 to 7 AM construction peak hour, 2027 construction vehicle trips would exceed 2035 operational trips by 379.

Table 20-4
Comparison of 2027 Peak Incremental Construction Vehicle Trips with 2035 Operational Vehicle Trips (in PCEs)

Peak Hour	Net Incremental Vehicle Trips in PCEs		
	2035 Operational Trips	2027[1] Construction Trips	Net Difference
6:00 to 7:00 AM	93	472	379
7:45 to 8:45 AM[2]	1,325	87	(1,238)
3:00 to 4:00 PM	482	380	(102)
4:30 to 5:30 PM[3]	1,322	40	(1,282)

Notes:
[1] 2027 construction trips represent the second quarter of that year.
[2] Construction trips for this period based on the average for the 7-8 AM and 8-9 AM periods.
[3] Construction trips for this period based on the average for the 4-5 PM and 5-6 PM periods.

As peak construction activity in 2027 would result in 1,238 and 1,282 fewer incremental vehicle trips during the 7:45 to 8:30 AM and 4:30 to 5:30 PM operational peak hours, respectively, than would full build-out of the projected development sites under the Proposed Actions, there would be substantially fewer intersections with potentially significant adverse traffic impacts during the 2027 construction analysis year compared with the 2035 operational analysis year, and no new intersections are expected to experience significant adverse traffic impacts in these peak hours. Similarly, peak construction activity would generate 102 fewer incremental vehicle trips during the 3 to 4 PM construction peak hour in 2027 compared with operation of the Proposed Actions in 2035, and there would be less likelihood of significant adverse impacts during this peak construction year than with full build-out of the Proposed Actions.

Although peak construction activity in 2027 would result in 379 more incremental vehicle trips than the fully built-out project during the 6 to 7 AM construction peak hour, it is important to note that overall traffic volumes on the study area street network are, in general, substantially lower during the 6 to 7 AM construction peak hour than during the 7:45 to 8:45 AM operational peak hour. For example, automatic traffic recorder (ATR) count data indicate that in the aggregate, existing 6 to 7 AM traffic volumes on study area streets are approximately 27 percent lower than during the 7:45 to 8:45 AM period. Furthermore, it is estimated that the displacement of No Action development from the nine projected sites that would be under construction in the second quarter of 2027 would result in a net decrease of seven vehicle trips in the 6 to 7 AM peak hour. Overall, 2027 traffic conditions during the 6 to 7 AM peak hour are therefore expected to be generally better than during the analyzed 7:45 to 8:45 AM operational peak hour with full build-out of the Proposed Actions in 2035. Consequently, there would be less likelihood of significant adverse traffic impacts during the 6 to 7 AM peak hour in this peak construction period than with full build-out of the Proposed Actions in 2035.

Any significant adverse traffic impacts during peak construction activity in the second quarter of 2027 would be most likely to occur at intersections in the immediate proximity of the nine projected development sites that would be under construction at that time. It is expected that the mitigation measures identified in Chapter 21, "Mitigation," for 2035 operational traffic impacts at intersections in proximity to these development sites, which would be dispersed throughout the Project Area, would also be effective at mitigating any potential impacts from construction traffic during the 2027 (second quarter) period for peak construction activity.

Cumulative Construction and Operational Traffic—2031 (First Quarter)

Table 20-5 shows hourly worker auto trips and construction truck trips (in PCEs) in the 2032 (first quarter) analysis period when construction travel demand would overlap with operational demand from completed projected development sites. During this cumulative construction and operational traffic analysis period, there would be 47 sites that are already completed and operational and eight sites that are under construction. Prior years would see the completion of substantially less new development, whereas subsequent years would see a decreasing intensity of construction activity and lower levels of construction traffic. Construction auto and truck trips in the 2032 analysis period were based on the same travel demand assumptions utilized for the 2027 forecast presented above.

As shown in **Table 20-5**, during the 6 to 7 AM construction peak hour in 2032, a total of 352 vehicle trips (in PCEs), including 310 inbound trips and 42 outbound trips, are anticipated; during the 3 to 4 PM construction peak hour, a total of 276 trips, including four inbound trips and 272 outbound trips, are anticipated. By comparison, construction vehicle trips during the 7:45 to 8:45 AM operational peak hour would total approximately 68 (averaging the 7 to 8 AM and 8 to 9 AM totals) and 29 during the 4:30 to 5:30 PM operational peak hour (averaging the 4 to 5 PM and 5 to 6 PM totals).

Table 20-5
2031 (First Quarter) Peak Incremental Construction Vehicle Trip Projections (in PCEs)

Hour	Auto Trips			Truck Trips			Total Vehicle Trips		
	In	Out	Total	In	Out	Total	In	Out	Total
6-7 AM	268	0	268	42	42	84	310	42	352
7-8 AM	67	0	67	17	17	34	84	17	101
8-9 AM	0	0	0	17	17	34	17	17	34
9-10 AM	0	0	0	17	17	34	17	17	34
10-11 AM	0	0	0	17	17	34	17	17	34
11 AM-12 PM	0	0	0	17	17	34	17	17	34
12-1 PM	0	0	0	17	17	34	17	17	34
1-2 PM	0	0	0	8	8	16	8	8	16
2-3 PM	0	17	17	8	8	16	8	25	33
3-4 PM	0	268	268	4	4	8	4	272	276
4-5 PM	0	50	50	4	4	8	4	54	58
5-6 PM	0	0	0	0	0	0	0	0	0

As shown in **Table 20-6**, combined with the operational trips generated by completed projected developments, there would be a net increase of approximately 409 vehicle trips during the 6 to 7 AM construction peak hour and a net increase of 508 trips during the 3 to 4 PM construction peak hour. During the 7:45 to 8:45 AM and 4:30 to 5:30 PM operational peak hours, combined operational and construction vehicle trips would total approximately 734 and 635, respectively. During these operational peak hours, construction trips would account for only 68 of the combined trips in the AM and 29 in the PM.

Table 20-6
2031 (First Quarter) Incremental Peak Hour Construction and Operational Traffic Volumes (in PCEs)

Hour	Construction Trips	Operational Trips[1]	Total Trips
6:00-7:00 AM	352	57	409
7:45-8:45 AM[2]	68	666	734
3:00-4:00 PM	276	232	508
4:30-5:30 PM[3]	29	606	635

Notes:
1. Operational trips reflect the net increment of With Action condition developments expected to be completed by the first quarter of 2032 minus the demand from No Action condition developments on projected development sites that are expected to be undergoing construction in the first quarter of 2032.
2. Construction trips for this period are based on the average for the 7–8 AM and 8–9 PM periods.
3. Construction trips for this period are based on the average for the 4–5 PM and 5–6 PM periods.

Table 20-7 presents a comparison of the first quarter of 2032 combined incremental construction and operational vehicle trips (in PCEs) with the incremental operational trips (in PCEs) that would be generated with full build-out of the project in 2035. As shown in **Table 20-7**, during the 7:45 to 8:45 AM and 4:30 to 5:30 PM operational peak hours, the incremental number of 2032 construction and operational vehicle trips would be less than the incremental number of 2035 operational vehicle trips—i.e., 591 and 687 fewer trips, during each of these periods, respectively. During the 6 to 7 AM and the 3 to 4 PM construction peak hour, 2032 cumulative vehicle trips would exceed 2035 operational trips by 316 and 26 trips, respectively. However, aggregate ATR count data show that overall traffic volumes on the study area street network are approximately 27 percent lower during the 6 to 7 AM construction peak hour than during the 7:45 to 8:45 AM operational peak hour, and approximately 9 percent lower during the 3 to 4 PM construction peak hour than during the 4:30 to 5:30 PM operational peak hour. Traffic conditions in 2031 during the 6 to 7 AM and the 3 to 4 PM peak hours are therefore expected to be generally better than during the analyzed 7:45 to 8:45 AM and 4:30-5:30 PM operational peak hours with full build-out of the Proposed Actions in 2035. Consequently, there would be less likelihood of significant adverse traffic impacts during the two construction peak hours in the cumulative analysis year than with full build-out of the Proposed Actions in 2035. It is expected that the mitigation measures identified for 2035 operational traffic impacts in Chapter 21, "Mitigation," would be similarly effective at mitigating any potential impacts from construction auto and truck trips during the 2032 peak quarter for cumulative construction and operational traffic.

Street Lane and Sidewalk Closures

Temporary curb lane and sidewalk closures are anticipated adjacent to construction sites, similar to other construction projects in New York City, and these would be expected to have dedicated gates, driveways, and/or ramps for access by trucks making deliveries. Truck movements would be spread throughout the workday between 6 AM and 5 PM, depending on the stage of construction. Flaggers are expected to be present during construction to manage the access and movement of trucks. Detailed MPT plans for each construction site would be submitted for approval to DOT's OCMC.

Table 20-7
Comparison of 2032 Peak (First Quarter) Incremental Construction and Operational Vehicle Trips with 2035 Operational Vehicle Trips (in PCEs)

Peak Hour	Net Incremental Vehicle Trips in PCEs		
	2035 Operational Trips	2032[1] Construction + Operational Trips	Net Difference
6:00 to 7:00 AM	93	409	316
7:45 to 8:45 AM[2]	1,325	734	(591)
3:00 to 4:00 PM	482	508	26
4:30 to 5:30 PM[3]	1,322	635	(687)

Notes:
[1] 2032 construction trips represent the first quarter of that year.
[2] Construction trips for this period based on the average for the 7–8 AM and 8–9 AM periods.
[3] Construction trips for this period based on the average for the 4–5 PM and 5–6 PM periods.

TRANSIT

As previously discussed and shown in **Table 20-2**, in the 2027 peak (second) quarter for construction travel demand, there would be a net increase of approximately 883 construction workers traveling to and from projected development sites each day under the Proposed Actions. Approximately 37 percent of these construction workers are expected to travel to and from the proposed rezoning area by public transit (subway, bus, and/or commuter rail). The RWCDS construction sites are located in a neighborhood that is well served by public transportation, with a total of seven subway stations or station complexes, 10 bus routes, and a commuter rail terminal located in the vicinity of the Project Area.

As noted above, it is estimated that approximately 80 percent of all construction workers would arrive and depart in the peak hour before and after each shift. Therefore, in the second quarter of 2027, construction worker travel demand is expected to generate a total of approximately 266 transit trips in each of the 6 to 7 AM and 3 to 4 PM construction peak hours. Given that construction worker transit trips would be distributed among up to seven subway stations/station complexes and 10 bus routes in proximity to projected development sites that are distributed throughout the rezoning area, the number of incremental construction trips by transit are not expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold for any individual subway station or the 50-trip threshold for a bus analysis (per route, per direction) in either construction peak hour in 2027. In addition, as stated above construction worker transit trips are primarily outside of the peak AM and PM commuter periods when area transit facilities and services typically experience their greatest demand. Therefore, significant adverse transit impacts are not expected in the 2027 peak construction period.

As shown in **Table 20-2**, during the 2032 (first quarter) analysis period for cumulative construction and operational travel demand, it is estimated that there would be an incremental increase of approximately 638 construction workers on-site daily under the Proposed Actions. Based on the same mode choice and temporal factors utilized for the 2027 analysis, incremental construction worker subway and bus trips are expected to total approximately 149 and 42, respectively, in the 6 to 7 AM and the 3 to 4 PM construction peak hours in 2032.[2] During these same peak hours, the net increase in operational subway trips from completed projected development sites would total approximately 686 and 2,243, respectively, while operational bus trips would increase by 18 during the 6 to 7 AM period and 31 during the 3 to 4 PM period. By comparison, the net increase in operational subway trips with full build-out of the Proposed Actions in 2035 would be substantially greater in number, totaling approximately 5,823 and 6,430 trips during the weekday 7:45 to 8:45 AM and 5:30 to 6:30 PM commuter peak periods when overall demand on area subway facilities and services typically peaks. The net increase in operational bus trips in 2035 would also be substantially greater in number, totaling 399 and 492 trips during the weekday 7:45 to 8:45 AM and 5:30 to 6:30 PM commuter peak periods when overall demand on area bus services typically peaks. Therefore, 2032 transit conditions during the 6 to 7 AM and the 3 to 4 PM construction peak hours are expected to be generally better than during the analyzed commuter peak hours with full build-out of the Proposed Actions in 2035. Consequently, the Proposed Actions' significant adverse subway station and line haul impacts would be less likely in the cumulative analysis year than with full build-out of the Proposed Actions in 2035, and there would be no new bus impacts. As discussed in Chapter 21, "Mitigation," possible mitigation measures for the Proposed Actions' significant adverse subway station and line haul impacts would include stairway widening, increasing the number of turnstiles and adjusting service frequency. Should any significant adverse subway station and line haul impacts occur in the 2032 (first quarter) cumulative analysis period, they would potentially remain unmitigated, pending the implementation of practicable mitigation measures.

PEDESTRIANS

As discussed above, during the 2027 (second quarter) peak construction travel period it is estimated that there would be a net increment of approximately 883 construction workers on site daily under the Proposed Actions, approximately 37 percent of whom are expected to travel to/from the Project Area by transit, walking to and from area subway stations and bus stops. Up to an additional 3 percent are expected to walk to or from the Project Area. As approximately 80 percent of construction worker trips are expected to occur during any one peak hour, net incremental travel demand on area sidewalks and crosswalks is expected to total approximately 286 trips in the 6 to 7 AM and the 3 to 4 PM construction peak hours. These trips would be widely distributed among the eight projected development sites that would be under construction in the second quarter of 2027 and would primarily occur outside of the weekday AM and PM commuter peak periods and weekday midday and Saturday peak periods when area pedestrian facilities typically experience their greatest demand. It is therefore unlikely that any single sidewalk, corner, or crosswalk would experience 200 or more incremental peak-hour trips (the threshold below which significant adverse pedestrian impacts are considered unlikely to occur based on *CEQR Technical Manual* guidelines). Consequently, significant adverse pedestrian impacts in the 2027 peak (second) quarter for construction worker travel demand are not anticipated. At locations where temporary sidewalk closures are required during construction activities, adequate protection or temporary sidewalks and appropriate signage would be provided in accordance with DOT requirements.

[2] Given the distance between the LIRR's Atlantic Terminal and many of the projected development sites, it is anticipated that most commuter rail trips would start/end on another mode of transit. An estimated 15 peak hour trips by commuter rail have therefore been included in the subway total.

As shown in **Table 20-2**, during the 2032 peak (first) quarter for analysis of cumulative construction and operational travel demand, it is estimated that the Proposed Actions would add a net increment of approximately 638 construction workers on-site daily. Based on the same mode choice and temporal factors utilized for the 2027 analysis, construction worker pedestrian trips (transit walk trips and walk-only trips, combined) are expected to total approximately 205 in the 6 to 7 AM and the 3 to 4 PM construction peak hours in 2032. When combined with operational pedestrian trips (transit plus walk-only) from completed projected development sites (828 and 3,051 trips in each period, respectively), the Proposed Actions would result in a net total of approximately 1,033 and 3,256 pedestrian trips during these periods, respectively, in 2031. By comparison, incremental pedestrian trips with full build-out of the Proposed Actions in 2035 would be substantially greater in number, totaling 9,023, 9,404, and 10,753 during the analyzed weekday 8 to 9 AM, 12 to 1 PM (midday) and 5 to 6 PM operational peak hours, respectively. 2031 pedestrian conditions during the weekday 6 to 7 AM and 3 to 4 PM construction peak hours are therefore expected to be generally better than during the analyzed operational peak hours with full build-out of the Proposed Actions in 2035. Consequently, there would be less likelihood of significant adverse pedestrian impacts during the construction peak hours in the cumulative analysis year than with full build-out of the Proposed Actions in 2035. It is expected that the mitigation measures identified for 2035 operational pedestrian impacts in Chapter 21, “Mitigation,” would be similarly effective at mitigating any potential impacts from construction pedestrian trips during the 2032 analysis period for cumulative construction and operational travel demand.

PARKING

As shown in **Table 20-2** and discussed above, during the 2027 peak construction traffic period it is estimated that there would be approximately 883 construction workers on site daily, approximately 60 percent of whom would be expected to travel to the rezoning area by private auto. Based on an average vehicle occupancy of 1.14 persons per vehicle, the maximum daily parking demand from project site construction workers would total approximately 463 spaces (see **Table 20-8**). These workers are expected to park on-street and in off-street public parking facilities in proximity to projected development sites throughout the Project Area. As discussed in Chapter 14, “Transportation,” under existing conditions there are approximately 514 parking spaces available in off-street public parking facilities within ¼ mile of projected development sites during the weekday midday period along with an estimated 666 parking spaces available on-street. However, with full build-out of the Proposed Actions in 2035, there would be a deficit of approximately 2,980 spaces of on-street and off-street public parking capacity within ¼-mile of projected development sites in the weekday midday period. Consequently, there is a potential for a midday parking shortfall to occur during both the 2027 (second quarter) peak construction period. While the 463 spaces of construction worker parking demand during this peak construction period would potentially contribute to any such shortfall in the weekday midday, it would not be considered a significant adverse parking impact under *CEQR Technical Manual* criteria given the availability of alternative modes of transportation near the Project Area.

Table 20-8
2027 (Second Quarter) and 2032 (First Quarter)
Construction Worker Parking Accumulation

Hour	2027 (Q2)			2032 (Q1)		
	In	Out	Total	In	Out	Total
6-7 AM	370	0	370	268	0	268
7-8 AM	92	0	463	67	0	335
8-9 AM	0	0	463	0	0	335
9-10 AM	0	0	463	0	0	335
10-11 AM	0	0	463	0	0	335
11 AM-12 PM	0	0	463	0	0	335
12-1 PM	0	0	463	0	0	335
1-2 PM	0	0	463	0	0	335
2-3 PM	0	24	439	0	17	318
3-4 PM	0	370	69	0	268	50
4-5 PM	0	69	0	0	50	0
5-6 PM	0	0	0	0	0	0

As shown in **Table 20-2**, above, during the 2032 peak (first) quarter for cumulative construction and operational traffic, it is estimated that there would be approximately 638 workers on site daily. Based on the same mode choice and vehicle occupancy factors utilized for the 2027 analysis, and as presented in **Table 20-8**, the maximum daily parking demand from project site construction workers in 2031 would total approximately 335 spaces. Given the projected deficit of 2,980 on-street and off-street public parking spaces in the weekday midday period with full build-out of the Proposed Actions in 2035, there is a potential for a midday parking shortfall to occur during the 2032 analysis period for cumulative construction and operational travel demand. While the 335 spaces of 2032 (first quarter) construction worker parking demand would potentially contribute to any such shortfall in the midday, it would not be considered a significant adverse parking impact under *CEQR Technical Manual* criteria given the availability of alternative modes of transportation near the Project Area.

AIR QUALITY

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 included 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 EPA mandates the use of ULSD fuel for all highway and non-road diesel engines, sulfur oxides (SO_x) emitted from the Proposed Actions’ construction activities would be negligible. Therefore, the pollutants analyzed for the construction period are 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}), particleswith an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), and CO. **Table 20-9** shows the pollutants analyzed in the construction air quality analysis and the corresponding averaging periods.

Table 20-9
Pollutants for Analysis and Averaging Periods

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

Concentrations were 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 were predicted during the most representative worst-case time period. The potential for significant adverse impacts were determined by comparing modeled PM_{10}, NO_2 and CO concentrations to NAAQS, and modeled $PM_{2.5}$ and CO increments to applicable *de minimis* thresholds.

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

ON-SITE CONSTRUCTION ACTIVITY ASSESSMENT

To determine which construction periods constitute the worst-case periods for the pollutants of concern (PM, CO, NO_2), construction-related emissions were 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 were 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.

In general, where the construction duration at a single development site is expected to be short-term (i.e., less than two years), any impacts resulting from such short-term construction generally do not require detailed assessment. However, as construction activities associated with the proposed rezoning may occur on multiple sites in proximity with each other, there is a potential for cumulative construction impacts. Therefore, emissions profiles were generated for all projected development sites to determine the construction periods with the highest potential to affect air quality.

Engine Emissions

The sizes, types, and number of units of construction equipment were estimated based on the construction activity schedule developed for the Proposed Actions. Emission rates for NO_X, CO, PM_{10}, and $PM_{2.5}$ from truck engines were developed using the EPA Motor Vehicle Emission Simulator (MOVES2014b) emission model. Emission factors for NO_x, CO, PM_{10}, and $PM_{2.5}$ from on-site construction engines were developed using the NONROAD emission module included in the MOVES2014b emission model. The emission factor calculations were taken into account any emissions reduction measures (i.e., the application of diesel particulate filters, etc.) that is required for the projected development sites.

On-Site Dust Emissions

In addition to engine emissions, dust emissions from operations (e.g., excavation and transferring of excavated materials into dump trucks) were 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 was 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

The construction periods with activities closest to sensitive receptors—both off-site and completed portions of the projected development sites—and with the most intense activities and highest emissions were selected as the worst-case periods for analysis. The dispersion analysis included modeling of the two worst-case annual and two short-term (i.e., 24-hour, 8-hour, and 1-hour) averaging periods identified in **Table 20-9**. The worst-case short-term period of January 2027 and the annual period of January 2027 to December 2027 were selected for analysis at Projected Development Site 20. The modeling for these periods included construction activities at nearby Development Sites that are projected to occur simultaneously (including Projected Development Sites 28 and 53). These periods were selected because of the maximum construction intensity predicted and their proximity to nearby sensitive receptors (i.e., residential buildings, Thomas Greene Playground). Additionally, secondary annual and short-term periods (January 2026 to December 2026 annual period and the January 2026 short-term period) were selected for analysis at Projected Development Sites 47 and 43. These periods were selected because of the construction intensity at adjacent projected development sites and their proximity to nearby sensitive receptors at another location within the Rezoning Area.

Dispersion Modeling

Potential impacts from the Proposed Actions' construction sources were 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, were simulated as point sources. Other engines, which would move around the site on any given day, were simulated as area sources. For periods of 8 hours or less (less than the length of a shift), it was 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 were therefore simulated as area sources in the annual analyses.

Meteorological Data

The meteorological data set consists of five consecutive years of latest available meteorological data: surface data collected at the nearest representative National Weather Service Station (La Guardia 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 5-year period. These data were 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 DEC ambient air monitoring stations, and are consistent with the background concentrations to be used for the operational stationary source air quality analysis.

Receptor Locations

Receptors were placed at locations that would be publicly accessible, at residential and other sensitive uses at both ground-level and elevated locations (e.g., residential windows), at adjacent sidewalk locations, at publically accessible open spaces, at the Gowanus Canal, and at completed and occupied buildings at projected development sites where applicable. In addition, a ground-level receptor grid was placed to enable extrapolation of concentrations throughout the study area at locations more distant from construction activities.

On-Road Sources

As presented above under "Transportation," the traffic increments during construction are lower than the operational traffic increments for the full build-out with the Proposed Actions. In addition, construction worker commuting trips and construction truck deliveries would generally occur during off-peak hours. Furthermore, when distributed over the transportation network, the construction trip increments would not be concentrated at any single location. 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 sites were 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 were computed using the EPA mobile source emissions model, MOVES2014b.[3] 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 DEC.

[3] EPA. Motor Vehicle Emission Simulator (MOVES), User Guide for MOVES2014b, December 2018.

On-Road Fugitive Dust

$PM_{2.5}$ emission rates were determined with fugitive road dust to account for their impacts. However, fugitive road dust was 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 were calculated according to the latest procedure delineated by EPA[4]. An average weight of 17.5 tons and 2.5 tons was assumed for construction trucks and worker vehicles in the analyses, respectively.

Traffic Data

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

Impact Criteria

The 2014 *CEQR Technical Manual* state 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.[5] 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, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

EMISSION CONTROL MEASURES

Measures would be taken to reduce pollutant emissions during construction under the Proposed Actions in accordance with all applicable laws, regulations, and building codes. These required measures include dust suppression measures as specified in the DEP *Construction Dust Rules*, diesel- and gas-powered equipment reduction and truck idling restrictions. In addition, development sites that receive financing from the City are subject to New York City Local Law 77 (LL77)[6] to further minimize the effects of construction on air quality. LL77 requires the use of ULSD fuel and Best Available Technology (BAT) for equipment at the time of construction:

[4] 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.

[5] New York City. *CEQR Technical Manual*. Chapter 1, section 222. March 2014; and New York State Environmental Quality Review Regulations, 6 NYCRR § 617.7

[6] Local Law 77, adopted December 22, 2003, applies to all city-owned non-road diesel vehicles and engines and any privately owned diesel vehicles and engines used on construction projects funded by the City.

- *Clean Fuel*. ULSD[7] fuel would be used exclusively for all diesel engines throughout the development area.
- *Best Available Tailpipe Reduction Technologies*. Non-road diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the project) including but not limited to concrete mixing and pumping trucks would utilize the BAT for reducing DPM emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts would specify that all diesel nonroad engines rated at 50 hp or greater would utilize DPFs, either installed by the original equipment manufacturer (OEM) or retrofitted. Retrofitted DPFs must be verified by EPA or the California Air Resources Board (CARB). Active DPFs or other technologies proven to achieve an equivalent reduction may also be used.

For development sites not subject to LL77, it is expected that the emissions control measures under LL77 would likely be implemented during construction to the extent practicable and feasible as these measures are commonly used in the New York City construction industry today. Regardless, since construction under the Proposed Actions is anticipated to occur over an approximately 15-year period through 2035, there would be an increasing percentage of in-use newer and cleaner vehicles and engines for construction in future years, resulting in greatly reduced air pollutant emissions that would be consistent with the emission reduction levels associated with LL77.

Overall, the emission control measures identified above are expected to significantly reduce air pollutant emissions during construction under the Proposed Actions.

ANALYSIS RESULTS

Maximum predicted concentration increments from construction under the Proposed Actions, and maximum overall concentrations including background concentrations, are presented in **Tables 20-10** and **20-11**, for the construction peak period analyzed. For $PM_{2.5}$, monitored background concentrations are not added to modeled concentrations from sources, since impacts are determined by comparing the predicted increment from construction activities to the CEQR *de minimis* criteria. The maximum predicted concentration increments include both on-site construction sources and on-road construction sources.

As described above under "Analysis Periods," based on the $PM_{2.5}$ construction emissions profiles and the proximity of the Projected Development sites under construction, January 2027 and the 12-month period between January 2027 and December 2027 were identified as the worst-case short-term and annual analysis periods, respectively. Additionally, the month of January 2026 and the 12-month period between January 2026 and December 2026 were selected as secondary short-term and annual analysis periods were identified for analysis.

[7] EPA required a major reduction in the sulfur content of diesel fuel intended for use in locomotive, marine, and non-road engines and equipment, including construction equipment. As of 2015, the diesel fuel produced by all large refiners, small refiners, and importers must be ULSD fuel sulfur levels in non-road diesel fuel are limited to a maximum of 15 parts per million.

Table 20-10
Maximum Predicted Pollutant Concentrations from Construction Site Sources—2027 Peak Analysis Periods (µg/ m3)

Pollutant	Averaging Period	Background	Maximum Modeled Increment	Total Concentration	*De Minimis* Criteria	NAAQS
$PM_{2.5}$	24-hour[1]	—	7.0	—	8.9[2]	—
	Annual Local[1]	—	0.29	—	0.3	—
PM_{10}	24-hour	39.3	12.0	51.3	—	150
NO_2	Annual	28.7	3.7	32.4	—	100
CO	One-hour	1.7 ppm	5.9 ppm	7.6 ppm	—	35 ppm
	Eight-hour	1.2 ppm	1.2 ppm	2.4 ppm	—	9 ppm

Notes:
Results for any other time period and/or location are expected to be comparable or lower.
$PM_{2.5}$ concentration increments were compared with the applicable *de minimis* criteria. Total concentrations were compared with the NAAQS.
[1]Monitored concentrations are not added to modeled $PM_{2.5}$ values.
[2]$PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3.

Table 20-11
Maximum Predicted Pollutant Concentrations from Construction Site Sources—2026 Peak Analysis Periods (µg/ m3)

Pollutant	Averaging Period	Background	Maximum Modeled Increment	Total Concentration	*De Minimis* Criteria	NAAQS
$PM_{2.5}$	24-hour[1]	—	5.0	—	8.9[2]	—
	Annual Local[1]	—	0.25	—	0.3	—
PM_{10}	24-hour	39.3	27.8	67.1	—	150
NO_2	Annual	28.7	5.3	34.0	—	100
CO	One-hour	1.7 ppm	4.3ppm	6.0 ppm	—	35 ppm
	Eight-hour	1.2 ppm	0.8 ppm	2.0 ppm	—	9 ppm

Notes:
Results for any other time period and/or location are expected to be comparable or lower.
$PM_{2.5}$ concentration increments were compared with the applicable *de minimis* criteria. Total concentrations were compared with the NAAQS.
[1]Monitored concentrations are not added to modeled $PM_{2.5}$ values.
[2]$PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3.

As shown in **Tables 20-10** and **20-11**, the maximum predicted total concentrations of PM_{10}, CO, and annual-average NO_2 are below the applicable NAAQS. The maximum predicted 24-hour average $PM_{2.5}$ incremental concentration (7.0 µg/m^3) would occur at a building receptor to the north of Projected Development Site 53, and the maximum predicted annual average $PM_{2.5}$ incremental concentration (0.29 µg/m^3) would occur at a sidewalk location to the south of Projected Development Site 28. The maximum predicted $PM_{2.5}$ incremental concentrations would not exceed the applicable CEQR *de minimis* criterion of 8.9 µg/m^3 in the 24-hour average period or 0.30 µg/m^3 in the annual average period.

Although the modeled results are based on the representative peak construction periods, conclusions regarding other periods could be derived based on the lower concentration increments from construction that would generally be expected during periods with lower construction emissions.

CONCLUSIONS

Measures would be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes as well as New York City Local Law 77. These include dust suppression measures, idling restriction, and the use of ULSD and best available tailpipe reduction technologies. With the implementation of these emission reduction measures, the dispersion modeling analysis of construction-related air emissions for both on-site and on-road sources determined that $PM_{2.5}$, PM_{10}, annual-average NO_2, and CO concentrations would be below their corresponding *de minimis* thresholds or NAAQS, respectively. Therefore, construction under the Proposed Actions would not result in significant adverse air quality impacts due to construction sources.

NOISE

INTRODUCTION

Potential impacts on community noise levels during construction under the Proposed Actions could result from construction equipment operation as well as vehicles and delivery vehicles traveling to and from the development sites. Noise and vibration levels at a given location would be dependent on the type and number of pieces of construction equipment in operation, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating at full power), the distance from the construction site, and any shielding effects from structures such as buildings, walls, or barriers. Noise levels caused by construction activities would vary widely, depending on the stage of construction and the location of the construction relative to receptor locations. The most noise-intensive construction activities are typically intermittent and would not occur throughout the workday or the duration of the construction task. During hours when the loudest pieces of construction equipment would not be in use, receptors would experience lower construction noise levels. Construction noise levels would fluctuate during the construction period at each receptor, with the greatest levels of construction noise occurring for limited periods during construction. The most substantial construction noise sources are expected to be impact-related equipment such as pile drivers and heavy equipment such as dump trucks and excavators.

Construction noise is regulated by the requirements of the *New York City Noise Control Code* (also known as Chapter 24 of the *Administrative Code of the City of New York*, or Local Law 113) and the DEP Notice of Adoption of Rules for Citywide Construction Noise Mitigation (also known as Chapter 28). These requirements mandate that specific construction equipment and motor vehicles must meet specified noise emission standards; that construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that those construction materials be handled and transported in such a manner as not to create unnecessary noise. Permits would be required to be obtained, as specified in the *New York City Noise Control Code*, for weekend and after-hour work if they become necessary. As required under the *New York City Noise Control Code*, a site-specific noise mitigation plan for the Proposed Actions would be developed and implemented that may include source controls, path controls, and receiver controls.

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 produce 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 of a project 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. The screening level noise impact criteria for mobile and on-site construction activities are as follows:

- If the No Action noise level is less than 60 dBA $L_{eq(1)}$, a 5 dBA $L_{eq(1)}$ or greater increase would require further consideration.
- If the No Action noise level is between 60 dBA $L_{eq(1)}$ and 62 dBA $L_{eq(1)}$, a resultant $L_{eq(1)}$ of 65 dBA or greater would require further consideration.
- If the No Action noise level is equal to or greater than 62 dBA $L_{eq(1)}$, or if the analysis period is a nighttime period (defined in the CEQR criteria as being between 10PM and 7AM), the threshold requiring further consideration would be a 3 dBA $L_{eq(1)}$ or greater increase.

If construction under the Proposed Actions would result in exceedances of these noise impact criteria at a receptor, then further consideration of the intensity and duration of construction noise is warranted at that receptor. Generally, exceedances of these criteria for more than 24 consecutive months are considered to be 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 considered very objectionable (i.e., equal to or greater than 20 dBA)[8] lasting three consecutive months or more would also be considered significant adverse impacts.

NOISE ANALYSIS FUNDAMENTALS

As stated above, construction activities for the Proposed Actions would be expected to result in increased noise levels as a result of: (1) the operation of construction equipment on the proposed development sites; and (2) the movement of construction-related vehicles (i.e., worker trips and material and equipment trips) on the roadways to and from the projected development. The effect of each of these noise sources was evaluated. The results presented below show the effects of construction activities (i.e., noise due to both on-site construction equipment and construction-related vehicle operation) on noise levels at nearby noise receptor locations.

Noise from the operation of construction equipment at a specific receptor location near a construction site is generally calculated by computing the sum of the noise produced by all pieces of equipment operating at the construction site. For each piece of equipment, the noise level at a receptor site is a function of the following:

- The noise emission level of the equipment;
- A usage factor, which accounts for the percentage of time the equipment is operating at full power;
- The distance between the piece of equipment and the receptor;

[8] Definition of “objectionable” and “very objectionable” noise level increases based on Table B from DEC’s “Assessing and Mitigating Noise Impacts” policy memorandum, revised February 2001.

- Topography and ground effects; and
- Shielding from construction fence, nearby buildings, etc.

Similarly, noise levels due to construction-related traffic are a function of the following:

- The noise emission levels of the type of vehicle (e.g., auto, light-duty truck, heavy-duty truck, bus, etc.);
- Volume of vehicular traffic on each roadway segment;
- Vehicular speed;
- The distance between the roadway and the receptor;
- Topography and ground effects; and
- Shielding.

MOBILE SOURCE CONSTRUCTION NOISE ANALYSIS

A Noise PCE screening (see Chapter 17, “Noise” for description of Noise PCE screening methodology) was used to evaluate construction mobile source noise. At each roadway segment, the construction worker vehicle and construction truck trips during the analysis hour were converted to Noise PCEs and compared to the existing level of Noise PCEs to determine whether there would be a potential exceedance of CEQR construction noise screening thresholds (i.e., a 3 to 5 dBA increase in noise levels). The 6 AM to 7 AM hour was selected as the analysis hour because this would be the hour when the highest number of worker vehicle and construction truck trips to and from the construction site would occur.

Construction truck trips that would occur during the construction work day (i.e., after 7 AM) are included in the modeling of construction noise as discussed below.

ON-SITE CONSTRUCTION NOISE ANALYSIS METHODOLOGY

A detailed modeling analysis was used to evaluate potential construction noise effects at existing noise receptors (e.g., residences) near projected development sites as well as at completed and occupied projected development sites. A noise-sensitive receptor is defined in Chapter 19, “Noise” Section 124 of the 2014 *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, and theaters. Outdoor sensitive receptors include parks, outdoor theaters, golf courses, zoos, campgrounds, and beaches.

Construction noise levels were calculated for each phase of construction at selected projected development sites. The results of the construction noise analyses at these selected sites were used along with the conceptual construction schedule to extrapolate construction noise from all projected development sites. Based on the extrapolated construction noise levels, the intensity and duration of construction noise at each receptor was evaluated to identify potential noise impacts from construction.

Specifically, the construction noise analysis involved the following process:

1. Select analysis hours for cumulative on-site equipment and construction truck noise analysis. The 7 AM hour was 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.

2. Select representative construction sites for analysis. The selected projected development sites included (1) the largest projected development site, i.e., Gowanus Green (Projected Development Site 47); (2) a relatively large projected development site along the Gowanus Canal (Projected Development Site 15); and (3) a typical projected development site east of the Gowanus Canal (Projected Development Site 19). The typical development site (i.e., Site 19) was used to represent construction noise from all projected development sites except for the Gowanus Green Site and the larger sites along the Canal (i.e., Projected Development Sites 15, 18, 22, 28, 29, 40, 41, 44, and 48). At projected development sites 15 and 19, construction noise levels were calculated during each major construction phase (i.e., excavation/foundation work, superstructure work, and interior fit-out work). At projected development site 47, construction noise levels were calculated during various representative months during the construction schedule that capture the various construction phases at each of the multiple buildings to be constructed on this site, along with key overlaps between phases of construction of the multiple buildings to be constructed on this site. Because the analysis is based on construction phases, it does not capture the natural daily and hourly variability of construction noise at each receptor. The level of noise produced by construction fluctuates throughout the days and months of the construction phases, while the construction noise analysis is based on the worst-case time periods only, which is conservative. Based on the schedule and location of the three projected development sites selected for quantitative analysis, the sites would not have the potential to simultaneously affect noise levels at any surrounding receptor sites (i.e., these projected development sites would not be constructed simultaneously). Consequently, they were analyzed independently.
3. Select receptor locations for quantitative cumulative on-site equipment and construction truck noise analysis at the representative construction sites. Selected receptors were representative of open space, educational, residential, or other noise-sensitive uses potentially affected by construction on the representative construction sites during operation of on-site construction equipment and/or along routes taken to and from the sites by construction trucks.
4. Establish existing noise levels at selected receptors. Noise levels were measured at several at-grade locations, and calculated for the other noise receptor locations included in the analysis. Figure 17-1 shows the construction noise measurement locations. Existing noise levels at noise receptors other than the selected noise measurement locations were established using the CadnaA model along with existing-condition traffic information. The calculated existing noise levels were conservatively used to represent No Action condition noise levels, since noise levels are not projected to increase substantially between the existing and No Action conditions.
5. Calculate construction noise levels for each construction phase at each receptor location based on the sound power level, acoustical usage factor, and physical placement of each piece of equipment. Given the on-site equipment and construction truck trips that are expected during each of the analysis periods at each construction site, and the location of the equipment, which was based on construction logistics and construction truck and worker vehicle trip assignments, a CadnaA model for each construction phase was created for all three analyzed projected development sites. All models included each of the construction noise sources during the construction phase and analysis 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 site, as described below.
6. Determine total noise levels and noise level increments during construction at the selected receptor locations during construction of Projected Development Sites 47, 15, and 19. For

each analysis period, the calculated level of construction noise at each receptor location was logarithmically added to the existing noise level to determine the cumulative total noise level. The existing noise level at each receptor was then arithmetically subtracted from the cumulative noise level in each analysis period to determine the noise level increments.

7. Compare total noise levels and noise level increments with impact criteria as described above in "Construction Noise Impact Criteria." The predicted noise levels were compared with the noise impact criteria to determine the potential effects of construction noise based on the magnitude of construction noise at each receptor.
8. Establish range of impact criteria exceedances for each analyzed projected development site in terms of distance from each construction site as well as the surrounding geometry including shielding objects such as buildings. Based on the results of the quantitative construction noise analyses at Projected Development Sites 47, 15, and 19 as described above, the range from each site that noise levels are predicted to exceed the impact criteria was established.
9. Establish magnitude of construction noise at noise receptors near other project development sites other than those analyzed. The typical development site (i.e., Site 19) was used to represent construction noise from all projected development sites except for the Public Place site and the larger sites along the Gowanus Canal (i.e., Projected Development Sites 15, 18, 22, 28, 29, 40, 41, 44, and 48). The larger sites along the Gowanus Canal were represented by Site 15. Extrapolating from the construction noise analysis results at the selected construction sites, based on the expected stages of construction during each year at each project development site according to the conceptual construction schedule and the ranges established in item 8 above, noise receptors were identified that would be expected to experience substantially increased noise due to construction of the other projected development sites.
10. Establish construction noise duration. For each receptor, the noise level increments in each analysis period were examined to determine the phases of construction at the nearby construction sites that would result in exceedances of the *CEQR Technical Manual* impact criteria. Based on the conceptual construction schedule and the ranges established in item 8 above, the worst-case month per year of the construction schedule was used to determine the duration of construction noise at the analyzed receptors. At Site 47, multiple worst-case months per year of the construction schedule were used to determine the duration of construction noise at the analyzed receptors.
11. Identify and describe potential significant adverse construction noise impacts. At each receptor, based on the magnitude and duration of predicted noise level increases due to construction, a determination was made as to whether the Proposed Actions would have the potential to result in significant adverse construction noise impacts.

CONSTRUCTION NOISE MODELING

Noise effects from construction activities were 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 included 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 for each piece of construction equipment operating at the projected development sites, as well as noise control measures—were input to the model. Reflections and shielding by barriers erected on the construction site and shielding from adjacent buildings were accounted for in the model. In addition, construction-related vehicles were assigned to the adjacent roadways. The model produced 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 were conservatively estimated by adding 3 dBA to the $L_{eq(1)}$ noise levels, as is standard practice[9].

ANALYSIS TIME PERIOD SELECTION

At each of the three analyzed projected development sites, construction noise levels were analyzed for each major construction phase (i.e., excavation/foundation work, superstructure work, and interior fit-out work), and in the case of Site 47 on which multiple buildings would be constructed, various periods of overlap between different phases on the various buildings were selected to characterize conditions over the course of construction. The noise emission levels and extent of potential impacts during each analyzed construction scenario were used to represent noise effects from the other projected development sites.

Based on the construction activities expected to occur during each month of the construction period over the build-out period according to the conceptual construction schedule, the month with the maximum potential to result in construction noise screening threshold[10] exceedances at nearby receptors was identified (i.e., the month during each year of the construction period when the maximum number of projected development sites are under construction). An additional month in the final year of the construction period was also analyzed. These months are shown below in **Table 20-12**.

Projections of the construction noise from the Projected Development Sites at which detailed construction noise calculations were not conducted conservatively assumed that the worst-case month of each year would represent the entire year, and the year was modeled according to its peak month. To be conservative, the noise analysis assumed that both peak on-site construction activities and peak construction-related traffic conditions would occur simultaneously.

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

[10] The noise impact criteria in Section 410 of Chapter 19 of the *CEQR Technical Manual* serve as screening thresholds for potential construction noise impacts, i.e., if construction noise would not exceed those thresholds at a given receptor, then there would be no potential for impact at that receptor, but if these thresholds would be exceeded, than it would be necessary to consider the intensity and duration of construction noise at that receptor to determine whether construction noise would rise to the level of a significant adverse impact.

Table 20-12
Construction Noise Analysis Time Periods

Year	Construction Analysis Month
2021	November
2022	January
2023	January
2024	January
2025	January
2026	January
2027	January
2028	January
2029	January
2030	January
2031	January
2032	January
2033	January
2034	August
2035	January
2035	August

DETERMINATION OF NON-CONSTRUCTION NOISE LEVELS

Noise generated by construction activities (calculated using the CadnaA model as described above) was added to noise generated by non-construction traffic on adjacent roadways to determine the total noise levels at each receptor location. Noise levels generated by existing traffic were used as non-construction noise levels to which construction noise levels would be added.

NOISE REDUCTION MEASURES

Construction of the Proposed Actions would be required to follow the requirements of the *NYC Noise Control Code* for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the *NYC Noise Code*. These measures could include a variety of source and path controls.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the *NYC Noise Code*:

- Equipment that meets the sound level standards specified in Subchapter 5 of the *NYC Noise Control Code* would be utilized from the start of construction. **Table 20-13** shows the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction under the Proposed Actions.
- As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practicable.

Table 20-13
Typical Construction Equipment Noise Emission Levels (dBA)

Equipment List	NYCDEP Typical Noise Level at 50 feet[1]
All Other Equipment > 5 HP	85
Bar Bender	80
Concrete Mixer Truck	85
Concrete Trowel	67[2]
Crane	85
Dozer	85
Dump Truck	84
Excavator	85
Forklift	64[3]
Front End Loader	80
Generator	82
Hoist	75[4]
Impact Pile Driver	95
Jackhammer	73
Pump	77
Saw	76[5]
Scissor Lift	63
Vibratory Concrete Mixer	80
Welder	73

Sources:
[1] "Rules for Citywide Construction Noise Mitigation," Chapter 28, DEP, 2007, except where noted.
[2] Columbia Manhattanville Noise Certification.
[3] Dantruck.com.
[4] "Noise Control for Construction Equipment…" Report for Hydro Quebec, 1985.
[5] *East New York Rezoning FEIS*, 2016.

- Where feasible and practicable, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than three minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the *NYC Administrative Code*.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented to the extent feasible and practicable:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations.
- Noise barriers constructed from plywood or other materials would be erected to provide shielding; and
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) for certain dominant noise equipment would be employed to the extent feasible and practical based on the results of the construction noise calculations. The details

to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's "Rules for Citywide Construction Noise Mitigation."[11]

NOISE RECEPTOR SITES

Within the area surrounding the analyzed development sites, receptor locations were placed at buildings or noise-sensitive open spaces near the analysis locations for the construction noise analysis. These receptors are either located adjacent to planned areas of activity or streets where construction trucks would travel. At some buildings, multiple building façades were analyzed. At high-rise buildings, noise receptors were selected at multiple elevations. The receptor sites selected for detailed analysis are representative locations where maximum project effects due to construction noise would be expected. At-grade noise measurements were conducted at 23 locations to determine existing noise levels in the study area as described in Chapter 17, "Noise."

Figure 17-1 shows the locations of the noise receptor locations, and **Tables 20-14** and **20-15** list the noise receptor locations as well as the associated land use at each site. The baseline noise levels at each of the noise survey locations are described in detail in Chapter 17, "Noise." At all noise measurement locations, the dominant existing noise source was from vehicular traffic on the adjacent roadways.

Table 20-14
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
1	391	7501	Mixed Residential & Commercial
2	391	7501	Mixed Residential & Commercial
3	391	30	Residential
4	391	42	Mixed Residential & Commercial
5	391	49	Residential
6	392	1	Residential
7	392	1	Residential
8	392	1	Residential
9	392	1	Residential
10	392	1	Residential
11	392	1	Residential
12	392	1	Residential
13	392	1	Residential
14	392	1	Residential
15	392	1	Residential
16	392	1	Residential
17	392	1	Residential
18	392	1	Residential
19	392	1	Residential
20	392	1	Residential
21	392	1	Residential
22	392	1	Residential
23	392	1	Residential
24	392	1	Residential

[11] As found at: http://www.nyc.gov/html/dep/pdf/noise_constr_rule.pdf.

Table 20-14 (cont'd)
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
25	392	1	Residential
26	392	1	Residential
27	392	1	Residential
28	392	1	Residential
29	392	1	Residential
30	392	1	Residential
31	392	1	Residential
32	392	1	Residential
33	392	1	Residential
34	392	1	Residential
35	392	1	Residential
36	392	1	Residential
37	392	1	Residential
38	392	1	Residential
39	392	1	Residential
40	393	1	Residential
41	393	19	Residential
42	393	38	Residential
43	393	54	Residential
44	394	1	Residential
45	394	1	Residential
46	395	1	Religious Institution
47	395	54	Residential
48	934	1	Mixed Residential & Commercial
49	396	47	Mixed Residential & Commercial
50	397	7	Mixed Residential & Commercial
51	397	11	Institution
52	397	11	Institution
53	397	1	Commercial & Office
54	397	7502	Residential
55	397	37	Mixed Residential & Commercial
56	397	7504	Residential
57	399	4	Residential
58	399	24	Residential
59	399	37	Residential
60	399	45	Commercial & Office
61	399	1	Residential
62	394	1	Residential
63	394	1	Residential
64	394	1	Residential
65	394	1	Residential
66	394	1	Residential
67	394	1	Residential
68	394	1	Residential
69	394	1	Residential
70	401	1	Residential
71	401	1	Residential
72	401	1	Residential
73	401	1	Residential
74	401	7501	Residential
75	401	41	Mixed Residential & Commercial
76	401	50	Mixed Residential & Commercial
77	937	7504	Mixed Residential & Commercial
78	937	7504	Mixed Residential & Commercial
79	402	44	Mixed Residential & Commercial
80	403	2	Mixed Residential & Commercial
81	403	28	Residential

Table 20-14 (cont'd)
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
82	403	7508	Mixed Residential & Commercial
83	403	7508	Mixed Residential & Commercial
84	403	44	Mixed Residential & Commercial
85	403	65	Mixed Residential & Commercial
86	404	1	Residential
87	404	1	Residential
88	404	1	Residential
89	404	1	Residential
90	404	1	Residential
91	404	1	Residential
92	404	1	Residential
93	404	1	Residential
94	404	1	Residential
95	404	1	Residential
96	404	1	Residential
97	404	1	Residential
98	404	1	Residential
99	404	1	Residential
100	404	1	Residential
101	404	1	Residential
102	404	1	Residential
103	404	1	Residential
104	404	1	Residential
105	404	1	Residential
106	404	1	Residential
107	404	1	Residential
108	404	1	Residential
109	404	1	Residential
110	404	1	Residential
111	404	1	Residential
112	404	1	Residential
113	404	1	Residential
114	404	1	Residential
115	404	1	Residential
116	404	1	Residential
117	404	1	Residential
118	404	1	Residential
119	404	1	Residential
120	405	5	Industrial
121	405	10	Mixed Residential & Commercial
122	405	19	Industrial
123	405	19	Industrial
124	405	1	Mixed Residential & Commercial
125	406	18	Commercial & Office
126	406	67	Commercial & Office
127	406	52	Industrial
128	406	71	Industrial
129	407	7	Residential
130	407	7	Residential
131	940	111	Institution
132	940	111	Institution
133	940	111	Institution
134	408	36	Residential
135	408	38	Residential
136	408	45	Mixed Residential & Commercial
137	409	5	Mixed Residential & Commercial
138	409	16	Residential

Table 20-14 (cont'd)
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
139	409	31	Residential
140	409	38	Institution
141	409	45	Residential
142	409	59	Residential
143	411	2	Residential
144	411	8	Residential
145	411	1	Residential
146	413	15	Industrial
147	413	7501	Residential
148	413	7501	Residential
149	413	7501	Residential
150	413	7501	Residential
151	413	42	Residential
152	413	33	Mixed Residential & Commercial
153	413	65	Industrial
154	943	4	Residential
155	943	11	Residential
156	943	75	Residential
157	414	35	Residential
158	414	38	Residential
159	414	46	Residential
160	415	5	Residential
161	415	18	Residential
162	415	37	Residential
163	415	43	Residential
164	415	51	Residential
165	415	7501	Residential
166	416	1	Residential
167	416	9	Residential
168	416	12	Residential
169	416	25	Residential
170	416	36	Residential
171	416	40	Mixed Residential & Commercial
172	416	7501	Mixed Residential & Commercial
173	416	7501	Mixed Residential & Commercial
174	416	56	Residential
175	416	17	Residential
176	419	1	Open Space
177	419	1	Open Space
178	420	23	Industrial
179	420	31	Industrial
180	420	45	Commercial & Office
181	420	58	Industrial
182	946	9	Residential
183	941	11	Mixed Residential & Commercial
184	421	7501	Residential
185	421	7501	Residential
186	421	38	Mixed Residential & Commercial
187	421	47	Residential
188	422	8	Mixed Residential & Commercial
189	422	20	Residential
190	422	35	Residential
191	422	40	Residential
192	422	47	Residential
193	422	67	Residential
194	423	1	Religious Institution
195	423	16	Residential

Table 20-14 (cont'd)
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
196	423	29	Residential
197	423	41	Residential
198	423	43	Residential
199	423	56	Residential
200	423	1	Religious Institution
201	426	41	Commercial & Office
202	427	17	Industrial
203	427	17	Industrial
204	427	37	Mixed Residential & Commercial
205	427	37	Mixed Residential & Commercial
206	427	46	Mixed Residential & Commercial
207	427	47	Commercial & Office
208	949	7506	Mixed Residential & Commercial
209	949	11	Mixed Residential & Commercial
210	949	7502	Residential
211	428	32	Mixed Residential & Commercial
212	428	36	Mix Residential & Commercial
213	428	7502	Residential
214	429	8	Mix Residential & Commercial
215	429	21	Residential
216	429	38	Residential
217	429	41	Residential
218	430	51	Residential
219	430	4	Residential
220	430	14	Residential
221	430	31	Residential
222	430	36	Mixed Residential & Commercial
223	430	52	Residential
224	430	72	Residential
225	431	6	Residential
226	431	1	Mixed Residential & Commercial
227	431	1	Mixed Residential & Commercial
228	432	25	Industrial
229	432	25	Industrial
230	432	7501	Industrial
231	432	7501	Industrial
232	432	7501	Industrial
233	433	9	Residential
234	433	10	Mixed Residential & Commercial
235	433	51	Residential
236	433	26	Residential
237	433	52	Mixed Residential & Commercial
238	434	16	Commercial & Office
239	434	16	Commercial & Office
240	434	57	Residential
241	434	49	Commercial & Office
242	434	49	Commercial & Office
243	434	49	Commercial & Office
244	952	2	Mixed Residential & Commercial
245	952	13	Residential
246	952	68	Residential
247	435	25	Residential
248	435	30	Residential
249	435	40	Residential
250	436	5	Mixed Residential & Commercial
251	436	17	Residential
252	436	35	Residential

Table 20-14 (cont'd)
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
253	436	54	Residential
254	436	62	Residential
255	437	1	Institution
256	437	1	Institution
257	437	33	Mixed Residential & Commercial
258	437	36	Residential
259	437	45	Parking Garage
260	437	50	Residential
261	440	23	Industrial
262	440	32	Mixed Residential & Commercial
263	440	34	Mixed Residential & Commercial
264	440	39	Mixed Residential & Commercial
265	440	44	Residential
266	441	6	Mixed Residential & Commercial
267	441	10	Residential
268	441	29	Mixed Residential & Commercial
269	441	31	Mixed Residential & Commercial
270	955	7506	Mixed Residential & Commercial
271	955	7506	Mixed Residential & Commercial
272	955	7502	Residential
273	444	6	Residential
274	444	7501	Residential
275	444	7502	Residential
276	444	7503	Residential
277	438	7	Commercial & Office
278	438	7	Commercial & Office
279	447	3	Residential
280	447	15	Residential
281	447	24	Residential
282	447	31	Residential
283	447	374	Mixed Residential & Commercial
284	447	39	Residential
285	447	56	Residential
286	448	7	Institution
287	448	13	Commercial & Office
288	448	34	Mixed Residential & Commercial
289	488	66	Residential
290	958	7	Residential
291	958	17	Residential
292	958	1	Residential
600	399	39	Future Residential
601	399	39	Future Residential
602	399	59	Future Residential
603	405	15	Future Residential
604	405	15	Future Residential
605	405	63	Future Residential
606	405	27	Future Medical Facility
607	405	27	Future Medical Facility
608	405	60	Future Residential
609	407	9	Future Residential
610	407	9	Future Residential
611	407	13	Future Residential
612	407	13	Future Residential
613	411	12	Future Residential
614	411	58	Future Residential
615	412	6	Future Residential
616	412	6	Future Residential

Table 20-14 (cont'd)
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
617	412	1	Future Residential
618	412	19	Future Residential
619	412	50	Future Residential
620	413	7	Future Residential
621	413	7	Future Residential
622	413	1	Future Residential
623	946	1	Future Residential
624	946	1	Future Residential
625	424	1	Future Residential
626	424	1	Future Residential
627	426	17	Future Residential
628	426	17	Future Residential
629	426	49	Future Residential
630	426	1	Future Residential
631	426	1	Future Residential
632	426	1	Future Residential
633	427	1	Future Residential
634	427	10	Future Residential
635	427	1	Future Residential
636	431	7	Future Residential
637	431	12	Future Residential
638	431	17	Future Residential
639	431	43	Future Residential
640	433	18	Future Commercial
641	433	28	Future Residential
642	433	28	Future Residential
643	433	28	Future Residential
644	433	28	Future Residential
645	434	1	Future Residential
646	434	1	Future Residential
647	434	1	Future Residential
648	434	24	Future Office & Commercial
649	434	35	Future Residential
650	434	35	Future Residential
651	434	35	Future Residential
652	438	3	Future Residential
653	438	3	Future Residential
654	438	3	Future Residential
655	445	8	Future Residential
656	445	11	Future Residential
657	445	11	Future Residential
658	439	1	Future Residential
659	439	1	Future Residential
660	439	1	Future Residential
661	439	1	Future Residential
662	439	1	Future Residential
663	439	1	Future Residential
664	440	1	Future Residential
665	440	12	Future Residential
666	440	12	Future Residential
667	441	24	Future Residential
668	441	33	Future Residential
669	441	24	Future Residential
670	441	16	Future Residential
671	447	32	Future Residential
672	447	1	Future Residential
673	447	1	Future Residential

Table 20-14 (cont'd)
Projected Development Sites 15 and 19 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
674	448	25	Future Office & Commercial
675	448	25	Future Office & Commercial
676	451	25	Future Residential
677	451	25	Future Residential
678	453	1	Future Residential
679	453	1	Future Residential
680	453	1	Future Residential
681	453	21	Future Residential
682	453	21	Future Residential
689	420	37	Future Residential
690	420	37	Future Residential
691	433	1	Future Residential
692	433	1	Future Residential
693	427	47	Future Residential
694	427	47	Future Residential
695	440	36	Future Residential
696	445	1	Future Residential
697	445	1	Future Residential
698	405	51	Future Residential
699	399	6	Religious Institution
700	399	6	Religious Institution
704	407	26	Future Residential
705	407	26	Future Residential
716	426	1	Future Residential

Table 20-15
Projected Development Site 47 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
293	360	20	Residential
294	360	31	Residential
295	360	36	Residential
296	361	4	Residential
297	361	9	Residential
298	361	19	Residential
299	361	7501	Residential
300	361	29	Commercial & Office
301	361	35	Residential
302	361	49	Residential
303	459	2	Mixed Residential & Commercial
304	459	6	Mixed Residential & Commercial
305	459	16	Residential
306	459	24	Mixed Residential & Commercial
307	459	24	Mixed Residential & Commercial
308	459	43	Residential
309	459	14	Residential
310	365	23	Residential
311	365	37	Residential
312	365	46	Residential
313	366	2	Residential
314	366	11	Residential
315	366	7501	Residential
316	366	29	Mixed Residential & Commercial
317	366	32	Residential
318	366	52	Residential
319	366	18	Residential
320	463	2	Mixed Residential & Commercial
321	463	6	Mixed Residential & Commercial
322	463	7	Residential
323	463	14	Residential
324	463	17	Residential
325	463	19	Residential
326	463	20	Residential
327	463	30	Residential
328	463	39	Residential
329	463	1	Mixed Residential & Commercial
330	370	22	Residential
331	370	33	Residential
332	370	43	Residential
333	371	6	Residential
334	371	16	Residential
335	371	31	Residential
336	371	32	Residential
337	371	36	Residential
338	371	42	Residential
339	371	44	Mixed Residential & Commercial
340	371	60	Residential
341	467	3	Residential
342	467	8	Mixed Residential & Commercial
343	467	11	Residential
344	467	16	Residential
345	467	20	Residential
346	467	22	Residential
347	467	23	Residential

Table 20-15 (cont'd)
Projected Development Site 47 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
348	467	35	Residential
349	467	35	Residential
350	467	43	Residential
351	467	1	Mixed Residential & Commercial
352	373	24	Residential
353	373	34	Residential
354	373	37	Residential
355	374	3	Residential
356	374	9	Residential
357	374	12	Residential
358	374	20	Residential
359	374	7501	Residential
360	374	130	Mixed Residential & Commercial
361	374	34	Mixed Residential & Commercial
362	374	35	Residential
363	374	44	Residential
364	374	55	Residential
365	470	3	Mixed Residential & Commercial
366	470	7	Mixed Residential & Commercial
367	470	8	Mixed Residential & Commercial
368	470	13	Residential
369	470	19	Residential
370	470	19	Residential
371	470	33	Residential
372	470	7503	Residential
373	470	7502	Residential
374	470	1	Residential
375	376	21	Residential
376	376	21	Residential
377	376	21	Residential
378	376	28	Residential
379	376	7501	Residential
380	376	39	Residential
381	377	3	Residential
382	377	7501	Mixed Residential & Commercial
383	377	12	Residential
384	377	21	Residential
385	377	28	Mixed Residential & Commercial
386	377	30	Residential
387	377	35	Mixed Residential & Commercial
388	377	37	Mixed Residential & Commercial
389	377	46	Residential
390	377	56	Residential
391	472	1	Religious Institution
392	472	1	Religious Institution
393	472	10	Religious Institution
394	472	28	Residential
395	472	1	Religious Institution
396	472	46	Residential
397	472	47	Residential
398	472	38	Residential
399	472	38	Residential
400	379	6	Residential
401	379	14	Residential
402	379	29	Mixed Residential & Commercial
403	379	30	Mixed Residential & Commercial
404	379	36	Mixed Residential & Commercial

Table 20-15 (cont'd)
Projected Development Site 47 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
405	379	40	Residential
406	379	44	Residential
407	379	54	Residential
408	474	2	Residential
409	474	9	Residential
410	474	13	Residential
411	474	18	Residential
412	474	23	Residential
413	474	38	Residential
414	474	7502	Residential
415	474	7501	Residential
416	381	24	Residential
417	381	25	Residential
418	381	32	Mixed Residential & Commercial
419	381	41	Mixed Residential & Commercial
420	476	7501	Residential
421	476	7501	Residential
422	476	7501	Residential
423	476	19	Residential
424	476	19	Residential
425	476	30	Residential
426	476	32	Residential
427	476	1	Residential
428	382	28	Mixed Residential & Commercial
429	382	30	Mixed Residential & Commercial
430	478	9	Mixed Residential & Commercial
431	478	7505	Mixed Residential & Commercial
432	478	7504	Mixed Residential & Commercial
433	478	25	Residential
434	478	35	Residential
435	450	1	Mixed Residential & Commercial
436	450	63	Residential
437	450	43	Residential
438	457	1	Residential
439	457	56	Residential
440	457	38	Mixed Residential & Commercial
441	460	1	Mixed Residential & Commercial
442	460	9	Residential
443	460	17	Residential
444	460	34	Residential
445	460	54	Residential
446	461	3	Vacant Land
447	461	9	Residential
448	461	16	Residential
449	461	39	Residential
450	461	7501	Residential
451	461	52	Residential
452	461	1	Mixed Residential & Commercial
453	462	3	Residential
454	462	51	Mixed Residential & Commercial
455	464	3	Residential
456	464	9	Residential
457	464	24	Residential
458	464	30	Residential
459	464	38	Residential
460	464	39	Mixed Residential & Commercial
461	464	64	Residential

Table 20-15 (cont'd)
Projected Development Site 47 Noise Receptor Locations

Receptor	Location (Block)	Lot	Associated Land Use
462	468	2	Residential
463	468	8	Residential
464	468	7501	Residential
465	468	7502	Residential
466	468	22	Residential
467	468	57	Industrial
468	468	1	Mixed Residential & Commercial
469	980	8	Industrial
470	980	1	Institution
471	980	107	Commercial & Office
472	991	37	Mixed Residential & Commercial
473	991	41	Industrial
474	991	50	Mixed Residential & Commercial
475	992	33	Mixed Residential & Commercial
476	992	7501	Residential
477	992	7501	Residential
478	992	51	Residential
479	996	21	Commercial & Office
480	996	32	Commercial & Office
481	996	40	Mixed Residential & Commercial
482	997	6	Residential
483	997	17	Residential
484	997	47	Mixed Residential & Commercial
485	997	47	Mixed Residential & Commercial
486	997	69	Residential
487	1002	115	Residential
488	1002	32	Residential
489	1002	54	Residential
490	1003	8	Mixed Residential & Commercial
491	1003	17	Residential
492	1003	33	Mixed Residential & Commercial
493	1003	33	Mixed Residential & Commercial
494	1003	59	Mixed Residential & Commercial
495	1008	11	Residential
496	1008	26	Residential
497	1008	37	Mixed Residential & Commercial
498	1009	107	Mixed Residential & Commercial
499	1009	9	Residential
500	477	8	Commercial
683	466	60	Future Office & Commercial
684	466	19	Future Office & Commercial
685	466	17	Future Office & Commercial
686	466	19	Future Residential
687	466	19	Future Residential
688	466	19	Future Residential
701	471	125	Future Office & Commercial
702	471	125	Future Office & Commercial
703	471	125	Future Office & Commercial
706	464	45	Future Residential
707	464	41	Future Residential

CONSTRUCTION NOISE ANALYSIS RESULTS

Using the methodology described above, and considering the noise abatement measures specified above, cumulative noise analyses were performed to determine maximum 1-hour equivalent ($L_{eq(1)}$) noise levels that would be expected during one (1) worst-case month for each phase of construction at each projected development site selected for analysis. This resulted in a predicted range of peak hourly construction noise levels throughout the construction period (see **Appendix H** for the complete construction noise analysis results).

Construction Mobile Sources (6 to 7 AM)

Construction worker vehicles and trucks traveling on roadways prior to the start of the construction work day would have the potential to generate noise at receptors along the routes used to access the construction sites. A screening analysis using the methodology described above found that construction worker vehicles and trucks would not have the potential to result in a significant increase in noise levels (i.e., would not result in a doubling of Noise PCEs, which would be necessary to produce a 3 dBA noise level increase) on any roadways from 6 to 7 AM. Construction vehicles traveling to and from construction sites during the construction workday are included the detailed construction noise analysis described below.

Projected Development Site 47

Construction of Projected Development Site 47 is predicted to result in significant noise level increases at noise-sensitive receptors in the study area at certain times during the construction period. Sensitive uses immediately adjacent to construction work zones would experience the highest levels of construction noise (while construction is ongoing immediately adjacent), whereas receptors located further from the development site would experience less noise increases because of the greater distance from the on-site construction equipment. The results of the detailed construction noise analysis for Projected Development Site 47 are summarized in **Table 20-16**.

The maximum predicted noise levels shown in **Table 20-16** would be experienced during the most noise-intensive activities of construction, which typically do not occur every workday or work hour on days during which those activities are conducted. During hours when the more substantive noise generators (e.g., impact pile driver) are not in use, receptors would experience lower construction noise levels. As described below, construction noise levels also fluctuate during the construction period at each receptor, with the greatest levels of construction noise occurring for limited periods during construction.

According to the conceptual construction schedule, construction on Site 47 would begin in 2025 at Building A with demolition excavation, and foundation construction followed by superstructure and exteriors construction. During demolition, excavation, and foundation construction at Projected Development Site 47, the primary noise sources would include impact pile drivers, excavators, and bulldozers. The pile drivers would operate intermittently during a portion of the approximately four months of this construction period. Excavators and bulldozers would operate on the site regularly during demolition activities and excavation activities, but infrequently during foundation activities; there would be relatively little time during which both of these sources would overlap on the site. The construction noise analysis, however, is conservatively based on a worst-case time period including all of these sources. Construction noise was analyzed for the year 2025 according to the methodology described above. The maximum predicted noise level increment during 2025 would be less than 20 dBA, which would be considered just less than very objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 881 feet of the construction site, and objectionable noise levels were predicted to occur within approximately 200 feet during 2025.

Table 20-16
Projected Development Site 47 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
293	Block 360, Lot 20	55.3	55.8	55.3	55.9	0.0	0.1
294	Block 360, Lot 31	67.6	67.9	67.6	67.9	0.0	0.0
295	Block 360, Lot 36	58.2	60.7	58.2	61.0	0.0	0.3
296	Block 361, Lot 4	66.7	66.7	66.7	66.7	0.0	0.0
297	Block 361, Lot 9	55.3	55.9	55.3	56.0	0.0	0.1
298	Block 361, Lot 19	55.3	55.3	55.3	65.0	0.0	9.7
299	Block 361, Lot 7501	55.3	57.9	55.3	58.0	0.0	0.1
300	Block 361, Lot 29	67.2	67.2	67.2	67.2	0.0	0.0
301	Block 361, Lot 35	58.2	60.6	58.3	68.1	0.0	7.5
302	Block 361, Lot 49	57.1	60.1	57.1	65.6	0.0	5.5
303	Block 459, Lot 2	66.0	67.3	66.0	68.1	0.0	1.0
304	Block 459, Lot 6	56.8	59.3	56.8	59.3	0.0	0.1
305	Block 459, Lot 16	55.3	56.9	55.3	57.0	0.0	0.1
306	Block 459, Lot 24	64.9	68.3	65.0	71.5	0.0	4.7
307	Block 459, Lot 24	62.4	63.8	62.6	71.5	0.1	9.1
308	Block 459, Lot 43	58.4	60.4	58.4	67.3	0.0	6.9
309	Block 459, Lot 14	55.3	55.3	55.3	67.7	0.0	12.4
310	Block 365, Lot 23	55.5	58.9	55.5	59.0	0.0	0.1
311	Block 365, Lot 37	66.6	67.0	66.6	67.2	0.0	0.2
312	Block 365, Lot 46	57.5	58.6	57.6	64.1	0.0	5.5
313	Block 366, Lot 2	66.5	67.1	66.5	68.2	0.0	1.3
314	Block 366, Lot 11	56.6	58.6	56.6	58.8	0.0	0.5
315	Block 366, Lot 7501	58.1	60.8	58.1	60.9	0.0	0.2
316	Block 366, Lot 29	67.0	67.5	67.0	68.3	0.0	1.0
317	Block 366, Lot 32	59.9	61.9	60.0	68.6	0.1	6.7
318	Block 366, Lot 52	58.2	60.3	58.2	66.0	0.0	5.7
319	Block 366, Lot 18	55.3	55.3	55.4	66.4	0.1	11.1
320	Block 463, Lot 2	66.6	67.3	66.6	67.5	0.0	0.2
321	Block 463, Lot 6	66.7	67.3	66.7	67.5	0.0	0.2
322	Block 463, Lot 7	59.3	61.4	59.4	68.4	0.0	7.1
323	Block 463, Lot 14	56.7	58.5	56.8	65.7	0.0	8.0
324	Block 463, Lot 17	55.3	55.3	55.4	69.9	0.1	14.6
325	Block 463, Lot 19	57.7	60.5	57.8	69.0	0.1	10.1
326	Block 463, Lot 20	56.4	59.1	57.6	72.1	0.5	15.7
327	Block 463, Lot 30	59.5	61.6	60.0	73.6	0.3	14.1
328	Block 463, Lot 39	57.7	59.4	57.8	71.0	0.1	11.6
329	Block 463, Lot 1	60.3	62.0	60.3	68.4	0.0	7.3
330	Block 370, Lot 22	56.8	58.6	56.8	58.6	0.0	0.1
331	Block 370, Lot 33	67.5	67.9	67.5	67.9	0.0	0.0
332	Block 370, Lot 43	59.7	61.3	59.7	62.8	0.0	2.3
333	Block 371, Lot 6	67.2	67.8	67.2	67.8	0.0	0.0
334	Block 371, Lot 16	56.8	59.2	56.8	59.3	0.0	0.2
335	Block 371, Lot 31	55.3	55.3	55.4	66.5	0.1	11.3
336	Block 371, Lot 32	57.7	60.4	57.7	60.6	0.0	0.3
337	Block 371, Lot 36	66.9	67.5	66.9	70.2	0.0	3.3
338	Block 371, Lot 42	67.4	67.8	67.4	68.4	0.0	0.7
339	Block 371, Lot 44	61.4	63.4	61.5	69.6	0.1	8.2
340	Block 371, Lot 60	60.2	62.0	60.2	64.2	0.0	3.3
341	Block 467, Lot 3	66.8	67.3	66.8	67.3	0.0	0.1

Table 20-16 (cont'd)
Projected Development Site 47 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
342	Block 467, Lot 8	66.8	67.4	66.8	70.1	0.0	2.9
343	Block 467, Lot 11	58.6	61.4	58.6	61.5	0.0	0.2
344	Block 467, Lot 16	57.5	59.9	57.6	60.3	0.0	0.6
345	Block 467, Lot 20	55.5	57.7	55.8	74.3	0.3	18.8
346	Block 467, Lot 22	58.2	60.2	58.3	60.8	0.1	1.3
347	Block 467, Lot 23	55.3	59.5	56.4	74.7	0.8	19.4
348	Block 467, Lot 35	56.1	62.5	57.0	76.3	0.8	20.2
349	Block 467, Lot 35	60.5	62.7	61.6	76.7	0.8	16.2
350	Block 467, Lot 43	60.5	62.3	60.7	72.8	0.2	12.3
351	Block 467, Lot 1	62.2	63.9	62.3	71.2	0.1	9.0
352	Block 373, Lot 24	59.9	61.7	59.9	61.8	0.0	0.1
353	Block 373, Lot 34	67.3	67.8	67.3	67.8	0.0	0.0
354	Block 373, Lot 37	61.2	62.6	61.2	64.7	0.0	2.9
355	Block 374, Lot 3	67.2	67.7	67.2	67.9	0.0	0.6
356	Block 374, Lot 9	67.4	67.9	67.4	67.9	0.0	0.0
357	Block 374, Lot 12	60.3	62.3	60.3	62.4	0.0	0.1
358	Block 374, Lot 20	59.7	61.5	59.7	61.8	0.0	0.9
359	Block 374, Lot 7501	60.8	62.9	60.8	64.0	0.0	1.4
360	Block 374, Lot 130	66.5	67.6	66.6	68.7	0.0	2.0
361	Block 374, Lot 34	66.8	67.5	66.8	69.1	0.0	2.0
362	Block 374, Lot 35	60.9	62.2	61.0	66.4	0.1	5.0
363	Block 374, Lot 44	58.3	58.8	58.4	64.0	0.1	5.2
364	Block 374, Lot 55	58.4	59.1	58.4	62.1	0.0	3.6
365	Block 470, Lot 3	66.8	67.3	66.8	68.9	0.0	1.6
366	Block 470, Lot 7	66.9	67.5	66.9	68.5	0.0	1.4
367	Block 470, Lot 8	61.9	63.8	62.0	64.2	0.1	0.5
368	Block 470, Lot 13	59.9	62.2	60.3	65.3	0.3	3.1
369	Block 470, Lot 19	60.2	63.0	60.4	70.1	0.2	7.1
370	Block 470, Lot 19	59.7	61.9	63.0	79.1	3.0	18.6
371	Block 470, Lot 33	59.5	61.6	62.0	75.6	2.2	14.0
372	Block 470, Lot 7503	61.5	61.8	62.7	73.5	1.1	12.0
373	Block 470, Lot 7502	61.5	61.9	62.1	71.2	0.4	9.7
374	Block 470, Lot 1	63.0	63.8	63.2	67.9	0.2	4.7
375	Block 376, Lot 21	55.3	55.3	55.3	55.4	0.0	0.2
376	Block 376, Lot 21	55.3	59.1	55.3	62.4	0.0	4.3
377	Block 376, Lot 21	55.3	57.0	55.3	57.8	0.0	0.8
378	Block 376, Lot 28	58.2	59.0	58.2	59.1	0.0	0.1
379	Block 376, Lot 7501	66.5	67.2	66.5	67.2	0.0	0.0
380	Block 376, Lot 39	63.3	64.1	63.3	64.1	0.0	0.0
381	Block 377, Lot 3	66.8	67.6	66.8	67.7	0.0	0.4
382	Block 377, Lot 7501	65.6	66.9	65.6	66.9	0.0	0.0
383	Block 377, Lot 12	58.3	58.8	58.4	62.1	0.1	3.3
384	Block 377, Lot 21	58.2	58.9	58.3	64.2	0.1	6.0
385	Block 377, Lot 28	61.0	62.2	61.1	66.5	0.1	5.5
386	Block 377, Lot 30	66.6	67.4	66.6	67.8	0.0	1.2
387	Block 377, Lot 35	66.8	67.3	66.8	67.4	0.0	0.1
388	Block 377, Lot 37	62.7	63.4	62.7	65.8	0.0	2.4
389	Block 377, Lot 46	60.2	60.5	60.2	61.0	0.0	0.5
390	Block 377, Lot 56	59.7	60.1	59.7	60.6	0.0	0.6
391	Block 472, Lot 1	63.7	65.4	63.7	66.0	0.0	0.6

Table 20-16 (cont'd)
Projected Development Site 47 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
392	Block 472, Lot 1	60.7	61.4	61.8	73.2	0.8	12.5
393	Block 472, Lot 10	61.3	62.3	61.9	69.1	0.5	7.1
394	Block 472, Lot 28	61.5	61.6	61.9	64.3	0.4	2.8
395	Block 472, Lot 1	61.9	62.7	62.2	65.2	0.2	2.9
396	Block 472, Lot 46	62.1	62.6	63.2	75.8	1.1	13.2
397	Block 472, Lot 47	59.6	61.0	63.1	74.4	3.2	14.7
398	Block 472, Lot 38	59.3	60.3	62.4	73.7	2.8	14.4
399	Block 472, Lot 38	61.6	62.2	61.9	66.4	0.3	4.2
400	Block 379, Lot 6	65.5	66.5	65.5	66.5	0.0	0.0
401	Block 379, Lot 14	59.8	60.5	59.8	64.6	0.0	4.2
402	Block 379, Lot 29	62.5	63.2	62.6	66.6	0.1	3.6
403	Block 379, Lot 30	67.4	67.7	67.4	69.8	0.0	2.3
404	Block 379, Lot 36	67.3	67.7	67.3	69.7	0.0	2.2
405	Block 379, Lot 40	60.7	60.9	60.7	64.7	0.0	3.8
406	Block 379, Lot 44	55.3	55.3	55.4	65.4	0.2	10.2
407	Block 379, Lot 54	59.4	59.9	59.4	61.6	0.0	1.7
408	Block 474, Lot 2	66.6	67.2	66.6	67.3	0.0	0.2
409	Block 474, Lot 9	67.2	67.7	67.2	69.2	0.0	1.7
410	Block 474, Lot 13	60.2	61.1	60.6	70.0	0.4	9.8
411	Block 474, Lot 18	55.3	56.1	55.5	62.2	0.2	6.9
412	Block 474, Lot 23	61.9	62.3	63.4	73.1	1.4	11.2
413	Block 474, Lot 38	55.3	55.7	56.9	71.0	1.7	15.8
414	Block 474, Lot 7502	59.6	60.1	59.7	69.8	0.1	10.2
415	Block 474, Lot 7501	59.4	61.2	59.5	68.6	0.1	9.2
416	Block 381, Lot 24	55.3	55.3	55.3	55.6	0.0	0.4
417	Block 381, Lot 25	58.4	59.4	58.5	65.5	0.1	6.1
418	Block 381, Lot 32	67.4	67.8	67.4	68.6	0.0	1.2
419	Block 381, Lot 41	59.5	63.2	59.5	63.3	0.0	0.1
420	Block 476, Lot 7501	62.6	67.2	62.6	68.2	0.0	1.0
421	Block 476, Lot 7501	60.4	61.8	60.5	69.6	0.1	7.8
422	Block 476, Lot 7501	59.5	60.1	59.6	70.3	0.1	10.2
423	Block 476, Lot 19	61.4	62.4	61.9	71.8	0.5	10.4
424	Block 476, Lot 19	66.2	67.6	66.5	72.5	0.1	5.4
425	Block 476, Lot 30	67.5	67.9	67.6	71.9	0.1	4.2
426	Block 476, Lot 32	68.7	69.1	68.7	71.2	0.0	2.4
427	Block 476, Lot 1	67.9	69.0	67.9	69.0	0.0	0.0
428	Block 382, Lot 28	64.5	65.0	64.5	65.0	0.0	0.0
429	Block 382, Lot 30	67.7	68.2	67.7	68.2	0.0	0.0
430	Block 478, Lot 9	67.5	67.9	67.5	67.9	0.0	0.1
431	Block 478, Lot 7505	65.7	68.6	65.7	68.6	0.0	0.3
432	Block 478, Lot 7504	67.4	70.1	67.5	71.8	0.0	3.7
433	Block 478, Lot 25	67.8	68.3	67.9	71.3	0.0	3.3
434	Block 478, Lot 35	61.2	62.9	61.2	62.9	0.0	0.1
435	Block 450, Lot 1	64.3	64.8	64.3	70.1	0.0	5.3
436	Block 450, Lot 63	55.3	56.6	55.3	67.9	0.1	11.3
437	Block 450, Lot 43	57.9	58.7	57.9	67.2	0.0	8.6
438	Block 457, Lot 1	58.7	59.1	58.7	67.2	0.0	8.2
439	Block 457, Lot 56	56.4	57.3	56.4	65.9	0.0	8.6
440	Block 457, Lot 38	61.0	62.1	61.0	66.0	0.0	3.9
441	Block 460, Lot 1	67.8	68.2	67.8	68.3	0.0	0.1

Table 20-16 (cont'd)
Projected Development Site 47 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
442	Block 460, Lot 9	55.3	55.4	55.3	59.7	0.0	4.5
443	Block 460, Lot 17	55.3	55.3	55.3	69.5	0.1	14.2
444	Block 460, Lot 34	63.9	64.4	63.9	64.6	0.0	0.3
445	Block 460, Lot 54	63.6	64.4	63.6	64.5	0.0	0.1
446	Block 461, Lot 3	62.6	63.0	62.6	64.4	0.0	1.4
447	Block 461, Lot 9	56.5	57.7	56.5	60.8	0.0	3.7
448	Block 461, Lot 16	55.3	56.8	55.4	62.2	0.1	6.6
449	Block 461, Lot 39	68.1	68.2	68.1	69.7	0.0	1.6
450	Block 461, Lot 7501	65.6	66.4	65.6	69.1	0.0	3.3
451	Block 461, Lot 52	66.1	66.4	66.1	68.1	0.0	2.0
452	Block 461, Lot 1	66.3	66.6	66.3	68.1	0.0	1.6
453	Block 462, Lot 3	67.7	68.2	67.7	68.2	0.0	0.0
454	Block 462, Lot 51	67.2	67.9	67.2	70.0	0.0	2.6
455	Block 464, Lot 3	66.6	67.8	66.7	68.3	0.1	0.6
456	Block 464, Lot 9	64.5	65.6	64.5	68.3	0.0	2.8
457	Block 464, Lot 24	55.3	55.9	55.4	72.3	0.1	17.0
458	Block 464, Lot 30	63.5	64.2	63.5	64.8	0.0	0.7
459	Block 464, Lot 38	64.1	64.9	64.1	66.6	0.0	2.4
460	Block 464, Lot 39	62.5	63.1	62.5	64.1	0.0	1.3
461	Block 464, Lot 64	62.8	63.2	63.0	70.3	0.2	7.1
462	Block 468, Lot 2	66.8	67.9	67.3	70.8	0.3	3.7
463	Block 468, Lot 8	67.2	67.8	67.4	69.0	0.2	1.4
464	Block 468, Lot 7501	62.0	62.6	62.2	63.7	0.2	1.3
465	Block 468, Lot 7502	55.5	58.7	55.8	77.6	0.3	22.1
466	Block 468, Lot 22	61.8	62.1	62.1	70.7	0.3	8.6
467	Block 468, Lot 57	62.0	62.4	62.2	81.6	0.2	19.6
468	Block 468, Lot 1	63.8	64.8	64.7	79.7	0.9	15.3
469	Block 980, Lot 8	68.1	69.1	68.1	69.2	0.0	0.4
470	Block 980, Lot 1	55.3	56.0	55.3	56.9	0.0	0.9
471	Block 980, Lot 107	67.6	68.6	67.6	69.1	0.0	0.5
472	Block 991, Lot 37	62.9	63.5	62.9	64.6	0.0	1.3
473	Block 991, Lot 41	69.6	69.6	69.6	69.6	0.0	0.0
474	Block 991, Lot 50	55.8	57.8	55.8	57.9	0.0	0.1
475	Block 992, Lot 33	69.1	69.7	69.1	69.7	0.0	0.0
476	Block 992, Lot 7501	66.0	69.5	66.0	69.5	0.0	0.0
477	Block 992, Lot 7501	61.1	63.3	61.1	63.3	0.0	0.5
478	Block 992, Lot 51	60.5	61.1	60.5	61.1	0.0	0.0
479	Block 996, Lot 21	62.0	62.4	62.0	64.4	0.0	2.2
480	Block 996, Lot 32	69.3	69.9	69.3	70.0	0.0	0.2
481	Block 996, Lot 40	64.6	65.2	64.6	65.2	0.0	0.0
482	Block 997, Lot 6	67.8	69.9	67.8	69.9	0.0	0.4
483	Block 997, Lot 17	61.1	61.8	61.1	63.1	0.0	1.6
484	Block 997, Lot 47	66.1	69.4	66.1	69.4	0.0	0.0
485	Block 997, Lot 47	55.3	58.2	55.3	60.1	0.0	3.2
486	Block 997, Lot 69	61.7	62.2	61.7	62.2	0.0	0.0
487	Block 1002, Lot 115	61.0	61.9	61.0	64.4	0.0	2.5
488	Block 1002, Lot 32	68.7	69.9	68.7	69.9	0.0	0.1
489	Block 1002, Lot 54	68.3	68.8	68.3	68.8	0.0	0.0
490	Block 1003, Lot 8	68.9	70.2	68.9	70.2	0.0	0.3
491	Block 1003, Lot 17	61.6	62.0	61.6	63.1	0.0	1.3

Table 20-16 (cont'd)
Projected Development Site 47 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
492	Block 1003, Lot 33	61.7	63.6	61.7	64.2	0.0	0.9
493	Block 1003, Lot 33	55.3	60.0	55.3	61.3	0.0	1.3
494	Block 1003, Lot 59	66.3	66.3	66.3	66.3	0.0	0.0
495	Block 1008, Lot 11	68.6	69.0	68.6	69.1	0.0	0.1
496	Block 1008, Lot 26	68.3	68.6	68.3	68.6	0.0	0.0
497	Block 1008, Lot 37	70.1	70.9	70.1	70.9	0.0	0.0
498	Block 1009, Lot 107	69.7	70.4	69.7	70.4	0.0	0.0
499	Block 1009, Lot 9	66.2	66.2	66.2	66.2	0.0	0.0
500	Block 477, Lot 8	55.3	58.2	56.4	74.6	1.0	19.3

In 2026, construction would begin on buildings B and D; demolition, excavation, foundation, superstructure, and exteriors construction would overlap with superstructure and exteriors construction and be followed by interior fit out on Building A. Demolition, excavation, and foundation construction would begin on Building C at the end of 2026. During building superstructure and exteriors construction, the primary noise sources would include emergency generators, dump trucks, and concrete mixer trucks. During interior fit-out construction, the primary noise sources would include crawler cranes, hoists, and dump trucks. The maximum predicted noise level increment during this year would be approximately 22 dBA, which would be considered very objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 1,356 feet of the construction site, and objectionable noise levels were predicted to occur within approximately 576 feet, and very objectionable noise levels were predicted to occur within approximately 200 feet during 2026.

In 2027, interior fit-out activities would continue at Buildings A and D, while Building B would undergo superstructure and exteriors construction followed by interior fit-out, and Building C would undergo superstructure and exteriors construction. The maximum predicted noise level increment during this year would be approximately 13 dBA, which would be considered readily noticeable to less than objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 860 feet of the construction site during 2027.

In 2028, interior fit out would continue at Buildings B and C, completing at the start of 2029. The maximum predicted noise level increment during this year would be approximately 4 dBA, which would be considered readily noticeable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 146 feet of the construction site during 2028.

Projected Development Site 15

Construction of Projected Development Site 15 is predicted to result in significant noise level increases at noise-sensitive receptors in the study area at some times during the construction period. Areas immediately adjacent to construction work areas would experience the highest levels of construction noise (while construction is ongoing immediately adjacent), whereas receptors located further from the development area would experience less noise because of the greater distance from the on-site construction equipment. The results of the detailed construction noise analysis for Projected Development Site 15 are summarized in **Table 20-17**.

The maximum predicted noise levels shown in **Table 20-17** would occur during the most noise-intensive activities of construction, which typically do not occur every day, and do not occur during every hour on days during which those activities are conducted. During hours when the loudest pieces of construction equipment (e.g., impact pile driver) are not in use, receptors would experience lower construction noise levels. As described below, construction noise levels would fluctuate during the construction period at each receptor, with the greatest levels of construction noise occurring for limited periods during construction.

During demolition, excavation, and foundation construction at Projected Development Site 15, the primary noise sources would include impact pile drivers, excavators, and bulldozers. The pile drivers would operate intermittently during a portion of the approximately four months of this construction period. Excavators and bulldozers would operate on the site regularly during demolition activities and excavation activities, but infrequently during foundation activities; there would be relatively little time during which both of these sources would overlap on the site. The construction noise analysis, however, is conservatively based on a worst-case time period including all of these sources. The maximum predicted noise level increment during this construction phase would be approximately 19 dBA, which would be considered readily noticeable to just less than very objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 1,063 feet of the construction site, and objectionable noise levels were predicted to occur within approximately 118 feet during demolition, excavation and foundation construction at Projected Development Site 15.

During building superstructure and exteriors construction at Projected Development Site 15, the primary noise sources would include emergency generators, dump trucks, and concrete mixer trucks. The dump trucks and concrete mixer trucks would operate on the site regularly during building superstructure activities, while the generator would be expected to operate on the site throughout both building superstructure and exterior activities. The construction noise analysis, however, is conservatively based on a worst-case time period including all of these sources. The maximum predicted noise level increment during this construction phase would be less than 20 dBA, which would be considered readily noticeable to just less than very objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 1,256 feet of the construction site, and objectionable noise levels were predicted to occur within approximately 118 feet during superstructure and exteriors construction at Projected Development Site 15.

During interior fit-out activities at Projected Development Site 15, the primary noise sources would include crawler cranes, hoists, and dump trucks. The maximum predicted noise level increment during this construction phase would be approximately 8 dBA, which would be considered readily noticeable to less than objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 117 feet of the construction site during interior fit out at Projected Development Site 15.

Table 20-17
Projected Development Site 15 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
1	Block 391, Lot 7501	55.3	56.5	55.3	56.5	0.0	0.0
2	Block 391, Lot 7501	55.3	55.3	55.3	55.3	0.0	0.0
3	Block 391, Lot 30	55.7	56.2	55.7	56.2	0.0	0.0
4	Block 391, Lot 42	62.7	62.8	62.7	62.8	0.0	0.0
5	Block 391, Lot 49	55.3	55.7	55.3	55.8	0.0	0.1
6	Block 392, Lot 1	59.5	60.7	59.5	60.7	0.0	0.0
7	Block 392, Lot 1	55.6	56.8	55.6	56.8	0.0	0.1
8	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
9	Block 392, Lot 1	55.3	55.3	55.3	55.5	0.0	0.3
10	Block 392, Lot 1	59.8	60.8	59.8	60.8	0.0	0.0
11	Block 392, Lot 1	55.3	56.5	55.3	57.4	0.0	0.9
12	Block 392, Lot 1	55.3	55.3	55.3	56.7	0.1	1.5
13	Block 392, Lot 1	55.3	56.6	55.3	56.7	0.0	0.1
14	Block 392, Lot 1	56.7	61.3	56.7	61.5	0.0	0.3
15	Block 392, Lot 1	55.3	55.3	55.3	56.1	0.0	0.9
16	Block 392, Lot 1	55.3	55.3	55.4	58.3	0.1	3.1
17	Block 392, Lot 1	58.1	59.3	58.2	61.0	0.0	2.1
18	Block 392, Lot 1	57.8	60.7	57.8	61.3	0.0	1.4
19	Block 392, Lot 1	55.3	55.3	55.3	55.5	0.0	0.3
20	Block 392, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
21	Block 392, Lot 1	55.3	55.3	55.3	56.4	0.0	1.2
22	Block 392, Lot 1	55.3	55.3	55.3	56.7	0.0	1.4
23	Block 392, Lot 1	55.3	55.3	55.3	55.4	0.0	0.2
24	Block 392, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
25	Block 392, Lot 1	55.3	56.8	55.3	57.3	0.0	0.6
26	Block 392, Lot 1	55.3	55.3	55.3	59.1	0.0	3.8
27	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
28	Block 392, Lot 1	56.0	57.1	56.0	57.1	0.0	0.1
29	Block 392, Lot 1	58.7	61.3	58.7	61.8	0.0	0.5
30	Block 392, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
31	Block 392, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
32	Block 392, Lot 1	58.5	60.4	58.5	60.4	0.0	0.0
33	Block 392, Lot 1	63.1	64.2	63.1	65.0	0.0	1.0
34	Block 392, Lot 1	59.8	60.9	59.8	62.7	0.0	2.2
35	Block 392, Lot 1	55.3	55.3	55.3	55.5	0.0	0.3
36	Block 392, Lot 1	55.3	55.3	55.3	55.6	0.0	0.3
37	Block 392, Lot 1	60.5	65.2	60.6	66.5	0.0	4.5
38	Block 392, Lot 1	59.6	62.2	59.8	65.0	0.0	5.2
39	Block 392, Lot 1	57.9	59.1	57.9	61.3	0.0	2.4
40	Block 393, Lot 1	64.8	66.2	64.8	66.3	0.0	0.2
41	Block 393, Lot 19	55.8	56.2	55.8	56.3	0.0	0.1
42	Block 393, Lot 38	60.4	62.3	60.4	62.3	0.0	0.0
43	Block 393, Lot 54	55.3	55.8	55.3	56.0	0.0	0.2
44	Block 394, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
45	Block 394, Lot 1	55.3	55.3	55.3	55.9	0.0	0.6
46	Block 395, Lot 1	66.5	66.5	66.5	66.5	0.0	0.0
47	Block 395, Lot 54	56.7	57.3	56.7	58.1	0.0	1.1
48	Block 934, Lot 1	67.5	68.5	67.5	68.5	0.0	0.0
49	Block 396, Lot 47	67.0	67.5	67.0	67.5	0.0	0.0

Table 20-17 (cont'd)
Projected Development Site 15 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
50	Block 397, Lot 7	66.0	67.0	66.0	67.0	0.0	0.0
51	Block 397, Lot 11	56.5	57.5	56.5	57.5	0.0	0.0
52	Block 397, Lot 11	55.3	55.3	55.3	55.3	0.0	0.0
53	Block 397, Lot 1	61.9	61.9	61.9	61.9	0.0	0.0
54	Block 397, Lot 7502	55.3	56.4	55.3	56.5	0.0	0.1
55	Block 397, Lot 37	62.4	62.4	62.4	62.7	0.0	0.3
56	Block 397, Lot 7504	59.9	60.9	59.9	60.9	0.0	0.0
57	Block 399, Lot 4	65.5	66.1	65.5	66.5	0.0	0.5
58	Block 399, Lot 24	55.3	55.6	55.3	55.8	0.0	0.3
59	Block 399, Lot 37	60.4	61.4	60.4	61.4	0.0	0.0
60	Block 399, Lot 45	61.9	62.0	61.9	62.0	0.0	0.0
61	Block 399, Lot 1	63.6	64.3	63.6	64.4	0.0	0.2
62	Block 394, Lot 1	56.2	60.1	56.7	63.4	0.0	6.8
63	Block 394, Lot 1	55.3	55.3	55.3	55.5	0.0	0.2
64	Block 394, Lot 1	55.3	55.9	55.3	56.4	0.0	0.6
65	Block 394, Lot 1	55.3	58.0	55.3	63.7	0.0	6.3
66	Block 394, Lot 1	55.3	55.3	55.3	61.8	0.1	6.5
67	Block 394, Lot 1	55.3	58.0	55.3	58.0	0.0	0.2
68	Block 394, Lot 1	60.9	65.5	60.9	65.5	0.0	0.1
69	Block 394, Lot 1	56.7	60.0	56.7	62.7	0.0	4.1
70	Block 401, Lot 1	64.0	64.8	64.0	65.4	0.0	0.8
71	Block 401, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
72	Block 401, Lot 1	55.3	55.4	55.3	55.4	0.0	0.0
73	Block 401, Lot 1	55.3	56.5	55.3	56.7	0.0	0.2
74	Block 401, Lot 7501	58.9	58.9	58.9	58.9	0.0	0.0
75	Block 401, Lot 41	66.5	70.0	66.5	70.0	0.0	0.0
76	Block 401, Lot 50	62.5	62.5	62.5	62.5	0.0	0.0
77	Block 937, Lot 7504	70.2	70.7	70.2	70.7	0.0	0.0
78	Block 937, Lot 7504	67.1	67.7	67.1	67.7	0.0	0.0
79	Block 402, Lot 44	67.0	67.4	67.0	67.4	0.0	0.0
80	Block 403, Lot 2	66.5	67.6	66.5	67.6	0.0	0.0
81	Block 403, Lot 28	60.0	61.4	60.0	61.4	0.0	0.0
82	Block 403, Lot 7508	57.0	61.4	57.0	61.4	0.0	0.1
83	Block 403, Lot 7508	55.3	56.4	55.3	57.2	0.0	1.6
84	Block 403, Lot 44	63.1	63.1	63.1	63.2	0.0	0.1
85	Block 403, Lot 65	62.4	63.3	62.4	63.3	0.0	0.1
86	Block 404, Lot 1	60.9	62.4	60.9	62.4	0.0	0.0
87	Block 404, Lot 1	57.0	60.5	57.0	60.5	0.0	0.2
88	Block 404, Lot 1	55.3	55.3	55.3	59.1	0.1	3.8
89	Block 404, Lot 1	55.3	55.3	55.3	57.7	0.0	2.4
90	Block 404, Lot 1	55.3	55.8	55.3	56.4	0.0	0.8
91	Block 404, Lot 1	55.3	55.3	55.3	57.1	0.0	1.8
92	Block 404, Lot 1	57.7	60.2	57.8	61.2	0.0	3.5
93	Block 404, Lot 1	65.0	67.4	65.1	69.1	0.0	2.9
94	Block 404, Lot 1	57.5	60.7	57.5	66.2	0.0	6.1
95	Block 404, Lot 1	55.3	56.9	55.4	66.1	0.1	9.5
96	Block 404, Lot 1	55.3	55.3	55.4	55.9	0.1	0.6
97	Block 404, Lot 1	59.6	61.8	59.6	62.4	0.0	0.9
98	Block 404, Lot 1	65.3	66.3	65.4	69.3	0.1	3.3
99	Block 404, Lot 1	63.9	65.2	64.1	69.6	0.2	5.0

Table 20-17 (cont'd)
Projected Development Site 15 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
100	Block 404, Lot 1	57.6	60.1	58.3	68.2	0.6	10.2
101	Block 404, Lot 1	55.3	55.3	55.7	58.5	0.4	3.3
102	Block 404, Lot 1	56.2	59.4	56.7	64.9	0.1	8.6
103	Block 404, Lot 1	63.0	65.3	65.2	77.3	0.6	14.3
104	Block 404, Lot 1	57.6	59.3	59.8	75.8	2.2	17.3
105	Block 404, Lot 1	55.3	55.3	55.3	56.0	0.1	0.7
106	Block 404, Lot 1	55.3	55.3	55.3	55.7	0.0	0.4
107	Block 404, Lot 1	55.3	55.3	55.3	56.9	0.1	1.7
108	Block 404, Lot 1	55.3	57.7	55.5	66.9	0.2	9.3
109	Block 404, Lot 1	55.3	55.3	55.7	67.9	0.4	12.7
110	Block 404, Lot 1	55.3	55.3	55.9	66.1	0.6	10.8
111	Block 404, Lot 1	60.6	61.9	60.6	62.1	0.0	0.2
112	Block 404, Lot 1	55.3	57.2	55.3	57.8	0.0	1.1
113	Block 404, Lot 1	55.3	55.3	55.3	55.5	0.0	0.2
114	Block 404, Lot 1	55.3	55.3	55.3	57.3	0.0	2.0
115	Block 404, Lot 1	55.3	57.3	55.5	61.0	0.1	5.7
116	Block 404, Lot 1	60.1	61.7	60.2	62.7	0.1	1.3
117	Block 404, Lot 1	55.3	56.0	55.3	56.5	0.0	0.5
118	Block 404, Lot 1	55.3	55.3	55.6	62.4	0.3	7.2
119	Block 404, Lot 1	56.2	57.3	57.0	63.1	0.8	6.9
120	Block 405, Lot 5	66.8	68.2	66.8	69.0	0.0	0.8
121	Block 405, Lot 10	62.6	63.3	62.6	63.5	0.0	0.2
122	Block 405, Lot 19	59.9	61.6	59.9	61.7	0.0	0.1
123	Block 405, Lot 19	55.3	55.3	55.4	66.2	0.1	10.9
124	Block 405, Lot 1	64.8	65.2	64.9	67.0	0.1	1.8
125	Block 406, Lot 18	55.3	55.3	55.3	57.1	0.0	1.8
126	Block 406, Lot 67	60.5	61.6	60.5	61.8	0.0	1.0
127	Block 406, Lot 52	66.7	66.7	66.7	66.7	0.0	0.0
128	Block 406, Lot 71	63.5	63.5	63.5	63.5	0.0	0.0
129	Block 407, Lot 7	60.6	61.4	60.6	61.4	0.0	0.0
130	Block 407, Lot 7	55.3	58.2	55.3	58.2	0.0	0.1
131	Block 940, Lot 111	68.8	70.9	68.8	70.9	0.0	0.0
132	Block 940, Lot 111	60.8	61.9	60.8	61.9	0.0	0.0
133	Block 940, Lot 111	64.0	65.0	64.0	65.0	0.0	0.0
134	Block 408, Lot 36	62.8	63.6	62.8	63.6	0.0	0.0
135	Block 408, Lot 38	66.4	67.5	66.4	67.5	0.0	0.0
136	Block 408, Lot 45	57.5	58.9	57.5	59.4	0.0	0.7
137	Block 409, Lot 5	66.6	67.1	66.6	67.1	0.0	0.0
138	Block 409, Lot 16	61.9	62.6	61.9	62.6	0.0	0.0
139	Block 409, Lot 31	62.7	63.1	62.7	63.1	0.0	0.1
140	Block 409, Lot 38	61.5	62.7	61.6	63.1	0.0	0.4
141	Block 409, Lot 45	55.8	56.2	55.9	58.6	0.1	2.8
142	Block 409, Lot 59	56.7	56.9	56.7	58.3	0.0	1.5
143	Block 411, Lot 2	65.7	66.5	66.2	71.7	0.3	6.0
144	Block 411, Lot 8	63.1	63.6	63.2	71.0	0.1	7.9
145	Block 411, Lot 1	57.5	59.4	62.9	78.2	5.4	19.7
146	Block 413, Lot 15	62.1	63.1	62.1	63.1	0.0	0.0
147	Block 413, Lot 7501	55.3	56.7	55.3	57.7	0.0	1.5
148	Block 413, Lot 7501	55.3	64.5	55.3	64.5	0.0	0.0
149	Block 413, Lot 7501	67.4	70.3	67.4	70.3	0.0	0.0

Table 20-17 (cont'd)
Projected Development Site 15 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
150	Block 413, Lot 7501	55.3	64.2	55.3	64.5	0.0	2.0
151	Block 413, Lot 42	70.0	70.8	70.0	70.8	0.0	0.0
152	Block 413, Lot 33	60.0	61.3	60.0	62.8	0.0	2.1
153	Block 413, Lot 65	57.5	58.5	57.5	62.5	0.0	5.0
154	Block 943, Lot 4	70.1	70.6	70.1	70.6	0.0	0.0
155	Block 943, Lot 11	63.1	65.1	63.1	65.1	0.0	0.0
156	Block 943, Lot 75	59.8	61.4	59.8	62.4	0.0	1.7
157	Block 414, Lot 35	59.8	61.3	59.8	61.4	0.0	0.1
158	Block 414, Lot 38	66.4	67.5	66.4	67.5	0.0	0.0
159	Block 414, Lot 46	56.9	58.2	56.9	58.2	0.0	0.1
160	Block 415, Lot 5	66.9	67.5	66.9	67.5	0.0	0.0
161	Block 415, Lot 18	55.3	55.8	55.3	56.5	0.0	0.8
162	Block 415, Lot 37	56.5	57.1	56.6	58.5	0.1	1.4
163	Block 415, Lot 43	63.1	63.7	63.1	63.7	0.0	0.1
164	Block 415, Lot 51	57.6	58.0	57.7	58.1	0.1	0.1
165	Block 415, Lot 7501	57.9	58.2	58.0	58.3	0.1	0.1
166	Block 416, Lot 1	63.5	64.2	63.6	64.3	0.1	0.1
167	Block 416, Lot 9	63.9	63.9	63.9	64.0	0.0	0.1
168	Block 416, Lot 12	55.5	56.5	57.1	59.9	1.3	3.4
169	Block 416, Lot 25	55.3	55.3	56.5	58.0	1.3	2.7
170	Block 416, Lot 36	58.6	59.9	60.5	69.1	1.9	9.2
171	Block 416, Lot 40	67.3	67.4	68.0	78.4	0.6	11.1
172	Block 416, Lot 7501	67.0	67.3	67.9	78.3	0.6	11.3
173	Block 416, Lot 7501	59.2	60.0	61.6	65.4	2.0	5.7
174	Block 416, Lot 56	56.7	57.3	58.4	61.1	1.7	3.8
175	Block 416, Lot 17	55.4	57.2	56.9	59.3	1.1	2.3
176	Block 419, Lot 1	55.3	55.3	55.3	62.5	0.1	7.2
177	Block 419, Lot 1	55.9	55.9	56.0	64.7	0.1	8.8
178	Block 420, Lot 23	57.1	57.5	57.1	58.5	0.0	1.2
179	Block 420, Lot 31	59.8	61.4	59.8	61.8	0.0	0.6
180	Block 420, Lot 45	58.0	59.6	58.0	59.9	0.0	0.3
181	Block 420, Lot 58	56.5	57.3	56.5	58.6	0.0	1.3
182	Block 946, Lot 9	69.8	70.3	69.8	70.3	0.0	0.0
183	Block 941, Lot 11	62.6	64.6	62.6	64.6	0.0	0.0
184	Block 421, Lot 7501	56.0	56.8	56.0	57.3	0.0	0.5
185	Block 421, Lot 7501	55.3	55.3	55.3	55.3	0.0	0.1
186	Block 421, Lot 38	66.5	67.6	66.5	67.6	0.0	0.0
187	Block 421, Lot 47	56.2	57.1	56.2	57.1	0.0	0.0
188	Block 422, Lot 8	67.1	67.6	67.1	67.6	0.0	0.0
189	Block 422, Lot 20	57.3	57.8	57.5	58.6	0.1	0.9
190	Block 422, Lot 35	57.9	58.4	58.1	60.2	0.2	1.9
191	Block 422, Lot 40	63.1	63.9	63.2	64.0	0.0	0.1
192	Block 422, Lot 47	55.8	57.0	55.8	57.1	0.0	0.2
193	Block 422, Lot 67	55.3	55.8	55.3	55.9	0.0	0.1
194	Block 423, Lot 1	59.9	63.1	59.9	63.1	0.0	0.2
195	Block 423, Lot 16	57.3	57.6	59.1	63.4	1.7	5.9
196	Block 423, Lot 29	57.3	57.6	59.4	66.1	2.1	8.8
197	Block 423, Lot 41	62.7	63.2	63.0	67.5	0.3	4.4
198	Block 423, Lot 43	58.1	59.9	58.2	61.9	0.1	2.0
199	Block 423, Lot 56	55.3	55.3	55.3	59.1	0.1	3.8

Table 20-17 (cont'd)
Projected Development Site 15 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
200	Block 423, Lot 1	55.3	55.4	55.3	58.8	0.1	3.5
201	Block 426, Lot 41	57.5	57.5	57.5	59.0	0.0	1.5
202	Block 427, Lot 17	55.3	55.3	55.3	57.1	0.0	1.9
203	Block 427, Lot 17	57.1	57.4	57.1	61.6	0.0	4.5
204	Block 427, Lot 37	61.7	64.3	61.7	65.0	0.0	1.1
205	Block 427, Lot 37	69.8	70.4	69.8	70.4	0.0	0.0
206	Block 427, Lot 46	69.9	70.6	69.9	70.6	0.0	0.0
207	Block 427, Lot 47	59.9	63.5	59.9	63.9	0.0	0.8
208	Block 949, Lot 7506	67.4	70.6	67.4	70.6	0.0	0.0
209	Block 949, Lot 11	64.1	65.5	64.1	66.0	0.0	0.5
210	Block 949, Lot 7502	62.8	63.5	62.8	63.5	0.0	0.0
211	Block 428, Lot 32	59.1	60.5	59.1	60.5	0.0	0.0
212	Block 428, Lot 36	67.2	67.7	67.2	67.7	0.0	0.0
213	Block 428, Lot 7502	63.2	64.9	63.2	64.9	0.0	0.0
214	Block 429, Lot 8	67.0	67.5	67.0	67.5	0.0	0.0
215	Block 429, Lot 21	55.3	55.3	55.3	55.5	0.0	0.2
216	Block 429, Lot 38	57.3	58.2	57.3	58.3	0.0	0.1
217	Block 429, Lot 41	63.2	63.4	63.2	63.4	0.0	0.0
218	Block 430, Lot 51	61.6	62.8	61.6	62.8	0.0	0.0
219	Block 430, Lot 4	62.8	63.2	62.8	63.3	0.0	0.1
220	Block 430, Lot 14	55.3	55.4	55.3	56.0	0.1	0.6
221	Block 430, Lot 31	55.8	56.6	55.9	58.5	0.1	1.9
222	Block 430, Lot 36	66.1	66.6	66.2	67.6	0.0	1.4
223	Block 430, Lot 52	64.7	64.9	64.7	64.9	0.0	0.0
224	Block 430, Lot 72	64.4	64.7	64.4	64.9	0.0	0.2
225	Block 431, Lot 6	66.4	66.6	66.4	66.8	0.0	0.2
226	Block 431, Lot 1	65.8	66.9	65.8	67.0	0.0	0.5
227	Block 431, Lot 1	65.1	66.0	65.1	66.1	0.0	0.1
228	Block 432, Lot 25	56.5	57.7	56.6	65.2	0.1	8.1
229	Block 432, Lot 25	61.8	62.8	61.8	63.7	0.0	0.9
230	Block 432, Lot 7501	55.3	55.3	55.3	60.1	0.1	4.8
231	Block 432, Lot 7501	62.5	63.3	62.5	63.8	0.0	0.5
232	Block 432, Lot 7501	63.0	63.6	63.0	64.7	0.0	1.4
233	Block 433, Lot 9	62.2	62.7	62.2	66.4	0.0	3.8
234	Block 433, Lot 10	56.9	57.9	57.0	65.0	0.1	7.2
235	Block 433, Lot 51	55.3	55.3	55.3	55.6	0.0	0.3
236	Block 433, Lot 26	56.1	57.2	56.1	57.5	0.0	0.4
237	Block 433, Lot 52	63.4	63.9	63.4	64.0	0.0	0.1
238	Block 434, Lot 16	55.3	58.3	55.3	58.5	0.0	0.2
239	Block 434, Lot 16	60.4	62.2	60.4	62.2	0.0	0.0
240	Block 434, Lot 57	55.3	55.6	55.3	55.7	0.0	0.1
241	Block 434, Lot 49	55.3	55.3	55.3	55.4	0.0	0.1
242	Block 434, Lot 49	56.5	62.4	56.5	62.4	0.0	0.1
243	Block 434, Lot 49	63.3	64.2	63.3	64.2	0.0	0.0
244	Block 952, Lot 2	70.0	70.6	70.0	70.6	0.0	0.0
245	Block 952, Lot 13	62.7	63.2	62.7	63.2	0.0	0.0
246	Block 952, Lot 68	63.7	64.4	63.7	64.4	0.0	0.0
247	Block 435, Lot 25	64.3	64.6	64.3	64.6	0.0	0.0
248	Block 435, Lot 30	65.1	65.9	65.1	65.9	0.0	0.0
249	Block 435, Lot 40	57.9	58.2	57.9	58.2	0.0	0.0

Table 20-17 (cont'd)
Projected Development Site 15 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
250	Block 436, Lot 5	66.5	66.9	66.5	66.9	0.0	0.0
251	Block 436, Lot 17	61.5	62.8	61.5	63.1	0.0	0.3
252	Block 436, Lot 35	61.7	63.0	61.7	63.4	0.0	0.5
253	Block 436, Lot 54	55.3	55.5	55.3	55.6	0.0	0.1
254	Block 436, Lot 62	55.3	55.3	55.3	56.3	0.0	1.0
255	Block 437, Lot 1	62.5	63.2	62.5	63.2	0.0	0.0
256	Block 437, Lot 1	61.8	63.0	61.8	64.0	0.0	1.0
257	Block 437, Lot 33	64.6	65.0	64.6	65.0	0.0	0.0
258	Block 437, Lot 36	65.6	66.8	65.6	67.0	0.0	0.5
259	Block 437, Lot 45	60.5	60.5	60.5	60.6	0.0	0.1
260	Block 437, Lot 50	55.3	55.3	55.3	55.6	0.0	0.3
261	Block 440, Lot 23	62.9	62.9	62.9	62.9	0.0	0.0
262	Block 440, Lot 32	64.0	65.2	64.0	65.2	0.0	0.0
263	Block 440, Lot 34	67.7	68.5	67.7	68.5	0.0	0.0
264	Block 440, Lot 39	68.1	68.5	68.1	68.5	0.0	0.0
265	Block 440, Lot 44	62.3	62.9	62.3	62.9	0.0	0.1
266	Block 441, Lot 6	67.4	68.2	67.4	68.2	0.0	0.0
267	Block 441, Lot 10	63.1	63.8	63.1	63.8	0.0	0.0
268	Block 441, Lot 29	65.5	66.5	65.5	66.5	0.0	0.0
269	Block 441, Lot 31	69.7	70.4	69.7	70.4	0.0	0.0
270	Block 955, Lot 7506	59.7	63.6	59.7	63.6	0.0	0.0
271	Block 955, Lot 7506	66.3	70.7	66.3	70.7	0.0	0.0
272	Block 955, Lot 7502	65.2	66.7	65.2	66.7	0.0	0.0
273	Block 444, Lot 6	61.9	62.4	61.9	62.4	0.0	0.0
274	Block 444, Lot 7501	58.0	59.0	58.0	59.2	0.0	1.1
275	Block 444, Lot 7502	63.2	66.2	63.2	66.3	0.0	0.3
276	Block 444, Lot 7503	57.1	57.7	57.1	57.8	0.0	0.2
277	Block 438, Lot 7	65.3	65.7	65.3	65.8	0.0	0.1
278	Block 438, Lot 7	57.6	59.3	57.7	59.5	0.0	0.3
279	Block 447, Lot 3	55.3	56.7	55.3	56.8	0.0	0.2
280	Block 447, Lot 15	61.9	62.3	61.9	62.3	0.0	0.0
281	Block 447, Lot 24	61.9	62.3	61.9	62.3	0.0	0.0
282	Block 447, Lot 31	57.6	57.6	57.6	57.8	0.0	0.2
283	Block 447, Lot 374	68.0	68.5	68.0	68.5	0.0	0.0
284	Block 447, Lot 39	61.7	63.0	61.7	63.0	0.0	0.0
285	Block 447, Lot 56	60.9	61.7	60.9	61.7	0.0	0.0
286	Block 448, Lot 7	67.6	68.0	67.6	68.0	0.0	0.2
287	Block 448, Lot 13	61.9	62.1	61.9	62.1	0.0	0.1
288	Block 448, Lot 34	68.7	69.7	68.7	69.7	0.0	0.0
289	Block 488, Lot 66	61.4	61.8	61.4	61.8	0.0	0.0
290	Block 958, Lot 7	65.3	67.7	65.3	67.7	0.0	0.0
291	Block 958, Lot 17	62.3	63.3	62.3	63.3	0.0	0.0
292	Block 958, Lot 1	64.8	67.0	64.8	67.0	0.0	0.0

Projected Development Site 19

Construction of Projected Development Site 19 is predicted to result in significant noise level increases at noise-sensitive receptors in the study area at some times during the construction period. Areas immediately adjacent to construction work areas would experience the highest levels of construction noise (while construction is ongoing immediately adjacent), whereas receptors located further from the development area would experience less noise because of the greater distance from the on-site construction equipment. The results of the detailed construction noise analysis for Projected Development Site 19 are summarized in **Table 20-18**.

The maximum predicted noise levels shown in **Table 20-18** would occur during the most noise-intensive activities of construction, which typically do not occur every day, and do not occur during every hour on days during which those activities are conducted. During hours when the loudest pieces of construction equipment (e.g., impact pile driver) are not in use, receptors would experience lower construction noise levels. As described below, construction noise levels would fluctuate during the construction period at each receptor, with the greatest levels of construction noise occurring for limited periods during construction.

During demolition, excavation, and foundation construction at Projected Development Site 19, the primary noise sources would include impact pile drivers, excavators, and bulldozers. The pile drivers would operate intermittently during a portion of the approximately four months of this construction period. Excavators and bulldozers would operate on the site regularly during demolition activities and excavation activities, but infrequently during foundation activities; there would be relatively little time during which both of these sources would overlap on the site. The construction noise analysis, however, is conservatively based on a worst-case time period including all of these sources. The maximum predicted noise level increment during this construction phase would be approximately 16 dBA, which would be considered readily noticeable to objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 300 feet of the construction site, and objectionable noise levels were predicted to occur within approximately 53 feet of the construction site during demolition, excavation and foundation construction at Projected Development Site 19.

During building superstructure and exteriors construction at Projected Development Site 19, the primary noise sources would include emergency generators, dump trucks and concrete mixer trucks. The dump trucks and concrete mixer trucks would operate on the site regularly during building superstructure activities, while the generator would be expected to operate on the site throughout both building superstructure and exterior activities. The construction noise analysis, however, is conservatively based on a worst-case time period including all of these sources. The maximum predicted noise level increment during this construction phase would be approximately 21 dBA, which would be considered readily noticeable to very objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 1,208 feet of the construction site, objectionable noise levels were predicted to occur within approximately 161 feet of the construction site, and very objectionable noise levels were predicted to occur within approximately 53 feet of the construction site during superstructure and exteriors construction at Projected Development Site 19.

During interior fit out at Projected Development Site 19, the primary noise sources would include crawler cranes, hoists, and dump trucks. The maximum predicted noise level increment during this construction phase would be approximately 15 dBA, which would be considered readily noticeable to objectionable. Noise levels exceeding CEQR construction noise screening thresholds were predicted to occur within approximately 296 feet of the construction site, and objectionable noise levels were predicted to occur within approximately 53 feet of the construction site during interior fit out at Projected Development Site 19.

Table 20-18
Projected Development Site 19 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
1	Block 391, Lot 7501	55.3	56.5	55.3	56.5	0.0	0.0
2	Block 391, Lot 7501	55.3	55.3	55.3	55.4	0.0	0.2
3	Block 391, Lot 30	55.7	56.2	55.7	56.2	0.0	0.0
4	Block 391, Lot 42	62.7	62.8	62.7	62.8	0.0	0.0
5	Block 391, Lot 49	55.3	55.7	55.3	55.7	0.0	0.0
6	Block 392, Lot 1	59.5	60.7	59.5	60.7	0.0	0.0
7	Block 392, Lot 1	55.6	56.8	55.6	56.8	0.0	0.0
8	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
9	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
10	Block 392, Lot 1	59.8	60.8	59.8	60.8	0.0	0.0
11	Block 392, Lot 1	55.3	56.5	55.3	56.5	0.0	0.0
12	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
13	Block 392, Lot 1	55.3	56.6	55.3	56.6	0.0	0.0
14	Block 392, Lot 1	56.7	61.3	56.7	61.3	0.0	0.0
15	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
16	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
17	Block 392, Lot 1	58.1	59.3	58.1	59.3	0.0	0.1
18	Block 392, Lot 1	57.8	60.7	57.8	60.7	0.0	0.2
19	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
20	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
21	Block 392, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
22	Block 392, Lot 1	55.3	55.3	55.3	56.5	0.0	1.3
23	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
24	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
25	Block 392, Lot 1	55.3	56.8	55.3	57.9	0.0	1.2
26	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
27	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
28	Block 392, Lot 1	56.0	57.1	56.0	57.1	0.0	0.0
29	Block 392, Lot 1	58.7	61.3	58.7	61.3	0.0	0.0
30	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
31	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
32	Block 392, Lot 1	58.5	60.4	58.5	60.4	0.0	0.0
33	Block 392, Lot 1	63.1	64.2	63.1	64.2	0.0	0.0
34	Block 392, Lot 1	59.8	60.9	59.8	60.9	0.0	0.0
35	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
36	Block 392, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
37	Block 392, Lot 1	60.5	65.2	60.5	65.2	0.0	0.7
38	Block 392, Lot 1	59.6	62.2	59.6	62.2	0.0	0.9
39	Block 392, Lot 1	57.9	59.1	57.9	59.1	0.0	0.0
40	Block 393, Lot 1	64.8	66.2	64.8	66.2	0.0	0.0
41	Block 393, Lot 19	55.8	56.2	55.8	56.2	0.0	0.0
42	Block 393, Lot 38	60.4	62.3	60.4	62.3	0.0	0.0
43	Block 393, Lot 54	55.3	55.8	55.3	55.8	0.0	0.0
44	Block 394, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
45	Block 394, Lot 1	55.3	55.3	55.3	61.0	0.0	5.7
46	Block 395, Lot 1	66.5	66.5	66.5	66.6	0.0	0.1
47	Block 395, Lot 54	56.7	57.3	56.7	57.3	0.0	0.3
48	Block 934, Lot 1	67.5	68.5	67.5	68.5	0.0	0.0
49	Block 396, Lot 47	67.0	67.5	67.0	67.5	0.0	0.0

Table 20-18 (cont'd)
Projected Development Site 19 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
50	Block 397, Lot 7	66.0	67.0	66.0	67.0	0.0	0.0
51	Block 397, Lot 11	56.5	57.5	56.5	57.5	0.0	0.0
52	Block 397, Lot 11	55.3	55.3	55.3	55.3	0.0	0.0
53	Block 397, Lot 1	61.9	61.9	61.9	61.9	0.0	0.0
54	Block 397, Lot 7502	55.3	56.4	55.3	56.4	0.0	0.0
55	Block 397, Lot 37	62.4	62.4	62.4	62.4	0.0	0.0
56	Block 397, Lot 7504	59.9	60.9	59.9	60.9	0.0	0.0
57	Block 399, Lot 4	65.5	66.1	65.5	66.1	0.0	0.0
58	Block 399, Lot 24	55.3	55.6	55.3	55.7	0.0	0.1
59	Block 399, Lot 37	60.4	61.4	60.4	61.4	0.0	0.0
60	Block 399, Lot 45	61.9	62.0	61.9	62.0	0.0	0.0
61	Block 399, Lot 1	63.6	64.3	63.6	64.3	0.0	0.0
62	Block 394, Lot 1	56.2	60.1	56.2	60.1	0.0	0.2
63	Block 394, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
64	Block 394, Lot 1	55.3	55.9	55.3	63.8	0.0	8.3
65	Block 394, Lot 1	55.3	58.0	55.3	60.5	0.0	4.9
66	Block 394, Lot 1	55.3	55.3	55.3	62.2	0.0	6.9
67	Block 394, Lot 1	55.3	58.0	55.3	58.3	0.0	0.7
68	Block 394, Lot 1	60.9	65.5	60.9	65.5	0.0	0.2
69	Block 394, Lot 1	56.7	60.0	56.7	63.8	0.0	4.0
70	Block 401, Lot 1	64.0	64.8	64.0	65.4	0.0	1.1
71	Block 401, Lot 1	55.3	55.3	55.3	55.4	0.0	0.2
72	Block 401, Lot 1	55.3	55.4	55.3	55.5	0.0	0.1
73	Block 401, Lot 1	55.3	56.5	55.3	61.3	0.0	4.8
74	Block 401, Lot 7501	58.9	58.9	58.9	58.9	0.0	0.0
75	Block 401, Lot 41	66.5	70.0	66.5	70.0	0.0	0.0
76	Block 401, Lot 50	62.5	62.5	62.5	62.5	0.0	0.0
77	Block 937, Lot 7504	70.2	70.7	70.2	70.7	0.0	0.0
78	Block 937, Lot 7504	67.1	67.7	67.1	67.7	0.0	0.0
79	Block 402, Lot 44	67.0	67.4	67.0	67.4	0.0	0.0
80	Block 403, Lot 2	66.5	67.6	66.5	67.6	0.0	0.0
81	Block 403, Lot 28	60.0	61.4	60.0	61.4	0.0	0.0
82	Block 403, Lot 7508	57.0	61.4	57.0	61.4	0.0	0.0
83	Block 403, Lot 7508	55.3	56.4	55.3	56.4	0.0	0.0
84	Block 403, Lot 44	63.1	63.1	63.1	63.1	0.0	0.0
85	Block 403, Lot 65	62.4	63.3	62.4	63.3	0.0	0.0
86	Block 404, Lot 1	60.9	62.4	60.9	62.4	0.0	0.0
87	Block 404, Lot 1	57.0	60.5	57.0	60.5	0.0	0.0
88	Block 404, Lot 1	55.3	55.3	55.3	56.7	0.0	1.4
89	Block 404, Lot 1	55.3	55.3	55.3	56.8	0.0	1.5
90	Block 404, Lot 1	55.3	55.8	55.3	55.8	0.0	0.0
91	Block 404, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
92	Block 404, Lot 1	57.7	60.2	57.7	60.2	0.0	0.1
93	Block 404, Lot 1	65.0	67.4	65.0	67.4	0.0	0.0
94	Block 404, Lot 1	57.5	60.7	57.5	61.1	0.0	0.6
95	Block 404, Lot 1	55.3	56.9	55.3	58.5	0.0	2.0
96	Block 404, Lot 1	55.3	55.3	55.3	55.4	0.0	0.1
97	Block 404, Lot 1	59.6	61.8	59.6	61.8	0.0	0.0
98	Block 404, Lot 1	65.3	66.3	65.3	66.3	0.0	0.0
99	Block 404, Lot 1	63.9	65.2	63.9	65.2	0.0	0.0

Table 20-18 (cont'd)
Projected Development Site 19 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
100	Block 404, Lot 1	57.6	60.1	57.6	60.2	0.0	0.1
101	Block 404, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
102	Block 404, Lot 1	56.2	59.4	56.2	59.4	0.0	0.1
103	Block 404, Lot 1	63.0	65.3	63.0	65.3	0.0	0.5
104	Block 404, Lot 1	57.6	59.3	57.6	60.7	0.0	1.5
105	Block 404, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
106	Block 404, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
107	Block 404, Lot 1	55.3	55.3	55.3	55.3	0.0	0.1
108	Block 404, Lot 1	55.3	57.7	55.3	58.7	0.0	1.9
109	Block 404, Lot 1	55.3	55.3	55.3	57.5	0.0	2.2
110	Block 404, Lot 1	55.3	55.3	55.3	56.6	0.0	1.4
111	Block 404, Lot 1	60.6	61.9	60.6	61.9	0.0	0.0
112	Block 404, Lot 1	55.3	57.2	55.3	57.2	0.0	0.0
113	Block 404, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
114	Block 404, Lot 1	55.3	55.3	55.3	55.3	0.0	0.0
115	Block 404, Lot 1	55.3	57.3	55.3	57.3	0.0	0.0
116	Block 404, Lot 1	60.1	61.7	60.1	62.0	0.0	0.3
117	Block 404, Lot 1	55.3	56.0	55.3	56.0	0.0	0.0
118	Block 404, Lot 1	55.3	55.3	55.3	56.9	0.0	1.6
119	Block 404, Lot 1	56.2	57.3	56.2	58.3	0.0	1.1
120	Block 405, Lot 5	66.8	68.2	66.8	68.2	0.0	0.0
121	Block 405, Lot 10	62.6	63.3	62.6	63.3	0.0	0.0
122	Block 405, Lot 19	59.9	61.6	59.9	61.6	0.0	0.1
123	Block 405, Lot 19	55.3	55.3	55.3	58.0	0.0	2.7
124	Block 405, Lot 1	64.8	65.2	64.8	65.2	0.0	0.0
125	Block 406, Lot 18	55.3	55.3	55.3	55.6	0.0	0.3
126	Block 406, Lot 67	60.5	61.6	60.5	68.1	0.0	6.7
127	Block 406, Lot 52	66.7	66.7	66.7	67.9	0.0	1.2
128	Block 406, Lot 71	63.5	63.5	63.5	63.6	0.0	0.1
129	Block 407, Lot 7	60.6	61.4	60.6	63.3	0.0	1.9
130	Block 407, Lot 7	55.3	58.2	55.3	62.5	0.0	4.3
131	Block 940, Lot 111	68.8	70.9	68.8	70.9	0.0	0.4
132	Block 940, Lot 111	60.8	61.9	60.8	61.9	0.0	0.0
133	Block 940, Lot 111	64.0	65.0	64.0	65.0	0.0	0.0
134	Block 408, Lot 36	62.8	63.6	62.8	63.6	0.0	0.0
135	Block 408, Lot 38	66.4	67.5	66.4	67.5	0.0	0.0
136	Block 408, Lot 45	57.5	58.9	57.5	58.9	0.0	0.0
137	Block 409, Lot 5	66.6	67.1	66.6	67.1	0.0	0.0
138	Block 409, Lot 16	61.9	62.6	61.9	62.6	0.0	0.0
139	Block 409, Lot 31	62.7	63.1	62.7	63.1	0.0	0.0
140	Block 409, Lot 38	61.5	62.7	61.5	62.7	0.0	0.0
141	Block 409, Lot 45	55.8	56.2	55.8	56.3	0.0	0.1
142	Block 409, Lot 59	56.7	56.9	56.7	56.9	0.0	0.0
143	Block 411, Lot 2	65.7	66.5	65.7	66.5	0.0	0.0
144	Block 411, Lot 8	63.1	63.6	63.1	63.6	0.0	0.0
145	Block 411, Lot 1	57.5	59.4	57.5	61.2	0.0	1.8
146	Block 413, Lot 15	62.1	63.1	62.1	63.2	0.0	0.4
147	Block 413, Lot 7501	55.3	56.7	55.3	63.9	0.0	7.8
148	Block 413, Lot 7501	55.3	64.5	55.3	64.5	0.0	1.1
149	Block 413, Lot 7501	67.4	70.3	67.4	70.3	0.0	0.3

Table 20-18 (cont'd)
Projected Development Site 19 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
150	Block 413, Lot 7501	55.3	64.2	55.3	66.0	0.0	2.9
151	Block 413, Lot 42	70.0	70.8	70.0	70.8	0.0	0.0
152	Block 413, Lot 33	60.0	61.3	60.0	61.4	0.0	0.1
153	Block 413, Lot 65	57.5	58.5	57.6	67.4	0.1	8.9
154	Block 943, Lot 4	70.1	70.6	70.1	70.6	0.0	0.0
155	Block 943, Lot 11	63.1	65.1	63.1	65.1	0.0	0.0
156	Block 943, Lot 75	59.8	61.4	59.8	61.4	0.0	0.0
157	Block 414, Lot 35	59.8	61.3	59.8	61.3	0.0	0.0
158	Block 414, Lot 38	66.4	67.5	66.4	67.5	0.0	0.0
159	Block 414, Lot 46	56.9	58.2	56.9	58.2	0.0	0.0
160	Block 415, Lot 5	66.9	67.5	66.9	67.5	0.0	0.0
161	Block 415, Lot 18	55.3	55.8	55.3	55.8	0.0	0.0
162	Block 415, Lot 37	56.5	57.1	56.5	57.1	0.0	0.0
163	Block 415, Lot 43	63.1	63.7	63.1	63.7	0.0	0.0
164	Block 415, Lot 51	57.6	58.0	57.6	58.0	0.0	0.0
165	Block 415, Lot 7501	57.9	58.2	57.9	58.2	0.0	0.0
166	Block 416, Lot 1	63.5	64.2	63.5	64.2	0.0	0.0
167	Block 416, Lot 9	63.9	63.9	63.9	63.9	0.0	0.0
168	Block 416, Lot 12	55.5	56.5	55.5	56.5	0.0	0.0
169	Block 416, Lot 25	55.3	55.3	55.3	55.3	0.0	0.0
170	Block 416, Lot 36	58.6	59.9	58.6	59.9	0.0	0.0
171	Block 416, Lot 40	67.3	67.4	67.3	67.4	0.0	0.1
172	Block 416, Lot 7501	67.0	67.3	67.0	67.4	0.0	0.1
173	Block 416, Lot 7501	59.2	60.0	59.2	60.3	0.0	0.3
174	Block 416, Lot 56	56.7	57.3	56.7	57.4	0.0	0.1
175	Block 416, Lot 17	55.4	57.2	55.4	57.5	0.0	0.3
176	Block 419, Lot 1	55.3	55.3	55.8	70.4	0.6	15.2
177	Block 419, Lot 1	55.9	55.9	56.4	74.5	0.5	18.6
178	Block 420, Lot 23	57.1	57.5	57.1	59.0	0.0	1.7
179	Block 420, Lot 31	59.8	61.4	59.8	62.4	0.0	1.0
180	Block 420, Lot 45	58.0	59.6	58.0	61.5	0.0	3.3
181	Block 420, Lot 58	56.5	57.3	56.6	67.0	0.1	10.5
182	Block 946, Lot 9	69.8	70.3	69.8	70.3	0.0	0.0
183	Block 941, Lot 11	62.6	64.6	62.6	64.6	0.0	0.0
184	Block 421, Lot 7501	56.0	56.8	56.0	56.8	0.0	0.0
185	Block 421, Lot 7501	55.3	55.3	55.3	55.3	0.0	0.0
186	Block 421, Lot 38	66.5	67.6	66.5	67.6	0.0	0.0
187	Block 421, Lot 47	56.2	57.1	56.2	57.1	0.0	0.1
188	Block 422, Lot 8	67.1	67.6	67.1	67.6	0.0	0.0
189	Block 422, Lot 20	57.3	57.8	57.3	57.8	0.0	0.0
190	Block 422, Lot 35	57.9	58.4	57.9	58.4	0.0	0.0
191	Block 422, Lot 40	63.1	63.9	63.1	63.9	0.0	0.0
192	Block 422, Lot 47	55.8	57.0	55.8	57.1	0.0	0.1
193	Block 422, Lot 67	55.3	55.8	55.3	55.9	0.0	0.1
194	Block 423, Lot 1	59.9	63.1	59.9	63.1	0.0	0.0
195	Block 423, Lot 16	57.3	57.6	57.3	57.6	0.0	0.0
196	Block 423, Lot 29	57.3	57.6	57.3	57.6	0.0	0.0
197	Block 423, Lot 41	62.7	63.2	62.7	63.2	0.0	0.0
198	Block 423, Lot 43	58.1	59.9	58.1	60.0	0.0	0.1
199	Block 423, Lot 56	55.3	55.3	55.3	55.5	0.0	0.3

Table 20-18 (cont'd)
Projected Development Site 19 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
200	Block 423, Lot 1	55.3	55.4	55.3	55.7	0.0	0.4
201	Block 426, Lot 41	57.5	57.5	58.6	68.6	1.1	11.1
202	Block 427, Lot 17	55.3	55.3	55.3	58.4	0.1	3.2
203	Block 427, Lot 17	57.1	57.4	57.2	68.3	0.1	11.2
204	Block 427, Lot 37	61.7	64.3	61.7	64.3	0.0	0.0
205	Block 427, Lot 37	69.8	70.4	69.8	70.4	0.0	0.0
206	Block 427, Lot 46	69.9	70.6	69.9	70.6	0.0	0.0
207	Block 427, Lot 47	59.9	63.5	60.0	64.0	0.1	1.3
208	Block 949, Lot 7506	67.4	70.6	67.4	70.6	0.0	0.1
209	Block 949, Lot 11	64.1	65.5	64.1	65.5	0.0	0.1
210	Block 949, Lot 7502	62.8	63.5	62.8	63.5	0.0	0.0
211	Block 428, Lot 32	59.1	60.5	59.1	60.5	0.0	0.1
212	Block 428, Lot 36	67.2	67.7	67.2	67.7	0.0	0.0
213	Block 428, Lot 7502	63.2	64.9	63.2	64.9	0.0	0.0
214	Block 429, Lot 8	67.0	67.5	67.0	67.5	0.0	0.0
215	Block 429, Lot 21	55.3	55.3	55.3	55.4	0.0	0.1
216	Block 429, Lot 38	57.3	58.2	57.4	58.4	0.0	0.3
217	Block 429, Lot 41	63.2	63.4	63.2	63.4	0.0	0.0
218	Block 430, Lot 51	61.6	62.8	61.6	62.8	0.0	0.0
219	Block 430, Lot 4	62.8	63.2	62.8	63.2	0.0	0.0
220	Block 430, Lot 14	55.3	55.4	55.5	56.1	0.2	0.7
221	Block 430, Lot 31	55.8	56.6	56.2	57.5	0.2	1.2
222	Block 430, Lot 36	66.1	66.6	66.1	66.6	0.0	0.0
223	Block 430, Lot 52	64.7	64.9	64.7	64.9	0.0	0.0
224	Block 430, Lot 72	64.4	64.7	64.4	64.7	0.0	0.0
225	Block 431, Lot 6	66.4	66.6	66.4	66.6	0.0	0.0
226	Block 431, Lot 1	65.8	66.9	65.8	66.9	0.0	0.0
227	Block 431, Lot 1	65.1	66.0	65.1	66.0	0.0	0.1
228	Block 432, Lot 25	56.5	57.7	58.4	65.3	1.7	7.7
229	Block 432, Lot 25	61.8	62.8	62.4	66.6	0.1	4.8
230	Block 432, Lot 7501	55.3	55.3	55.4	56.3	0.2	1.1
231	Block 432, Lot 7501	62.5	63.3	62.6	66.1	0.0	3.2
232	Block 432, Lot 7501	63.0	63.6	63.0	63.7	0.0	0.1
233	Block 433, Lot 9	62.2	62.7	62.6	65.1	0.2	2.9
234	Block 433, Lot 10	56.9	57.9	60.1	68.1	3.1	10.2
235	Block 433, Lot 51	55.3	55.3	56.4	60.3	1.2	5.1
236	Block 433, Lot 26	56.1	57.2	65.5	78.6	9.4	21.4
237	Block 433, Lot 52	63.4	63.9	63.5	66.2	0.1	2.4
238	Block 434, Lot 16	55.3	58.3	55.4	59.1	0.1	2.0
239	Block 434, Lot 16	60.4	62.2	60.4	62.3	0.0	0.1
240	Block 434, Lot 57	55.3	55.6	55.4	56.0	0.1	0.4
241	Block 434, Lot 49	55.3	55.3	55.4	56.4	0.1	1.1
242	Block 434, Lot 49	56.5	62.4	56.6	62.5	0.0	0.3
243	Block 434, Lot 49	63.3	64.2	63.3	64.2	0.0	0.1
244	Block 952, Lot 2	70.0	70.6	70.0	70.6	0.0	0.0
245	Block 952, Lot 13	62.7	63.2	62.7	63.3	0.0	0.1
246	Block 952, Lot 68	63.7	64.4	63.7	64.4	0.0	0.0
247	Block 435, Lot 25	64.3	64.6	64.3	64.6	0.0	0.0
248	Block 435, Lot 30	65.1	65.9	65.1	65.9	0.0	0.0
249	Block 435, Lot 40	57.9	58.2	57.9	58.2	0.0	0.0

Table 20-18 (cont'd)
Projected Development Site 19 Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
250	Block 436, Lot 5	66.5	66.9	66.5	66.9	0.0	0.0
251	Block 436, Lot 17	61.5	62.8	61.5	62.8	0.0	0.0
252	Block 436, Lot 35	61.7	63.0	61.7	63.0	0.0	0.0
253	Block 436, Lot 54	55.3	55.5	55.3	55.5	0.0	0.0
254	Block 436, Lot 62	55.3	55.3	55.3	55.3	0.0	0.0
255	Block 437, Lot 1	62.5	63.2	62.5	63.2	0.0	0.0
256	Block 437, Lot 1	61.8	63.0	61.8	63.0	0.0	0.0
257	Block 437, Lot 33	64.6	65.0	64.6	65.0	0.0	0.0
258	Block 437, Lot 36	65.6	66.8	65.6	66.8	0.0	0.1
259	Block 437, Lot 45	60.5	60.5	60.5	60.5	0.0	0.0
260	Block 437, Lot 50	55.3	55.3	55.3	55.3	0.0	0.1
261	Block 440, Lot 23	62.9	62.9	62.9	63.1	0.0	0.2
262	Block 440, Lot 32	64.0	65.2	64.0	66.2	0.0	1.8
263	Block 440, Lot 34	67.7	68.5	67.7	68.6	0.0	0.2
264	Block 440, Lot 39	68.1	68.5	68.1	68.6	0.0	0.1
265	Block 440, Lot 44	62.3	62.9	62.3	63.0	0.0	0.1
266	Block 441, Lot 6	67.4	68.2	67.4	68.3	0.0	0.1
267	Block 441, Lot 10	63.1	63.8	63.1	63.9	0.0	0.1
268	Block 441, Lot 29	65.5	66.5	65.5	66.5	0.0	0.0
269	Block 441, Lot 31	69.7	70.4	69.7	70.4	0.0	0.0
270	Block 955, Lot 7506	59.7	63.6	59.7	63.6	0.0	0.0
271	Block 955, Lot 7506	66.3	70.7	66.3	70.7	0.0	0.1
272	Block 955, Lot 7502	65.2	66.7	65.2	66.7	0.0	0.0
273	Block 444, Lot 6	61.9	62.4	61.9	62.4	0.0	0.0
274	Block 444, Lot 7501	58.0	59.0	58.0	59.0	0.0	0.0
275	Block 444, Lot 7502	63.2	66.2	63.2	66.2	0.0	0.0
276	Block 444, Lot 7503	57.1	57.7	57.1	57.7	0.0	0.0
277	Block 438, Lot 7	65.3	65.7	65.3	65.7	0.0	0.0
278	Block 438, Lot 7	57.6	59.3	57.6	59.4	0.0	0.2
279	Block 447, Lot 3	55.3	56.7	55.3	56.9	0.1	0.3
280	Block 447, Lot 15	61.9	62.3	61.9	62.3	0.0	0.0
281	Block 447, Lot 24	61.9	62.3	61.9	63.9	0.0	1.6
282	Block 447, Lot 31	57.6	57.6	57.7	59.2	0.1	1.6
283	Block 447, Lot 374	68.0	68.5	68.0	68.5	0.0	0.0
284	Block 447, Lot 39	61.7	63.0	61.7	63.0	0.0	0.0
285	Block 447, Lot 56	60.9	61.7	60.9	61.7	0.0	0.0
286	Block 448, Lot 7	67.6	68.0	67.6	68.0	0.0	0.0
287	Block 448, Lot 13	61.9	62.1	61.9	62.1	0.0	0.0
288	Block 448, Lot 34	68.7	69.7	68.7	69.7	0.0	0.0
289	Block 488, Lot 66	61.4	61.8	61.4	61.8	0.0	0.0
290	Block 958, Lot 7	65.3	67.7	65.3	67.7	0.0	0.0
291	Block 958, Lot 17	62.3	63.3	62.3	63.3	0.0	0.0
292	Block 958, Lot 1	64.8	67.0	64.8	67.0	0.0	0.0

CONSTRUCTION NOISE ANALYSIS ASSESSMENT

Using the methodology described above and considering the noise abatement measures for source and path controls to satisfy DEP's *Rules for Citywide Construction Noise Mitigation* specified above, cumulative noise analyses were performed to determine maximum 1-hour equivalent

($L_{eq(1)}$) noise levels that would be expected to occur during each of the major construction stages of Projected Development Sites 47, 15, and 19.

For impact determination purposes, the significance of adverse noise impacts is determined based on whether predicted incremental noise levels at sensitive receptor locations would be greater than the noise impact threshold criteria for an extended period of time as described above in "Construction Noise Impact Criteria." While increases exceeding the noise impact threshold criteria for short periods of time may be noisy and intrusive, they are not considered to be significant adverse noise impacts using the *CEQR Technical Manual* methodology unless they reach the "very objectionable" or "objectionable" categories.

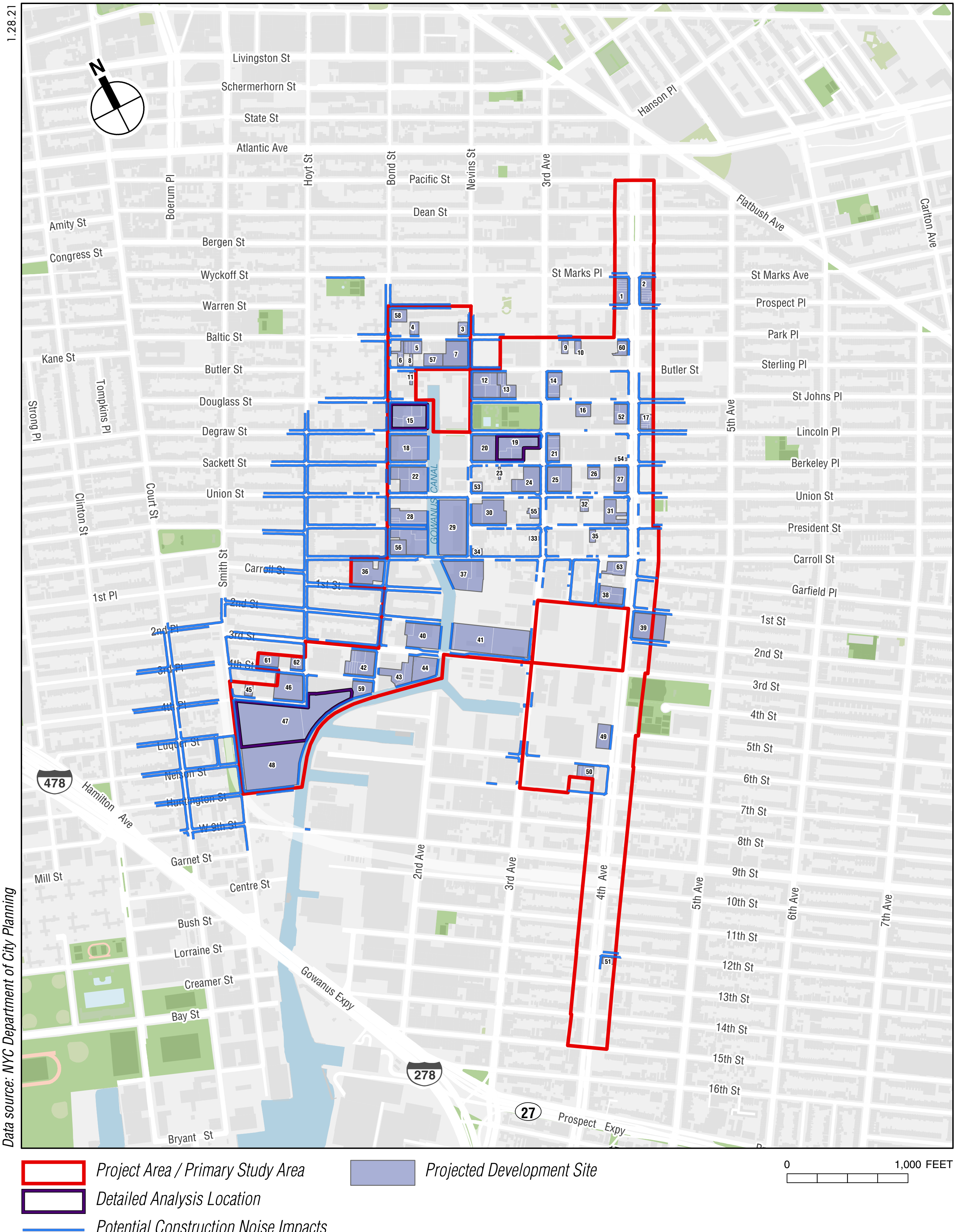
Based on the construction stage predicted to occur at each development site according to the conceptual construction schedule during each of the selected analysis periods, each receptor expected to an experience exceedance of the *CEQR Technical Manual* noise impact threshold or the objectionable or very objectionable thresholds was determined for each period. One peak construction period per year was analyzed, from 2021 to 2035. Based on these determinations, receptors were identified where noise level increases are predicted to exceed the noise impact threshold criteria for two or more consecutive years, exceed the objectionable threshold for one year or more, or exceed the very objectionable threshold for three months or more.

The construction noise analysis results show that the predicted noise levels could result in significant adverse impacts throughout the Project Area and beyond. **Figure 20-2** shows where receptor locations are predicted to experience noise level increases during construction that would constitute significant impacts based on the analysis and criteria discussed above.

At locations predicted to experience an exceedance of the noise impact threshold criteria, the exceedances would be due principally to noise generated by on-site construction activities (rather than construction-related traffic). As previously discussed, this noise analysis examined the reasonable worst-case peak hourly noise levels that would result from construction in an analyzed month, and consequently is conservative in predicting significant increases in noise levels. Typically, the loudest hourly noise level during each month of construction would not persist throughout the entire month. Furthermore, this analysis is based on conceptual site plans and construction schedules. It is possible that the actual construction may be of less magnitude, or that construction on multiple projected development sites may not overlap, in which case construction noise would be less intense than the analysis predicts.

CONSTRUCTION NOISE AT COMPLETED AND OCCUPIED DEVELOPMENT SITES

Since certain projected and potential buildings are expected to include noise-sensitive uses (e.g., residential, community facility) that may be exposed to construction noise (i.e., when a building is completed and occupied, but other development under the Proposed Actions is still under construction), the amount of noise exposure at these buildings during construction is also considered. Consistent with *CEQR Technical Manual* guidance, noise exposure is evaluated using the $L_{10(1)}$ noise level. **Table 20-19** shows the maximum predicted construction noise exposure during each phase of construction for each of the representative projected development sites included in the detailed construction noise analysis.



Construction Noise Impacts

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 20-2

Table 20-19
Maximum Construction L_{10} Noise Levels (in dBA)

Projected Development Site	Demolition, Excavation, and Foundation Construction	Superstructure and Exteriors Construction	Interior Fit Out
47[1]	80.1	87.6	78.7
15	83.4	81.4	73.9
19	86.7	86.2	

Notes:
[1] At Projected Development Site 47, construction noise levels were calculated during various representative months during the construction schedule that capture the various construction phases at each of the multiple buildings to be constructed on this site, along with key overlaps between phases of construction of the multiple buildings to be constructed on this site.

As shown in **Table 20-19**, construction would have the potential to result in noise levels greater than 80 dBA, i.e., in the "clearly unacceptable" category according to *CEQR Technical Manual* noise exposure guidelines during some phases of construction as would be typical of construction in New York City immediately adjacent to an occupied receptor. This would only occur when the most noise-intensive construction activities occur immediately adjacent to completed and occupied development sites and existing receptors. Based on the 25 to 31 dBA window/wall attenuation that would be provided at these affected sites in accordance with the noise attenuation measures specified in Table 17-10 of Chapter 17, "Noise," interior noise levels would have the potential to exceed the 45 dBA interior noise level recommended for residential use according to CEQR noise exposure guidance by up to approximately 18 dBA. These exceedances would be intermittent and temporary, and would not occur during the nighttime hour when residences are most sensitive to noise. Such noise exposure would only have the potential to occur when it is immediately adjacent to a sensitive receptor and during the most noise-intensive portions of demolition, excavation, foundation, superstructure, and exterior construction. For any individual development site, the maximum duration of these construction phases would be 18 months.

Based on the prediction of construction noise levels up to the high 80s dBA, i.e., in the "clearly unacceptable" category according to CEQR noise exposure guidance, and interior noise levels up to 18 dBA higher than the acceptable threshold for residential use, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at any completed and occupied projected development sites immediately adjacent to another site under construction. At occupied developments not immediately adjacent to construction activities, or during less noise-intensive periods of construction, noise exposure would be up to the high 70s dBA, i.e., in the "acceptable" to "marginally unacceptable" range. During these times, even with the 25 to 31 dBA window/wall attenuation that would be provided by development on these development sites per the noise attenuation measures specified in Table 17-10 of Chapter 17, "Noise," interior noise levels would have the potential to exceed the 45 dBA interior noise level recommended for residential use according to CEQR noise exposure guidance by up to approximately 9 dBA during demolition, excavation, foundation, superstructure, and exteriors construction and up to approximately 2 dBA during interior fit-out activities. These exceedances would be intermittent and temporary, and would also not occur during the nighttime hour when residences are most sensitive to noise. However, due to the spacing and configuration of the development sites and the potential for construction to occur in a sequencing other than the conceptual schedule assumed for the purposes of the construction noise analysis, the potential for significant adverse construction noise impacts would exist at all of the projected development sites. Any of these sites could be completed and occupied during construction on an adjacent site, which would potentially result in a significant adverse construction noise impact.

As with the existing receptors, the predicted exceedances of acceptable noise levels at the completed and occupied development sites would be due principally to noise generated by on-site construction activities (rather than construction-related traffic). As previously discussed, this noise analysis examined the reasonable worst-case peak hourly noise levels that would result from construction in an analyzed month, and consequently is conservative in predicting significant increases in noise levels. Typically, the loudest hourly noise level during each month of construction would not persist throughout the entire month. In addition, this analysis is based on conceptual site plans and construction schedules. It is possible that the actual construction may be of less magnitude, or that a site would not be completed and occupied during construction immediately adjacent, in which case the site would not experience the predicted levels of construction noise.

VIBRATION

INTRODUCTION

Construction activities have the potential to result in vibration levels that may result in structural or architectural damage, and/or annoyance or interference with vibration-sensitive activities. Vibratory levels at a receiver are a function of the source strength (which is dependent upon the construction equipment and methods utilized), the distance between the equipment and the receiver, the characteristics of the transmitting medium, and the receiver building construction. Construction equipment operation causes ground vibrations which spread through the ground and decrease in strength with distance. Vehicular traffic, even in locations close to major roadways, typically does not result in perceptible vibration levels unless there are discontinuities in the roadway surface. With the exception of the case of fragile and possibly historically significant structures or buildings, construction activities generally do not reach the levels that can cause architectural or structural damage, but can achieve levels that may be perceptible and annoying in buildings very close to a construction site. An assessment has been prepared to quantify potential vibration impacts of construction activities on structures and residences near the project site.

CONSTRUCTION VIBRATION CRITERIA

For purposes of assessing potential structural or architectural damage, the determination of a significant impact was based on the vibration impact criterion used by LPC of a PPV of 0.50 inches/second as specified in the DOB TPPN #10/88. For non-fragile buildings, vibration levels between 0.5 inches/second and 2.0 inches/second would typically not be expected to result in any structural or architectural damage.

For purposes of evaluating potential annoyance or interference with vibration-sensitive activities, vibration levels greater than 65 VdB would have the potential to result in significant adverse impacts if they were to occur for a prolonged period of time.

ANALYSIS METHODOLOGY

For purposes of assessing potential structural or architectural damage, the following formula was used:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where: PPV_{equip} is the peak particle velocity in in/sec of the equipment at the receiver location;

PPV_{ref} is the reference vibration level in in/sec at 25 feet; and

D is the distance from the equipment to the received location in feet.

For purposes of assessing potential annoyance or interference with vibration sensitive activities, the following formula was used:

$$L_v(D) = L_v(ref) - 30\log(D/25)$$

where: $L_v(D)$ is the vibration level in VdB of the equipment at the receiver location;

Lv(ref) is the reference vibration level in VdB at 25 feet; and

D is the distance from the equipment to the receiver location in feet.

Table 20-20 shows vibration source levels for typical construction equipment.

Table 20-20
Vibration Source Levels for Construction Equipment

Equipment		PPV_{ref} (in/sec)	Approximate L_v (ref) (VdB)
Pile Driver (impact)	Upper Range	1.518	112
	Typical	0.644	104
Bulldozer		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79

Source: *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

The source vibration levels shown in **Table 20-20** were projected to nearby receptors to estimate the levels of construction vibration that would occur in the study area.

CONSTRUCTION VIBRATION ANALYSIS RESULTS

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are historic buildings (see **Table 7-8** in Chapter 7, "Historic and Cultural Resources" for a list of historic structures) and NYCT structures immediately adjacent to the Projected Development Sites. Vibration levels at these buildings and structures within 55 feet of a Projected Development Site may exceed the 0.50 in/sec PPV during pile driving. Since these historic buildings and structures would be within 90 feet of the Projected Development Sites, vibration monitoring would be required per NYCDOB TPPN #10/88 regulations, and PPV during construction would be prohibited from exceeding the 0.50 inches/second threshold. Additionally, projected or potential development sites within 90 feet of the IND Subway Viaduct developed in accordance with HPD requirements would be required to implement a CPP to protect from inadvertent construction-related damage, which would also prohibit vibration in excess of 0.50 inches/second.

For non-historic buildings and other structures immediately adjacent to projected development sites, vibration levels within 25 feet may result in PPV levels between 0.50 and 2.0 in/sec, which is generally considered acceptable for a non-historic building or structure.

In terms of potential vibration levels that would be perceptible and annoying, the equipment that would have the most potential for producing levels that exceed the 65 VdB limit is also the pile driver. It would have the potential to produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within a distance of approximately 550 feet depending on soil conditions. However, the operation would only occur for limited periods of time at a particular location and therefore would not result in any significant adverse impacts.

Consequently, there is no potential for significant adverse vibration impacts under the Proposed Actions.

OTHER TECHNICAL AREAS

LAND USE AND NEIGHBORHOOD CHARACTER

According to the *CEQR Technical Manual*, a construction impact analysis for land use and neighborhood character is typically needed if construction requires continuous use of property for an extended duration, thereby having the potential to affect that land use and/or neighborhood character. A land use and neighborhood character assessment for construction impacts examines construction activities at a site (or portions of the site) and the duration. The analysis determines whether the type and duration of the activities would affect neighborhood land use patterns or neighborhood character. For example, a single property might be used for staging for several years, resulting in a "land use" that is industrial in nature. Depending upon the types of land uses in the surrounding area, the use of a single piece of property for an extended duration and its compatibility with surrounding properties may be assessed to determine whether it would have a significant adverse impact on the surrounding land uses or neighborhood character.

Construction of the 63 projected development sites would be spread out over a period of approximately 14 years, throughout an approximately 82-block rezoning area. As noted above, construction of most of the projected development sites (47 sites) would be short-term (i.e., lasting up to 24 months). Construction activities resulting from the Proposed Actions would affect land use on the development sites, but would not alter surrounding land uses. As is typical with construction projects, during periods of construction there would be some disruption, predominantly noise, in the immediate vicinity of these sites. There would also be construction trucks and construction workers travelling to the various development sites. There would also be noise, sometimes intrusive, from building construction as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary with limited effects on land uses in the study area, particularly as most construction activities are located within each of the development sites or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to these sites.

Throughout the construction period, as required by city regulations, access to residences, businesses, and institutions in the area surrounding the development sites must be maintained. In addition, as discussed in details above in "Air Quality" and "Noise and Vibration," measures would be implemented to control air pollutant emissions, noise, and vibration on construction sites. While construction of the new buildings under the Proposed Actions would cause temporary disruption, particularly related to noise, it is expected that such effects in any given area would be relatively short in duration, even under the worst-case construction sequencing and, therefore, would not create a neighborhood character impact. Therefore, no significant adverse construction impacts to land use and neighborhood character are expected.

SOCIOECONOMIC CONDITIONS

According to the *CEQR Technical manual,* construction impacts on socioeconomic conditions are possible if the Proposed Action would involve construction of a long duration that could affect access to and the viability of businesses, and if the failure of those businesses has the potential to affect neighborhood character.

Construction could, in some instances, temporarily affect pedestrian and vehicular access on street frontages immediately adjacent to the development sites. However, lane and/or sidewalk closures are expected to be of very limited duration, and would not restrict access to any existing or planned retail businesses (i.e., alternative access routes need to be provided). Utility service would also be maintained to all businesses, although there may be very short-term interruptions (i.e., hours) when new equipment (e.g., a transformer, or a sewer or water line) is put into operation. Overall, construction resulting from the Proposed Actions is not expected to result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services. Construction activities would also create indirect benefits created by expenditures by materials suppliers, construction workers, and other employees at the project sites. Construction would also contribute to increased tax revenues for New York City and State, including those from personal income taxes.

COMMUNITY FACILITIES

According to the *CEQR Technical Manual*, construction impacts to community facilities are possible if a community facility were directly affected by construction (e.g., if construction would disrupt services provided at the facility or close the facility temporarily, etc.).

The construction sites would be surrounded by construction fencing and barriers that would limit the impacts of construction on nearby community facilities. Construction of the projected buildings would not block or restrict access to any facilities in the area, and would not affect emergency response times of the New York City Police Department (NYPD) and FDNY given the geographic distribution of the police and fire facilities and their respective coverage areas. Therefore, no construction impacts would be expected to community facilities as a result of the Proposed Actions.

OPEN SPACE

According to the *CEQR Technical Manual*, construction impacts to open space are possible if the open space is taken out of service for a period of time during the construction process. As described in Chapter 5, “Open Space,” there are no publicly accessible open spaces on any of the projected development sites. While several of the projected development sites are located close to existing open space resources, no open space resources are located on any of the projected development sites, nor would any access to publicly accessible open space be impeded during construction within the rezoning area. In addition, measures would be implemented to control air emissions, dust, noise, and vibration on the construction sites. While construction under the Proposed Actions may cause temporary disruptions to the community, particularly related to noise, it is expected that such disruptions in any given area would be temporary and would not be ongoing for the full duration of the construction period. Therefore, no significant construction impacts are anticipated on open space.

HISTORIC AND CULTURAL RESOURCES

A detailed assessment of potential impacts on historic and cultural resources (including both archaeological and architectural resources) is described in Chapter 7, "Historic and Cultural Resources." This section summarizes the potential for significant adverse impacts on historic and cultural resources as presented in Chapter 7, "Historic and Cultural Resources."

The Proposed Actions would result in direct and indirect significant adverse impacts to the State and National Registers of Historic Places (S/NR)-eligible Gowanus Canal Historic District. In addition, the Proposed Actions may result in construction-related impacts to contributing properties located within the boundaries of the S/NR-Eligible Gowanus Canal Historic District if the proper vibration protection measures are not used during construction. . As described in greater detail Chapter 7, "Historic and Cultural Resources," the Proposed Actions would also result in significant adverse impacts on archaeological resources. The projected and potential development sites may be archaeologically sensitive for resources associated with the Gowanus Canal bulkhead and associated landfill; 19th century shaft features; and/or evidence associated with milling or agricultural activities dating between the 17th and 19th centuries, including evidence of the role of forced labor and enslavement as they related to those efforts. The Project Area was determined to have low sensitivity for precontact archaeological resources, some of which may be deeply buried; evidence of industrial uses in the 19th and 20th centuries; and for human remains associated with the Revolutionary War or with homestead burial grounds.

HAZARDOUS MATERIALS

As discussed in greater detail in Chapter 10, "Hazardous Materials," the potential for significant adverse impacts related to hazardous materials resulting from the Proposed Actions would be precluded through compliance with existing regulatory requirements (for the hazardous materials in the structures) and with the placement of (E) designations or comparable institutional controls for all development under private ownership.

An (E) designation for hazardous materials would require that prior to change of use or redevelopment of a site requiring ground disturbance, that the owner of the site conduct a Phase I Environmental Site Assessment (ESA), subsurface testing and remediation, as needed, to the satisfaction of the Mayor's Office of Environmental Remediation (OER). (E)-designated sites for which there is an application for DOB permits associated with a change of use or ground disturbance cannot be issued without OER approval. The (E) designation requirements would therefore ensure the protection of human health and the environment from known or suspected hazardous materials

For the City-owned sites under the jurisdiction of HPD, (Block 471, Lots 1 and 100 and Block 1028, Lot 7), it is expected that measures that would require testing and remediation would be included as part of the land disposition agreements (LDA), restrictive declarations (RD), or comparable binding mechanisms between the City of New York and a developer, and would require measures similar to those required by an (E) Designation. Development of certain sites may require coordination with DEC and EPA, as necessary. For the proposed new parkland on Block 471, similar measures addressing requirements for subsurface disturbance and any necessary remedial activities would be conducted in accordance with NYC Parks procedures, with other agency involvement, as required. ✷