PARK AVENUE BROOKLYN REZONING
Chapter 14: Construction

A. INTRODUCTION

This chapter describes the preliminary construction plans for the reasonable worst-case development scenario (RWCDS) buildings and assesses the potential for the Proposed Actions to result in significant adverse construction impacts in accordance with 2025 *City Environmental Quality Review (CEQR) Technical Manual* guidance. Construction impacts, although temporary, can include noticeable and disruptive effects from an action that is associated with construction, or could induce construction. Determination of the significance of construction impacts and the need for mitigation are generally based on the duration and magnitude of the impacts. Construction impacts are usually important when construction activity could affect transportation conditions, hazardous materials, archaeological resources, the integrity of historic resources, community noise patterns, and/or air quality conditions.

As discussed in **Chapter 1, "Project Description,"** approval of the Proposed Actions would facilitate the redevelopment of 12 Projected Development Sites within the Project Area. Overall, the total RWCDS for the Proposed Actions would result in a total of 483 dwelling units (DUs), including 124 affordable units pursuant to the Applicant's proposed MIH Option 1, 244,088 gross square feet (gsf) of private school space, 80,155 gsf of local retail space, 11,590 gsf of medical office space, and 151 accessory parking spaces (the With-Action condition) on the 12 Projected Development Sites. Compared to No-Action conditions, the total RWCDS for the Proposed Actions would result in an incremental (net) increase of approximately 481 DUs, including 124 affordable units pursuant to MIH Option 1, 201,838 gsf of private school space, 28,505 gsf of local retail space, and net decreases of approximately 40,250 gsf of medical office space, 17,969 gsf of office space, 11,400 gsf of warehouse space, 5,000 gsf of house of worship space, as well as a net decrease of 100 parking spaces.

In addition to the Projected Development Sites, the RWCDS includes two other potential development sites (Potential Development Sites A and B) according to the criteria set forth by the 2025 *CEQR Technical Manual*. In accordance with *CEQR Technical Manual* guidance, this Environmental Impact Statement (EIS) document analyzes the Projected Development Sites for all technical areas of concern but will only evaluate the effects of the Potential Development Sites for site-specific effects. As construction is not considered site-specific per *CEQR Technical Manual* guidance, an analysis of construction is not provided for the two Potential Development Sites.

According to the *CEQR Technical Manual*, construction duration is often broken down into short-term (less than two years) and long-term (two or more years). Where the duration of construction is expected to be short-term, any impacts resulting from such short-term construction generally do not require detailed assessment. Multi-sited projects with overall construction periods lasting longer than two years and that are near to sensitive receptors should undergo a preliminary impact assessment according to the *CEQR Technical Manual*. Construction of the total RWCDS associated with the Proposed Actions is expected to take place over a period greater than two years and is therefore considered long-term. As such, the construction analysis will focus on the conceptual construction schedule to develop the 12 Projected Development Sites. As construction activity associated with the RCWDS would occur on multiple development sites within the same

geographic area, such that there is the potential for several construction timelines to overlap, a preliminary assessment of potential construction impacts was prepared in accordance with the guidance of the *CEQR Technical Manual*, and is presented in this chapter.

The findings of the preliminary assessment identified the need to undertake more detailed construction impact assessments for transportation, air quality and noise. To conduct these detailed assessments, this chapter describes the City, state, and federal regulations and policies that govern construction, followed by the conceptual construction schedule and the types of activities likely to occur during construction of the 12 Projected Development Sites. The types of construction equipment are also discussed, along with the expected number of workers and truck deliveries. Finally, the potential impacts from construction activity are assessed and the methods that may be employed to avoid significant adverse construction-related impacts are presented.

For each of the various technical areas presented below, appropriate construction analysis years were selected to represent reasonable worst-case conditions relevant to that technical area, which can occur at different times for different analyses. For example, the noisiest part of construction may not be at the same time as the heaviest construction traffic.

B. PRINCIPAL CONCLUSIONS

Transportation

The fourth quarter of 2028 was selected as the reasonable worst-case analysis period for assessing potential cumulative transportation impacts from operational trips from completed portions of the projected developments and construction trips associated with construction activities. An assessment of transportation generated during this peak period is presented below.

Traffic

Average daily on-site construction workers and trucks were forecast for new construction anticipated on the Projected Development Sites under-With-Action condition. Peak construction traffic related to trucks and worker autos is expected to peak in the fourth quarter of 2028, with an estimated 133 workers and 31 trucks per day. These represent peak days of work, and many days during the construction period would have fewer construction workers and trucks on-site.

A forecast of incremental hourly construction worker auto and construction truck trips during the 2028 (Q4) peak quarter for construction traffic showed that construction-related traffic is expected to peak during the 6-7 AM and 3-4 PM periods. During the 6-7 AM peak hour there would be a total of 50 passenger car equivalent (PCE) vehicle trips and a total of 34 PCE trips during the 3-4 PM peak hour. Projected Development Sites 2 and 6 are expected to be operational during the 2028 (Q4) construction peak period. The operational trips are expected to generate 17 and 27 vehicle trips in the construction AM and PM peak hours, respectively. It is expected that a total of approximately 67 and 61 vehicles would be generated in the construction AM and PM peak hours, respectively.

Operational and construction incremental vehicle trips were assigned to the street network in proximity to the Proposed Rezoning Area to assess the potential for significant adverse traffic impacts during the 6-7 AM and 3-4 PM construction peak hours. Based on *CEQR Technical Manual* guidance, a quantified traffic analysis is typically required if a proposed action would result in 50 or more vehicle trip ends in a peak hour at one or more intersections. Cumulative vehicle trips generated by construction of the Projected Development Sites and operational Projected

Development Sites would not total 50 or more at any intersection in either of the 6-7 AM or 3-4 PM construction peak hours during the 2028 (Q4) peak construction quarter. ~~Therefore, construction of the Project Development Sites is not expected to result in significant adverse traffic impacts in any peak hour during the 2028 (Q4) peak quarter for construction traffic.~~

It is expected that potential significant adverse traffic impacts could occur during construction. However, the 2031 operational period is the most conservative analysis scenario, as it would generate the highest number of incremental vehicle trips during the operational AM and PM peak hours and construction PM peak hour. Although the 2028 construction and operational period would generate 47 more vehicle trips during the construction AM peak hour compared to the 2031 operational period, these trips are expected to be distributed across the numerous construction and operational Projected Development Sites. In addition, based on automatic traffic recorder (ATR) data, traffic conditions during the 6:00 to 7:00 a.m. construction peak hour in 2028 is expected to be generally better or comparable than during the analyzed operational AM peak hour in 2031 with full build-out of the Proposed Actions. Consequently, there would be less likelihood of significant adverse traffic impacts during the construction peak hour in the Proposed Actions' peak construction period than with the full build-out during operational peak hours analyzed in the EIS.

Therefore, it is expected that the mitigation measures identified for transportation for 2031 operational traffic impacts would also be effective at mitigating potential impacts during the peak construction periods. The proposed mitigation measures will be implemented at the discretion of DOT. If DOT determines that implementation of the proposed traffic engineering improvement at one or more locations is infeasible, and no alternative and equivalent measure is identified, then that impact would remain unmitigated and would constitute an unavoidable adverse impact.

Transit

In the 2028 (Q4) peak quarter, operational and construction transit trips as a result of the Proposed Actions would total to approximately 50 subway trips, 13 rail trips, and nine bus trips during the construction AM peak hour. During the construction PM peak hour, transit demand would total to approximately 50 subway trips, 13 rail trips, and 12 bus trips. As peak transit demand from construction and operational Projected Development Sites would not meet the 200 trips/hour *CEQR Technical Manual* analysis threshold for a detailed subway analysis, nor the 50 trips/hour/direction analysis threshold for a detailed bus analysis, significant adverse impacts to subway and bus services are not expected to occur in the construction peak hour during the 2028 (Q4) peak construction period.

Pedestrians

In the 2028 (Q4) peak quarter, the operational and construction pedestrian demand as a result of the Proposed Actions would total to approximately 143 trips during the construction AM peak hour and 229 trips during the construction PM peak hour. The construction and operational pedestrian trips on sidewalks, corner areas and crosswalks (pedestrian elements) near the Projected Development Sites would include those walking to and from nearby subway stations, rail stations, bus stops and off-street parking garages, as well as workers traveling solely on foot. As the Projected Development Sites have multiple frontages, these trips would be widely distributed among the pedestrian elements providing access to the Projected Development Sites. It is therefore unlikely that any single sidewalk, corner area or crosswalk would exceed the 200 peak-hour trip *CEQR Technical Manual* threshold.

Parking

The maximum incremental daily parking demand would total approximately 86 spaces in the weekday midday. Of these 86 spaces, 36 spaces would be generated from construction workers and 50 spaces would be generated from the operational Projected Development Sites. As discussed in **Chapter 8, "Transportation,"** under *CEQR Technical Manual* guidance, the inability of the Proposed Actions or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant due to the magnitude of available alternative modes of transportation. Therefore, should any parking shortfall occur due to incremental demand from construction workers during the 2028 (Q4) peak construction period, it would not be considered a significant adverse parking impact based on *CEQR Technical Manual* guidance.

Air Quality

Maximum predicted total concentrations of NO2, CO, and PM10 are below the applicable NAAQS. In addition, the maximum predicted $PM_{2.5}$ concentrations would not exceed the applicable *CEQR Technical Manual de minimis* thresholds in the 24-hour and annual averaging periods. Emissions from the other less intensive construction periods would be less than the emissions during the modeled worst-case periods; therefore, the resulting concentrations from these non-peak periods are expected to be less than the concentrations during the worst-case periods. Therefore, construction of the RWCDS buildings would not result in significant adverse air quality impacts due to construction sources.

Noise

Construction under the Proposed Actions would have the potential to result in significant adverse impacts related to noise. At some receptors, construction under the Proposed Actions would result in increments that would be considered objectionable (i.e., 15 dBA or greater) or very objectionable (i.e., 20 dBA or greater). The potential for significant adverse impacts at these receptors was determined by evaluating the duration of these increments and whether CEQR interior noise level thresholds would be exceeded or not. Construction under the Proposed Actions is anticipated to result in significant adverse impacts at multiple receptors adjacent to the Projected Development Sites. However, building construction would typically occur during weekday daytime hours and would therefore not produce noise during nighttime hours when residents would be most sensitive to noise. Construction would also comply with *New York City Noise Control Code* regulations. Further, the construction noise analysis accounts for the cumulative effects of construction of all Projected Development Sites, including both the Proposed Development and the Additional Affected Area. It is possible that the actual construction may be of less magnitude, that construction on multiple Projected Developments may not overlap, and/or that construction of the Sites included in the Additional Affected Area may not occur simultaneously with that of the Proposed Development or not occur at all. In any such case, construction noise effects would be less than the analysis predicts.

Vibration

The buildings of most concern for potential structural or architectural damage due to vibration are the buildings and structures immediately adjacent to Projected Development Sites. However, given their distances from the construction work areas, vibration levels at these buildings and structures would not be expected to exceed 0.50 inches per second (in/sec) Peak Particle Velocity (PPV), including during pile installation, which would be the most vibration-intensive activity.

Additional receptors farther away from the Projected Development Sites would experience less vibration.

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 75 vibration decibels (VdB) limit is the impact pile driver, which would have the potential to produce perceptible vibration levels (i.e., vibration levels exceeding 75 VdB) at receptor locations within a distance of approximately 240 feet, depending on soil conditions. However, the operation of this equipment would occur for limited periods of time at any given location, and therefore would not result in any significant adverse impacts. Consequently, there is no potential for significant adverse vibration impacts from construction of the total RWCDS associated with the Proposed Actions.

Other Technical Areas

Construction of the 12 Projected Development Sites would not result in significant adverse impacts in the areas of land use and neighborhood character, socioeconomic conditions, open space, historic resources, or hazardous materials. Based on the RWCDS construction schedule, construction activities would be spread out over a period of approximately 5 years throughout portions of five blocks, and construction of all of the Projected Development Sites would be short-term (i.e., lasting up to 24 months). While construction of the Projected Development Sites would result in temporary increases in traffic during the construction period, access to residences, businesses, and institutions in the area surrounding the sites would be maintained throughout the construction period (as required by City regulations). No open space resources would be located on any of the RWCDS construction sites, nor would any access to publicly accessible open space be impeded during construction within the Project Area. In addition, measures would be implemented to control noise, vibration, emissions, and dust on construction sites, including the erection of construction fencing incorporating sound reducing measures. While construction of the new buildings due to the Proposed Actions would cause temporary impacts, particularly related to noise, it is expected that such impacts in any given area would be relatively short term, even under the worst-case construction sequencing, and therefore would not create an open space or neighborhood character impact.

In addition, the Projected and Potential Development Sites within the Project Area are not architecturally or archaeologically sensitive, and the Project Area is not located in the vicinity of any architectural resources. Therefore, no construction-related impacts to historic architectural or archaeological resources would occur due to construction activities on the Projected Development Sites.

Any potential construction-related hazardous materials would be avoided by the inclusion of (E) designations, or other measures comparable to such a designation, for all Projected Development Sites. In addition, demolition of interiors, portions of buildings, or entire buildings are regulated by New York City Department of Buildings (DOB) and require abatement of asbestos prior to any intrusive construction activities, including demolition. The U.S. Occupational Safety and Health Administration (OSHA) regulates construction activities to prevent excessive exposure of workers to contaminants in the building materials, including lead paint. New York State Solid Waste regulations control where demolition debris and contaminated materials associated with construction are handled and disposed of. Adherence to these existing regulations would prevent impacts from construction activities at any of the Projected Development Sites in the Project Area.

C. GOVERNMENTAL COORDINATION AND OVERSIGHT

Oversight of construction activities in New York City is extensive and involves a number of city, state, and federal agencies. **Table 14-1** lists the primary agencies involved in construction oversight and each agency's areas of responsibility.

For projects in New York City, primary construction oversight lies with the New York City Department of Buildings (DOB), which ensures that construction projects meet the requirements of the New York City Building Code and that buildings are structurally, electrically, and mechanically safe. In addition, DOB enforces safety regulations to protect workers and the general public during construction: the areas of oversight include installation and operation of equipment such as cranes, sidewalk sheds, safety netting and scaffolding. The New York City Department of Environmental Protection (DEP) enforces the New York City Noise Code, regulates water disposal into the sewer system as well as abatement of hazardous materials. The City of New York Department of Sanitation (DSNY) has regulatory and enforcement oversight of the storage, transport, and disposal of asbestos waste. 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)'s Office of Construction Mitigation and Coordination (OCMC) reviews and approves any traffic lane and sidewalk closures. The New York City Landmarks Preservation Commission (LPC) reviews any archaeological testing or monitoring that may be required. LPC also reviews and approves construction protection plans (CPPs) and any monitoring measures necessary to prevent damage to historic structures. The New York City Department of Parks & Recreation (NYC Parks) has oversight on tree protection and removal during construction.

TABLE 14-1
Construction Oversight in New York City

Agency	Area(s) of Responsibility
New York City	
Department of Buildings (DOB)	Primary oversight for Building Code and site safety
Department of Environmental Protection (DEP)	Noise, hazardous materials abatement, dewatering
Department of Sanitation (DSNY)	Storage, transport, and disposal of asbestos waste
Fire Department (FDNY)	Compliance with Fire Code, fuel tank installation
Department of Transportation (DOT)	Traffic lane and sidewalk closures
Landmarks Preservation Commission (LPC)	Archaeological and historic architectural protection
Department of Parks & Recreation	Tree protection and removal
New York State	
Department of Environmental Conservation (NYSDEC)	Hazardous materials, and fuel/chemical storage tanks
Department of Labor (DOL)	Asbestos workers
New York City Transit (NYCT)	Bus stop relocation; any subsurface construction within 200 feet of a subway
United States	
Environmental Protection Agency (EPA)	Air emissions, noise, hazardous materials, toxic substances
Occupational Safety and Health Administration (OSHA)	Worker safety

At the state level, the New York State Department of Environmental Conservation (NYSDEC) regulates discharge of water into rivers and streams, disposal of hazardous materials, and construction, operation, and removal of bulk petroleum and chemical storage tanks. The New York State Department of Labor (NYSDOL) licenses asbestos workers. New York City Transit (NYCT) is in charge of bus stop relocations, and any subsurface construction within 200 feet of a subway. On the federal level, the U.S. Environmental Protection Agency (EPA) has wide ranging

authority over environmental matters, including air emissions, noise emission standards, hazardous materials, and the use of poisons. Much of the responsibility is delegated to the state level. OSHA sets standards for work site safety and construction equipment.

D. CONCEPTUAL CONSTRUCTION SCHEDULE AND ACTIVITIES

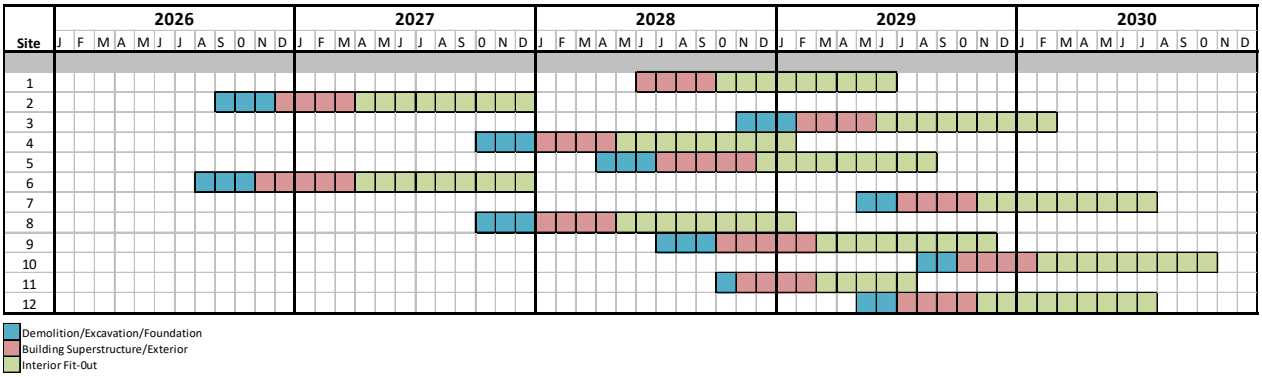
This chapter presents a description of the construction process for the purposes of quantification of environmental-effect causing activities only. It is not intended to describe the precise construction methods that may ultimately be used, nor is it intended to dictate or confine the construction process. Actual construction methods and materials may vary, depending in part on how the construction contractors choose to implement their 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 Site would follow applicable federal, state, and local laws for building and safety, as well as local noise ordinances, as appropriate.

Construction Sequencing

Because the Projected Development Sites within the Project Area are in private ownership, and two of the sites are not controlled by the Applicant, the exact timing of the development of those sites is unknown at this time. As such, the RWCDS presented in **Chapter 1, "Project Description,"** does not describe which of the sites would be developed first or assume a particular sequence of development. However, it is conservatively assumed that construction of all Projected Development Sites would be completed by the end of 2030, with full occupancy assumed by 2031 (the CEQR analysis year). Market considerations would ultimately determine the demand for development.

A reasonable worst-case for the anticipated schedule of construction activities and phases was provided by the Applicant for the purposes of assessing potential construction impacts and is illustrated in **Table 14-2**. As shown in **Table 14-2**, construction of the 12 Projected Development Sites is anticipated to occur over a period of approximately 51 months, with expected completion and full occupancy by 2031. Given the size of development anticipated pursuant to the RWCDS, which range between approximately 20,000 gsf and 113,000 gsf (between 5 and 11 stories), construction of each of the Projected Development Sites would last between 13 and 17 months. Based on a conceptual construction schedule for the RWCDS, construction activities at Projected Development Sites 2 and 6, which are controlled by the Applicant are expected to commence in the third quarter of 2026. Construction activities at Projected Development Site 4 and Projected Development Site 8 (both Applicant controlled) are expected to commence in the fourth quarter of 2027. Construction activities at Projected Development Site 5 (Applicant controlled) are assumed to begin in the second quarter of 2028, followed by Projected Development Sites 9, 11, and 3 throughout the remainder of 2028. By the first quarter of 2029, Projected Development Sites 2, 4, 6, and 8 are anticipated to be completed. Construction activities at Projected Development Sites 7, 10, and 12 are expected to commence in 2029. It is conservatively assumed that construction of all Projected Development Sites would be completed by the end of the 2030, with full occupancy assumed by 2031 (the CEQR analysis year).

TABLE 14-2
Conceptual Construction Schedule – RWCDS Projected Development Sites



Typical Construction Activities

Construction of various components of the Projected Development Sites would occur over approximately 51 months, with construction activities and intensities varying, depending upon which components of the overall development sites are underway at a given time. Following is a general outline of typical construction stages on the Projected Development Sites. It should be noted, however, that the duration and extent of new construction activities would vary based on which site is being developed.

- Months 1-3: Site clearance, excavation, and foundation. The first three months of construction would entail site clearance (including demolition of existing buildings as applicable); digging, pile-driving, pile capping, and excavation for the foundation; dewatering (to the extent required); and reinforcing and pouring of the foundation. Typical equipment used for these activities would include excavators, backhoes, tractors, pile-drivers, hydraulic hammers, and cranes. Trucks would arrive at the site with pre-mixed concrete and other building materials and would remove any excavated material and construction debris.
- Months 4-8: Underground parking foundation (if any), erection of the superstructure, and façade and roof construction. Once the foundations have been completed, the construction of the building's steel framework, parking ramp (if any), and decking would take place. This process involves the installation of beams, columns and decking, and would require the use of cranes, derricks, hoists, and welding equipment, as warranted. This stage of construction would also include the assembly of exterior walls and cladding, as well as roof construction.
- Months 9-17: Mechanical installation, interior and finishing work. This would include the installation of heating, ventilation and air conditioning (HVAC) equipment and ductwork; installation and checking of elevator, utility, and life safety systems; and work on interior walls and finishes. During these activities, hoists and cranes would continue to be used, and trucks would remain in use for material supply and construction waste removal. It should be noted that this construction stage may overlap with the superstructure phase, and since much of this stage of construction would occur when the building is fully enclosed, disruption to the surrounding neighborhood would be minimized.

The phases, duration, and overlap of construction activities specific to a particular development site are identified in **Table 14-2**. It should be noted that the actual duration of such activities could vary based upon which site is developed. For example, the time necessary for each activity

would vary depending upon such factors as work hours, traffic restrictions, and contractors' means and methods. Other factors would include the number and type of utilities requiring relocation and the location and condition of nearby surface and subsurface structures.

Estimate of Construction Workers and Construction Period Trucks

Worker and truck projections were based on representative sites of similar sizes and uses from prior EIS documents 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 12 Projected Development Sites was then assigned to the appropriate size category and the projections were scaled on a worker or truck per square foot basis.

Average daily on-site construction workers and trucks were forecasted for the new construction anticipated on each of the Projected Development Sites with the Proposed Actions. The number of workers and the number of truck trips associated with material deliveries vary with the scale of the project and the general construction task. **Table 14-3** shows the estimated number of workers and truck deliveries to the Project Area by calendar quarter for all construction activities. As indicated in **Table 14-3**, the number of workers would peak in the fourth quarter of 2028 with an estimated 133 workers per day. The number of trucks would also peak in the fourth quarter of 2028 with an estimated 31 trucks per day. The fourth quarter (Q4) of 2028 was selected as the peak quarter for the construction transportation analyses as the overall number of daily construction-related worker and vehicle trips would likely be highest during this period.

TABLE 14-3
Average Incremental Number of Daily Workers and Trucks by Quarter

Year	2026				2027				2028				2029			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	-	-	18	50	63	50	50	71	39	57	104	133	117	116	106	82
Trucks	-	-	6	10	9	11	11	20	6	6	23	31	25	28	24	19

Year	2030				Average	2028 (Q4) Peak
Quarter	1st	2nd	3rd	4th		
Workers	54	38	21	4	69	133
Trucks	15	11	6	1	16	31

Determining Peak Year for Cumulative Construction and Operational Effects

According to the *CEQR Technical Manual*, if a project involves multiple development sites over varying construction timelines, a preliminary assessment must be undertaken to determine if the operational trips from completed portions of the project and construction trips associated with construction activities could overlap. For the purposes of establishing a reasonable worst-case for the construction assessment, based on the conceptual construction schedule presented in **Table 14-2**, the fourth quarter of 2028 was selected as the construction peak year for the transportation assessment in this chapter. As shown in **Table 14-2**, by the end of 2028, there

[1] For purposes of this analysis, worker and truck projections were based on 3 representative sites of similar sizes and duration of construction from the 2017 *East Harlem Rezoning FEIS, the* 2021 *Gowanus Neighborhood Rezoning and Related Actions, and the* 2013 *Halletts Point Rezoning FEIS*.

would be two sites that are already completed and operational, and seven sites that are under construction.

Construction Work Hours

Construction activities for buildings in the City generally take place Monday through Friday, with exceptions that are discussed separately below. In accordance with City laws and regulations, construction work at the projected development sites would generally begin at 7 AM on weekdays, with workers arriving to prepare work areas between 6 and 7 AM. Construction work activities would typically finish around 3:30 PM, but on some occasions, the workday could be extended depending upon the need to complete some specific tasks beyond normal work hours, such as completing the drilling of piles, finishing a concrete pour for a floor deck, or completing the bolting of a steel frame erected that day. The extended workday would generally last until about 6 PM and would not include all construction workers on-site, but just those involved in the specific tasks requiring additional work time.

Occasionally, Saturday or overtime hours may be required to complete some time-sensitive tasks. Weekend work requires a permit from the DOB and, in certain instances, approval of a noise mitigation plan from DEP under the City's Noise Code. The New York City Noise Control Code, as amended in December 2005 and effective July 1st, 2007, limits construction (absent special circumstances as described below) to weekdays between the hours of 7 AM and 6 PM and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6 PM and 7 AM or on weekends) may be permitted only to accommodate: (i) emergency conditions; (ii) public safety; (iii) construction projects by or on behalf of City agencies; (iv) construction activities with minimal noise impacts; and (v) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. In such cases, the number of workers and pieces of equipment in operation 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 typical weekend workday would be on Saturday from 7 AM with worker arrival and site preparation to 5 PM for site cleanup.

Construction Staging Areas, Sidewalk and Lane Closures

Construction staging areas, also referred to as "laydown areas," are sites that would be used for the storage of materials and equipment and other construction-related activities. Work zones are those areas where the construction is occurring. Field offices for contractors and construction managers would be situated in temporary job site trailers at staging areas or existing office space near the work areas. Staging areas would typically be fenced and lit for security and would adhere to New York City Building Codes.

Staging areas of adequate size and proximity to the construction sites are essential to minimize construction traffic through the Project Area and to provide adequate space and access for construction activities. While vacant parcels are available within close proximity to several of the projected development sites that could be used for staging areas, it is anticipated that construction staging would most likely occur on the projected development sites themselves and may in some cases, extend within the curb and travel lanes and sidewalks of public streets adjacent to the construction site.

No rerouting of traffic is anticipated during construction activities and all moving lanes on streets are expected to be available to traffic at all times. It is anticipated that some sidewalks

immediately adjacent to construction sites would be closed to accommodate heavy loading areas for at least several months of the construction period for each site. Pedestrians would either use a temporary walkway in a sectioned-off portion of the street or be diverted to walk on the opposite side of the street.

Detailed Maintenance and Protection of Traffic (MPT) plans for each construction site would be submitted for approval to the DOT Office of Construction Mitigation and Coordination (OCMC), ensuring that critical arteries are not interrupted, especially in peak travel periods, and that adequate measures are provided for pedestrian safety, such as protected temporary walkways. Builders would also typically be required to plan and carry out noise and dust control measures during construction.

Construction activities would also be subject to compliance with the New York City Noise Code and by the EPA noise emission standards for construction equipment. In addition, there would be requirements for street crossing and entrance barriers, protective scaffolding, and compliance with applicable construction safety measures.

E. PRELIMINARY ASSESSMENT

In accordance with the guidelines of the *CEQR Technical Manual*, this preliminary assessment evaluated the effects associated with the Proposed Actions' construction-related activities including transportation (traffic, transit, pedestrians and parking), air quality, noise, land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, and hazardous materials.

Transportation

Traffic

Construction activities would generate construction worker auto trips and truck trips. As discussed above, average daily on-site construction workers and trucks were forecasted for new construction anticipated on each of the Projected Development Sites with the Proposed Actions. As shown in **Table 14-3**, the average number of workers would peak at an estimated 133 per day in the fourth quarter of 2028, while the average number of trucks per day would peak at an estimated 31 in the same quarter of 2028. These represent peak days of work, and other days during the construction period would have fewer construction workers and trucks on-site. Overall, the fourth quarter of 2028 is expected to be the peak period for total construction travel demand (worker trips and truck trips combined).

In addition to ongoing construction during the fourth quarter of 2028, operational trips from Projected Development Sites 2 and 6 would simultaneously occur. As such, the fourth quarter of 2028 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.

Similar to other construction projects in New York City, most of the construction activity at the Projected Development Site is expected to take place during the typical construction shift of 7:00 AM to 3:30 PM. The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. While construction truck trips would be made throughout the day (with more trips typically made during the early morning), construction workers would typically commute

during the hours before and after the work shift. For analysis purposes, each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out"), and each truck trip was assumed to have a passenger car equivalent (PCE) of 2.0, consistent with *CEQR Technical Manual* guidance. For construction workers, the majority (90 percent) of arrival and departure trips are expected to take place during the hour before and after each shift. For construction trucks, deliveries would typically peak during the early morning, with an estimated 25 percent overlapping with construction worker arrival traffic.

Modal split and vehicle occupancy rates for construction workers were based on 2000 Census reverse journey-to-work data for construction workers employed in census tracts in proximity to the Proposed Rezoning Area.[2] Based on these data, it is anticipated that approximately 58.6 percent of construction workers would use public transportation in their commute to and from the construction sites in the Proposed Rezoning Area, which is well served by subway, rail, and bus transit. Of which, approximately 42 percent of construction workers are anticipated to use subway, 10.1 percent for rail, and 6.5 percent for bus. Approximately 35.9 percent of workers are expected to travel by personal automobile with an average occupancy of approximately 1.34 persons per vehicle, and 5.4 percent are expected to walk or bicycle. No workers are expected to travel via taxi. These trip generation assumptions were used as the basis for assessing the potential transportation-related impacts during construction.

Table 14-4 shows a forecast of incremental hourly construction worker auto and construction truck trips during the 2028 (Q4) peak quarter for construction traffic. As shown in **Table 14-4**, in 2028 (Q4), construction-related traffic is expected to peak during the 6-7 AM and 3-4 PM periods. During the 6-7 AM peak hour there would be a total of 50 PCE vehicle trips, including 41 inbound trips and nine outbound trips. During the 3-4 PM peak hour there would be a total of 34 PCE trips, including one inbound trip and 33 outbound trips.

TABLE 14-4
2028 (Q4) 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	90	32	0	0	32	25	9	25	9	18	41	9	50
7-8 AM	10	4	0	0	4	10	3	10	3	6	7	3	10
8-9 AM	0	0	0	0	0	10	3	10	3	6	3	3	6
9-10 AM	0	0	0	0	0	10	3	10	3	6	3	3	6
10-11 AM	0	0	0	0	0	10	3	10	3	6	3	3	6
11 AM-12 PM	0	0	0	0	0	10	3	10	3	6	3	3	6
12-1 PM	0	0	0	0	0	10	3	10	3	6	3	3	6
1-2 PM	0	0	0	0	0	5	1	5	1	2	1	1	2
2-3 PM	0	0	0	0	0	5	1	5	1	2	1	1	2
3-4 PM	0	0	90	32	32	2.5	1	2.5	1	2	1	33	34
4-5 PM	0	0	10	4	4	2.5	1	2.5	1	2	1	5	6
5-6 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Hourly construction worker and truck trips were derived from an estimated quarterly average number of construction worker and truck deliveries per day, with each truck delivery resulting in two daily trips (arrival and departure).

[2] 2000 Census reverse journey-to-work data for the area encompassed by Brooklyn census tracts 191, 235, 241, 255, 531, 537 and 1237. (Note: 2000 Census tracts differ from current census tracts.)

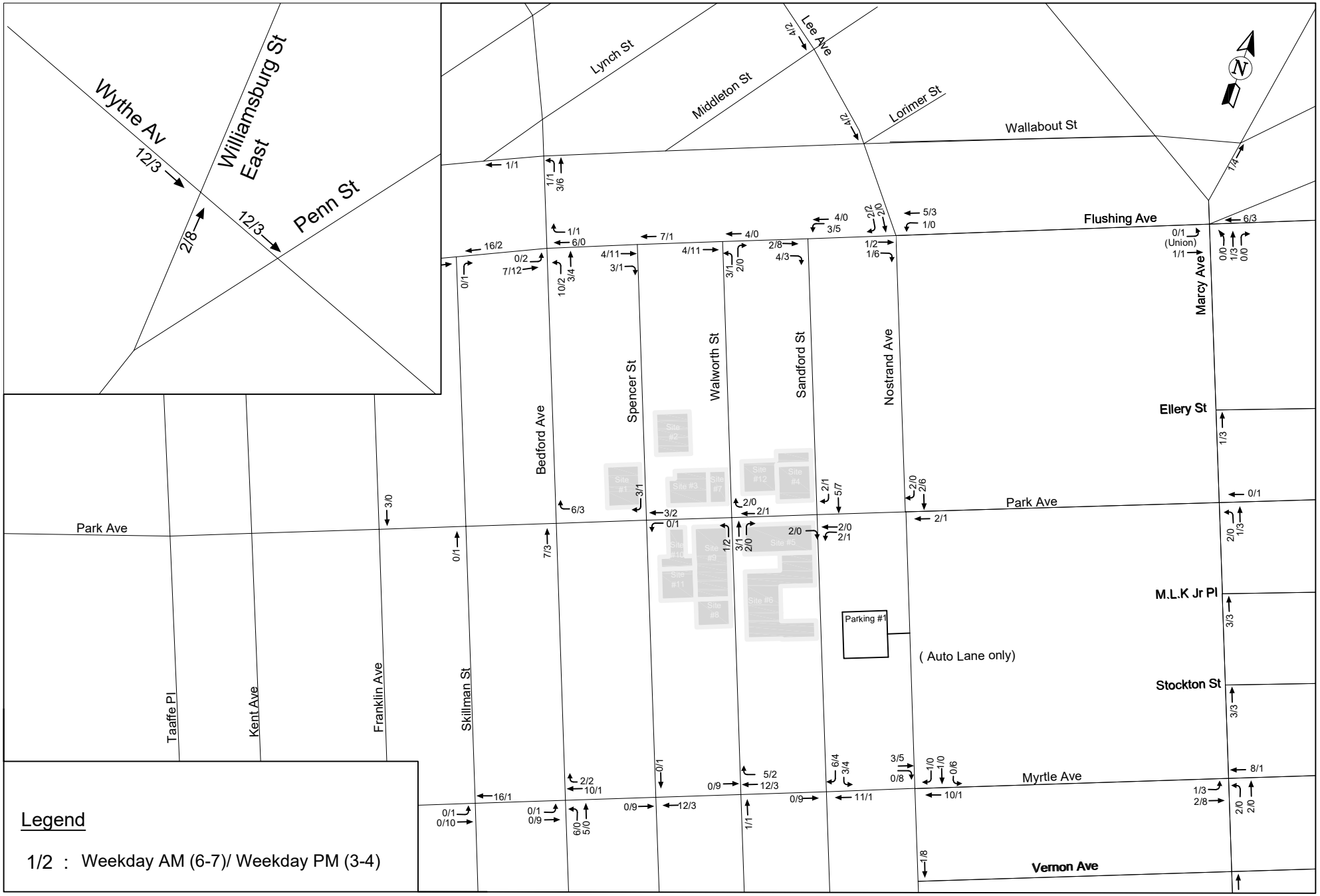
An assignment of construction AM and PM peak hour cumulative vehicle trips (in PCEs) during the 2028 (Q4) peak quarter is shown in **Figure 14-1**. The origins/destinations (O-D) for construction worker trips were based on the 2012–2016 American Community Survey ("ACS") five-year reverse journey-to-work data for census tracts proximate to the Proposed Rezoning Area. As there would not be parking provided on the Projected Development Sites during construction, construction workers driving to the site would seek available parking at the nearby off-street parking facilities and on-street parking. The assignment assumes that these construction workers would utilize two nearby garages within half mile of the Proposed Rezoning Area. The operational auto trips would also be assigned to these two garages as no on-site parking is provided for Projected Development Sites 2 and 6. Consistent with assignments in **Chapter 8, "Transportation,"** taxi and school bus trips are assigned to the frontages of Projected Development Sites 2 and 6. Operational and construction truck trips were assigned to designated Through and Local truck routes providing access to the Project Area, and then to the frontages of each site.

Based on *CEQR Technical Manual* guidance, a quantified traffic analysis is typically required if a proposed action would result in 50 or more vehicle trip ends in a peak hour at one or more intersections. As shown in **Figure 14-1**, it is anticipated that the 67 and 61 generated vehicle trips during the construction AM and PM peak hours, respectively, would not exceed 50 vehicle trips at the nearest intersections in proximity to the Project Area or the nearby public parking garages. Construction vehicle trips generated by the project would not exceed the 2025 *CEQR Technical Manual* 50-trip/hour analysis threshold at any intersection during the AM and PM construction peak hours.

Cumulative Traffic—2028 (Fourth Quarter)

As discussed above, **Table 14-4** shows hourly worker auto trips and construction truck trips (in PCEs) in the 2028 (Q4) analysis period. 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. During this peak period, construction travel demand would also simultaneously overlap with operational demand from completed Projected Development Sites. During this cumulative construction and operational traffic analysis period, there would be two sites that are already completed and operational and ten sites that are under construction.

Table 14-5 shows the comparison of the vehicle trips generated under the 2028 peak construction period and 2031 build year during traditional AM and PM peak hours for traffic (previously identified in **Chapter 8, "Transportation"**) as well as the AM and PM construction peak hours. The 2028 construction trips are based on the data presented in **Table 14-4** and the 2028 operational trips are based on the planning factors outlined in **Chapter 8, "Transportation,"** of the traffic generated as a result of the two sites (Projected Development Sites 2 and 6) that would be operational by 2028. The total vehicle trips generated under the 2028 peak construction period is the aggregate of the 2028 construction trips and 2028 operational trips. The net difference of these trips is compared to the 2031 operational trips, which are the trips that would be generated by the 12 sites under the 2031 build year.



Park Avenue Brooklyn Rezoning

Figure 14-1

Weekday AM & PM Construction Trips Assignment

TABLE 14-5
Comparison of 2028 (Fourth Quarter) Incremental Construction and Operational Vehicle Trips with 2031 Operational Vehicle Trips

	Net Incremental Vehicle Trips				
Peak Hour	2028[1] Construction Trips	2028[1] Operational Trips	2028[1] Construction + Operational Trips	2031 Operational Trips	Net Difference
Construction AM	50	17	67	20	47
Operational AM2	8	233	241	388	-147
Construction PM	34	27	61	217	-156
Operational PM	0	219	219	440	-221

Notes:
[1] 2028 construction trips represent the fourth quarter of that year.
[2] The operational AM peak hour is 7:30-8:30 a.m. Accordingly, the construction trip volumes for this peak hour were based on the average for the 7:00-8:00 a.m. and 8:00-9:00 a.m. periods.

As shown in **Table 14-5,** the 2031 operational trips would generate approximately 388 and 440 vehicle trips during the traditional AM and PM peak hours, respectively. By comparison the 2028 (Q4) combined construction and operational trips would generate approximately 241 and 219 vehicle trips during the same periods, respectively. Of these trips, approximately eight and zero construction vehicle trips and approximately 233 and 219 operational vehicle trips would overlap from the ten sites under construction and two completed sites in the peak 2028 (Q4) construction period during the same peak hours, respectively. As peak construction and operational activity in 2028 would result in 147 and 221 fewer incremental vehicle trips during the traditional AM and PM peak hours, respectively, than would full build-out of the projected development sites under the Proposed Actions, it is expected that any significant adverse traffic impacts during the 2028 construction analysis year would be within the range of impacts identified for the 2031 operational analysis year during the traditional AM and PM peak hours.

During the 2028 (Q4) peak period, approximately 50 and 34 construction vehicle trips would be generated during the AM and PM construction peak hours, respectively. These trips would overlap with the operational trips from the two completed sites that would generate a total of approximately 17 and 27 vehicle trips during the same periods, respectively. In total, operational and construction trips would total 67 and 61 vehicle trips during the AM and PM construction peak hours, respectively for the 2028 (Q4) peak period. These operational and construction trips would be assigned to the numerous construction Projected Development Sites and the two operational Projected Development Sites. As such, the 67 and 61 trips during the 2028 AM and PM peak construction peak hours would be dispersed throughout the traffic network and unlikely to exceed the 50 trip *CEQR* threshold at any one intersection. As shown in **Table 14-5**, the 2031 operational trips would generate approximately 20 and 217 vehicle trips during the AM and PM construction peak hours, respectively. By comparison, the combined 2028 construction and operational trips is expected to generate 47 more vehicle trips in the Construction AM peak hour and 156 fewer vehicle trips in the Construction PM peak hour.

Furthermore, although the combined 2028 construction and operational trips are expected to generate 47 more vehicles than the 2031 operational trips during the construction AM peak hour, 24-hour traffic counts collected in the study area indicate that overall street network volumes are generally lower during the AM construction peak hour than during the AM operational commuter peak hour. As such, traffic conditions during the AM construction peak hour are expected to be generally better than during the operational AM commuter peak hour. For example, automatic traffic recorder (ATR) count data indicates that in the aggregate, existing 6:00 to 7:00 a.m. traffic volumes on study area streets are approximately 10 percent lower than during the operational AM peak hour from 7:30 to 8:30 a.m. Traffic conditions in 2028 during the 6:00 to 7:00 a.m.

construction peak hour is therefore expected to be generally better or comparable than during the analyzed operational AM peak hour with full build-out of the Proposed Actions in 2031. Moreover, the 47 additional vehicle trips in the construction AM peak hour, relative to the 2031 operational period, are expected to be distributed across the numerous construction and operational Projected Development Sites. Consequently, there would be less likelihood of significant adverse traffic impacts during the construction peak hour in the Proposed Actions' peak construction period than with the full build-out during operational peak hours analyzed in the EIS. It is expected that the mitigation measures identified in **Chapter 16, "Mitigation,"** for 2031 operational traffic impacts would also be effective at mitigating potential impacts during the peak construction periods.

Transit

As discussed above and shown in **Table 14-2**, in the 2028 (Q4) peak quarter for construction, approximately 133 construction workers would travel to and from the Projected Development Sites each day. As also discussed above, a total of approximately 58.6 percent of construction workers are expected to travel to and from the construction site by public transit (subway, rail, or bus). In addition, it is estimated that approximately 90 percent of all construction workers would arrive and depart in the peak hour before and after each shift. Therefore, it is estimated that approximately 79 construction workers would travel to and from the Projected Development Sites via public transit each day, and that approximately 71 of these trips would occur in each of the 6:00 AM to 7:00 AM and 3:00 PM to 4:00 PM construction peak hours. Of these 71 person trips, 50 would use the subway, 13 would use the rail, and eight would use the bus during the construction peak hours.

In addition, during the 2028 (Q4) analysis period, cumulative construction and operational travel demand would simultaneously utilize the transit network as a result of Projected Development Sites under construction and those completed with occupancy. Based on the planning factors outlined in **Chapter 8, "Transportation,"** the operational bus trips generated as a result of the two completed Projected Development Sites would total approximately one and four during the AM and PM construction peak hours, respectively. No subway trips are anticipated to be generated from the two completed Projected Development Sites during the AM and PM construction peak hours. Therefore, the increase in transit demand (construction and operational) during the AM construction peak hour would be 50 subway trips, 13 rail trips, and nine bus trips. During the PM construction peak hour the transit demand would consist of 50 subway trips, 13 rail trips, and 12 bus trips.

As the total peak transit demand from construction and operational Projected Development Sites would not meet the 200 trips/hour *CEQR Technical Manual* analysis threshold for a detailed subway analysis, nor the 50 trips/hour/direction analysis threshold for a detailed bus analysis, significant adverse impacts to subway and bus services are not expected to occur in the construction peak hour during the 2028 (Q4) peak construction period.

Pedestrians

As discussed previously, it is anticipated that approximately 133 construction workers would travel to and from the Proposed Rezoning Area during the 2028 (Q4) peak construction period. It is conservatively assumed that all construction worker trips, regardless of primary mode of travel, would include a walk component to their journeys to and from the Proposed Rezoning Area (including nearby subway stations, rail stations, transit bus stops, and parking garages). An estimated 120 of these workers (90 percent) would arrive and depart in the peak hour before and after each shift. In addition, based on the planning factors outlined in **Chapter 8, "Transportation,"** the operational Projected Development Sites are expected to generate

approximately 23 and 109 pedestrian trips (including nearby subway stations, rail stations, transit bus stops, and parking garages) in the same construction AM and PM peak hours. Therefore, the total pedestrian demand would be 143 during the construction AM peak hour and 229 during the construction PM peak hour.

As there are multiple Projected Development Sites with frontages along various corridors, these trips would be widely distributed among the pedestrian elements providing access to the Development Sites. It is therefore unlikely that any single sidewalk, corner area or crosswalk would exceed the 200 peak-hour trip *CEQR Technical Manual* threshold. In addition, it should be noted that construction worker trips would primarily occur outside of the weekday AM and PM commuter peak periods and the weekday midday peak period when area pedestrian facilities typically experience their greatest demand. Consequently, there are no significant adverse pedestrian impacts anticipated in the 2028 (Q4) peak quarter for construction worker travel demand.

Parking

As discussed above, there would be an incremental increase of 133 construction workers traveling to the Projected Development Sites in the 2028 (Q4) peak construction period. Approximately 35.9 percent of these workers are expected to travel to the Projected Development Sites by private auto. Based on an average auto occupancy of 1.34 persons per auto, the maximum incremental daily parking demand from construction workers would total approximately 36 spaces. It is assumed that no on-site parking would be provided during the construction of the Projected Development Sites. Therefore, construction workers would park on-street or in nearby off-street public parking facilities located in proximity to the Proposed Rezoning Area during this period. During the 2028 (Q4) construction peak analysis period, simultaneous operational parking demand would be generated by two completed Projected Development Sites. Based on the planning factors outlined in **Chapter 8, "Transportation,"** parking demand from completed Projected Development Sites would peak during the weekday midday with approximately 50 vehicles. As no on-site parking is provided at the completed Projected Development Sites, these vehicles would park at nearby off-street parking facilities. Therefore, maximum parking demand from construction and operation would total 86 spaces in the weekday midday.

As discussed in **Chapter 8, "Transportation,"** under *CEQR Technical Manual* guidance, the inability of the Proposed Actions or the surrounding area to accommodate future parking demands would be considered a parking shortfall, but would generally not be considered significant due to the magnitude of available alternative modes of transportation. Therefore, should any parking shortfall occur due to incremental demand from construction workers during the 2028 (Q4) peak construction period, it would not be considered a significant adverse parking impact based on *CEQR Technical Manual* guidance.

Air Quality

According to the *CEQR Technical Manual*, a quantitative assessment of air quality for construction activities is likely not warranted if the project's construction activities: (1) are considered short term, which for air quality assessments has generally been accepted as two years or less; (2) are not located near sensitive receptors; (3) do not involve the construction of multiple buildings where there is a potential for cumulative impacts from different buildings under simultaneous construction before the final build-out; and (4) would not operate multiple pieces of diesel equipment in a single location during peak construction. If a project does not meet one or more of the criteria above, a quantitative air quality assessment could be required.

As construction of the Projected Development Sites under the RWCDS would involve the construction of multiple buildings near sensitive receptors and the use of multiple pieces of diesel equipment, the Proposed Actions do not screen out any of these four points. As a result, a quantitative air quality assessment was performed. The methodologies and results of this analysis are described in the "Detailed Analysis" section, below.

Noise and Vibration

According to the *CEQR Technical Manual*, an assessment of noise for construction activities is likely not warranted if the project's construction activities: (1) are considered short term; (2) are not located near sensitive receptors; (3) do not involve the construction of multiple buildings where there is a potential for cumulative impacts from different buildings under simultaneous construction before the final build-out; and (4) would not operate multiple pieces of diesel equipment in a single location during peak construction. If a project does not meet one or more of the criteria above, a quantitative noise assessment could be required.

As construction of the Projected Development Sites under the RWCDS would involve the construction of multiple buildings near sensitive receptors and the use of multiple pieces of diesel equipment, the Proposed Actions do not screen out any of these four points. As a result, a quantitative construction noise assessment was performed. The methodologies and results of this analysis are described in the "Detailed Analysis" section, below.

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 would require continuous use of property for an extended duration, thereby having the potential to affect the nature of the land use and character of the neighborhood. A land use and neighborhood character assessment for construction impacts examines construction activities that would occur on the site (or portions of the site) and their 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 would be industrial in nature. Depending upon the nature of existing land uses in the surrounding area, the use of a single piece of property for an extended duration and its compatibility with neighboring properties may be assessed to determine whether it would have a significant adverse impact on the surrounding area.

Construction of the 12 Projected Development Sites would be spread out over a period of approximately 51 months throughout portions of five bocks that comprise the Project. As noted above, construction of all of the Projected Development Sites would be short-term (i.e., lasting less than 24 months). Throughout the construction period (as required by City regulations), access to residences, businesses, and institutions in the area surrounding the development sites would be maintained. In addition, measures would be implemented to control noise, vibration, emissions, and dust on construction sites, including the erection of construction fencing incorporating sound reducing measures. Since none of these impacts would be continuous or ultimately permanent, they would not create significant impacts on land use patterns or neighborhood character in the area. Therefore, while construction of the new buildings resulting from the Proposed Actions would cause temporary impacts, particularly related to noise, it is expected that such impacts in any given area would be relatively short term, even under the

worst-case construction sequencing and, therefore, would not create a neighborhood character impact. Therefore, no significant construction impacts to land use and neighborhood character are expected.

Socioeconomic Conditions

According to the *CEQR Technical Manual*, construction impacts to socioeconomic conditions are possible if the Proposed Actions would entail construction of a long duration that could affect access to and thereby viability of a number of businesses and if the failure of those businesses has the potential to affect neighborhood character. As noted above, construction of all of the Projected Development Sites would be short-term (i.e., lasting less than 24 months). During the construction period, construction activities would be dispersed throughout the Project Area and would not affect access to particular businesses over an extended duration. Therefore, construction impacts to socioeconomic conditions are not expected.

Community Facilities

According to the *CEQR Technical Manual*, construction impacts to community facilities are possible if a community facility would be directly affected by construction (e.g., if construction would disrupt services provided at the facility or close the facility temporarily, etc.). While there are community facilities throughout the Project Area (including existing schools adjacent to some of the Projected Development Sites), the Proposed Actions would not result in the direct displacement of any community facilities, as defined in the *CEQR Technical Manual*. While construction of the Projected Development Sites would result in temporary increases in traffic during the construction period, access to and from any community facilities in the Project Area would not be affected during the construction period. In addition, each construction site would be surrounded by construction fencing and barriers as required by DOB, which would limit the effects of construction on nearby facilities. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care services. New York City Police Department (NYPD) and FDNY emergency services and response times would not be materially affected by construction due to the geographic distribution of the police and fire facilities and their respective coverage areas. Therefore, no construction impacts would be expected to community facilities in the area, and a further preliminary assessment is not needed for the disclosure of potential construction impacts to community facilities.

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. The Project Area is not located in close proximity to existing open space resources, and no existing 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 Project Area. Although construction of the Projected Development Sites may have the potential to result in elevated noise levels at nearby receptors, and noise due to construction would at times be noticeable, the Project Area is located more than 400 feet from the nearest existing open space resource (Marcy Playground), and noise from construction would be intermittent and of limited duration. Therefore, no significant construction impacts to open space are expected.

Historic and Cultural Resources

As indicated in the Environmental Assessment Statement for the Proposed Actions (dated April 30, 2024), the Projected and Potential Development Sites within the Project Area do not possess archaeological significance and no further assessment is warranted. Therefore, the Proposed

Actions do not have the potential to result in construction period archaeological impacts. The Proposed Actions would also not result in any significant adverse impacts to architectural resources as no historic architectural resources are located on any of the Projected Development Sites. Moreover, no architectural resources are located within 90 feet of the Project Area. Therefore, the Proposed Actions would not result in any significant adverse impacts

Hazardous Materials

According to the guidelines in the *CEQR Technical Manual*, any impacts from in-ground disturbance that are identified in hazardous materials studies should be identified in this chapter as well. Institutional controls, such as (E) designations or restrictive declarations should be disclosed here as well. If the impact identified in hazardous materials studies is fully mitigated or avoided, no further analysis of the effects from construction activities on hazardous materials is needed.

As stated in **Chapter 6, "Hazardous Materials,"** the hazardous materials assessment identified that each of the Projected and Potential Development Sites has some associated concern regarding environmental conditions. Any potential construction-related hazardous materials would be avoided by the inclusion of (E) designations for all RWCDS development sites. As detailed in **Chapter 6**, **"Hazardous Materials,"** (E) designations would be mapped on all 12 Projected Development Sites and two Potential Development Sites as part of the Proposed Actions. An (E)-designated site is designated on a zoning map within which no change of use or development requiring a DOB permit may be issued without approval of the Mayor's Office of Environmental Remediation (OER). These sites require OER's review to ensure the protection of human health and the environment from any known or suspected hazardous materials associated with the site. The (E) designation requires that the fee owner conduct a testing and sampling protocol and remediation, where appropriate, to the satisfaction of OER before the issuance of a permit by DOB. The environmental requirements for the (E) designation also include a mandatory CHASP, which must be approved by OER.

In addition, demolition of interiors, portions of buildings, or entire buildings are regulated by DOB and require abatement of asbestos prior to any intrusive construction activities, including demolition. OSHA regulates construction activities to prevent excessive exposure of workers to contaminants in the building materials, including lead paint. New York State Solid Waste regulations control where demolition debris and contaminated materials associated with construction are handled and disposed of. Adherence to these existing regulations would prevent impacts from construction activities at any of the Projected Development Sites in the Project Area.

F. DETAILED ANALYSES

Air Quality

Construction under the Proposed Actions would require the use of both non-road construction equipment and on-road vehicles. Non-road construction equipment includes equipment operating on-site, such as cranes, loaders, and excavators. On-road vehicles include worker vehicles and construction trucks arriving to and departing from the Proposed Development Site as well as operating on-site.

Emissions from non-road construction equipment and on-road vehicles have the potential to affect air quality. In addition, emissions from dust-generating construction activities (i.e., truck loading and unloading operations) also have the potential to affect air quality. A quantitative analysis of the

overall combined impact of both non-road and on-road sources of construction-related air emissions, including dust emissions, was performed to determine the potential for significant adverse impacts from these sources of air emissions generated during construction under the Proposed Actions.

Emissions Reduction Measures

Construction activity in general, and large-scale construction in particular, has the potential to adversely affect air quality as a result of diesel emissions. Measures would be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes. These include:

- *Dust Control.* To minimize dust emissions from construction activities, a dust control plan including a robust watering program would be required. For example, all trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the Development Site; and water sprays would be used for all demolition, excavation, and transfer of soils so that materials would be dampened as necessary to avoid the suspension of dust into the air. Stockpiled soils or debris would be watered, stabilized with a chemical suppressing agent, or covered. All measures required by DEP's Construction Dust Rules regulating construction-related dust emissions would be implemented.
- *Idling Restriction.* In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time would be restricted to three minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or are otherwise required for the proper operation of the engine.
- *Clean Fuel.* ULSD fuel would be used exclusively for all diesel engines throughout the Development Site.
- *Diesel Equipment Reduction.* In accordance with the New York City Noise Control Code as discussed below, under "Noise," electrically powered equipment would be preferred over diesel-powered and gasoline-powered versions of that equipment to the extent practicable. Equipment that would use grid power in lieu of diesel engines includes, but may not be limited to, hoists and small equipment (such as welders).

In addition, the following measures, which would be included in the Project Component Related to the Environment (PCREs), would be implemented to further reduce air pollutant emissions during construction under the Proposed Actions:

- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for non-road diesel engines regulate the emission of criteria pollutants from new engines, including PM, CO, NOx, and hydrocarbons. To the extent practicable, all diesel-powered non-road construction equipment 50 horsepower (hp) or greater would meet at least the Tier 33 emissions standard.

[3] The first federal regulations for new non-road diesel engines were adopted in 1994, and adopted by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment 50 hp and greater and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. In 2004, the EPA introduced Tier 4 emissions standards with a phased-in period of 2008 to 2015. The Tier 1 through 4 standards regulate the EPA criteria pollutants, including PM, hydrocarbons (HC), NO_x and carbon monoxide (CO). Prior to 1998, emissions from non-road diesel engines were unregulated. These engines are typically referred to as Tier 0.

- *Best Available Tailpipe Reduction Technologies.* Non-road diesel engines with a power rating of 50 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 best available tailpipe (BAT) technology for reducing diesel particulate matter (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 non-road engines rated at 50 hp or greater would utilize DPFs, either installed by the original equipment manufacturer or retrofitted. Retrofitted DPFs must be verified by EPA or the California Air Resources Board. Active DPFs or other technologies proven to achieve an equivalent reduction may also be used. The use of DPFs for diesel engines meeting the Tier 3 emissions standard achieves similar emission reductions as the newer Tier 4 particulate matter emission standard.

Overall, this emissions reduction program is expected to substantially reduce diesel emissions.

On-Site Construction Activity Assessment

ANALYSIS PERIODS

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 $PM_{2.5}$. $PM_{2.5}$ was 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.

Based on the resulting multi-year profiles of annual average and peak day average emissions of $PM_{2.5}$ and the proximity of the construction activities to sensitive uses (i.e., residences, schools) in the area, November 2028 and the 12-month period from November 2028 to October 2029 were identified as worst-case short-term and annual periods of construction, respectively, since the highest project-wide emissions were predicted in these periods. During the worst-case short-term period, activities associated with demolition, excavation, and foundation for Projected Development Site 3, superstructure activities for Projected Development Sites 5, 9, and 11, and interior work for Projected Development Sites 1, 4, and 8, are anticipated to occur simultaneously. During the worst-case annual period, excavation, foundation, superstructure, and interior fit-out activities for Projected Development Site 3, demolition, excavation, foundation, and superstructure activities for Projected Development Sites 7, 10, and 12, superstructure and interior activities for Projected Development Sites 5, 9, and 11, and interior fit-out work for Projected Development Sites 1, 4, and 8 are anticipated to occur.

Dispersion of the relevant air pollutants from the construction sites during these periods were analyzed. Broader conclusions regarding potential concentrations during non-peak periods are discussed qualitatively, based on the reasonable worst-case analysis period results.

ENGINE EMISSIONS

The sizes, types, and number of units of construction equipment was estimated based on the construction activity schedule developed for activities under the Proposed Actions. Emission rates

for NO_x, CO, PM_{10}, and $PM_{2.5}$ from truck engines was developed using the EPA Motor Vehicle Emission Simulator (MOVES4) 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 MOVES emission model. The emission factor calculations took into account any emissions reduction measures as described above, under "Emissions Reduction Measures."

ON-SITE DUST EMISSIONS

In addition to engine emissions, dust emissions from operations (e.g., excavation and transferring of excavated materials into dump trucks) was calculated based on EPA procedures delineated in AP-42 Table 13.2.3-1. Since construction is required to follow DEP's *Construction Dust Rules* 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).

DISPERSION MODELING

Potential impacts from 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 and generators, which are expected to operate in a single location—were simulated as point sources. Other engines, such as excavators and loaders, which would move around the site on any given day, were simulated as area sources. All sources 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 meteorological data: surface data collected at the LaGuardia Airport National Weather Service Station (2015 to 2019), and concurrent upper air data collected at Brookhaven, New York. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and temperature inversion elevation over the five-year period. These data were processed using the EPA AERMET program to develop data in a format which can be readily processed by the AERMOD model. The land uses around the site where meteorological surface data were available was classified using categories defined in digital United States Geological Survey (USGS) maps.

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 were based on concentrations monitored at the nearest New York State Department of Environmental Conservation (NYSDEC) ambient air monitoring stations.

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, and at adjacent sidewalk locations.

ON-ROAD SOURCES

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 was included with on-site emissions in the 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, MOVES4. This emissions model is capable of calculating engine emission factors for various vehicle types, based on the fuel type (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway type and grade, number of starts per day, engine soak time, inspection and maintenance programs and various other factors that influence emissions. The inputs and use of MOVES incorporate the most current resource available from DEC.

ON-ROAD DUST EMISSIONS

$PM_{2.5}$ emission rates were determined with road dust to account for their impacts. Road dust emission factors were calculated according to the latest procedure delineated by EPA.[4]

Construction Air Quality Analysis Results

Maximum predicted concentrations during the representative worst-case construction periods for the Proposed Development are presented in **Table 14-6**. To estimate the maximum total pollutant NO_2, CO, and PM_{10} concentrations, the modeled concentrations were added to a background value that accounts for existing pollutant concentrations from other nearby sources. As shown in **Table 14-6**, the maximum predicted total concentrations of NO_2, CO, and PM_{10} are below the applicable NAAQS. In addition, the maximum predicted $PM_{2.5}$ concentrations would not exceed the applicable *CEQR Technical Manual de minimis* thresholds in the 24-hour and annual averaging periods.[5] Emissions from the other less intensive construction periods would be less than the emissions during the modeled worst-case periods; therefore, the resulting concentrations from these non-peak periods are expected to be less than the concentrations presented in **Table 14-6**. Therefore, construction of the RWCDS buildings would not result in significant adverse air quality impacts due to construction sources.

[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] The *CEQR Technical Manual* 24-hour $PM_{2.5}$ de minimis criterion is equal to half the difference between the 24-hour background concentration (21.3 $\mu g/m^3$) and the 24-hour standard (35 $\mu g/m^3$).

TABLE 14-6
Maximum Pollutant Concentrations

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration(1)	Total Concentration	*De minimis*	NAAQS
NO_2	Annual	$\mu g/m^3$	6.0	28.7	34.7	-	100
CO	1-hour	Ppm	31.0	1.7	32.7	-	35
	8-hour	Ppm	6.5	1.2	7.7	-	9
PM_{10}	24-hour	$\mu g/m^3$	4.2	39.3	43.5	-	150
$PM_{2.5}$	24-hour	$\mu g/m^3$	3.7	17.8	21.5	8.6	35
	Annual—Local	$\mu g/m^3$	0.15	7.7	7.8	0.3	9
	Annual—Neighborhood	$\mu g/m^3$	0.002	-	-	0.1	9

Notes:
N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at DEC ambient air monitoring stations (2017-2019).

Noise

Construction under the Proposed Actions has the potential to result in noise impacts generated by the operation of construction equipment on construction sites and construction-related vehicles traveling to and from the Projected Development Sites on adjacent roadways. The potential for noise impacts due to the construction under the Proposed Actions is discussed below.

Sound Level Descriptors

Chapter 11, "Noise," defines the sound level descriptors. The $L_{eq(1)}$ is the noise descriptor recommended for use in the *CEQR Technical Manual* for vehicular traffic and construction noise impact evaluation and is used to provide an indication of highest expected sound levels. The 1-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines. The maximum 1-hour equivalent sound level ($L_{eq(1)}$) and maximum 1-hour L_{10} were selected as the noise descriptors used in the construction noise impact evaluation.

Construction Noise Analysis Fundamentals

Construction activities increase noise levels as a result of (1) the operation of construction equipment on site; and (2) the movement of construction-related vehicles (i.e., worker trips, and material and equipment trips) on the roadways to and from the construction site. The combined effect of each of these noise sources was evaluated.

Noise from the on-site 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 location 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;
- Topography and ground effects; and
- Shielding.

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.

Construction Noise Analysis Methodology

A detailed modeling analysis was conducted to quantify potential construction noise effects at existing noise receptors (e.g., residences, schools, etc.) near the Projected Development Sites as well as at completed and occupied proposed buildings. The construction noise methodology is as follows:

1. *Selected analysis hours for construction mobile source noise analysis.* The 6:00 AM to 7:00 AM hour was selected as the analysis hour because this would be the hour when the highest number of construction worker auto and construction truck trips to and from the construction site would simultaneously occur.
2. *Conducted construction mobile source noise analysis.* At each of the roadway segments analyzed for construction traffic, the construction worker vehicle and construction truck trips during the analysis hour was converted to Noise Passenger Car Equivalents (PCEs) and compared to the existing level of Noise PCEs to determine the potential increase in noise levels due to construction-generated trips.
3. *Selected analysis hours for cumulative on-site equipment and construction truck noise analysis*. The 7:00 AM to 8:00 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.
4. *Selected receptor locations for cumulative on-site equipment and construction truck noise analysis.* Selected receptors represent open space, residential, commercial office, or other noise-sensitive uses potentially affected by the construction associated with the Proposed Actions during operation of on-site construction equipment and/or along routes taken to and from the development site by construction trucks. Project elements (e.g., buildings, open spaces) that would be completed and occupied while construction under the Proposed Actions is still ongoing were also included in the analysis as receptors.
5. *Established existing noise levels at selected receptors.* Existing noise levels from the operational noise analysis were relied upon for the construction noise analysis as well. A CadnaA model representing the existing conditions (including existing building geometry and existing condition traffic levels) was validated based on the measured existing noise levels and used to calculate baseline noise levels at the other noise receptor locations included in the analysis. As described in the approved operational noise methodology memorandum, measured existing noise levels were not considered valid if traffic counts associated with the measurements differ significantly from existing traffic volumes established in the transportation analysis for the corresponding location.
6. *Established worst-case noise analysis periods under the anticipated construction schedule.* The worst-case noise analysis periods are the periods during the construction schedule that

are expected to have the greatest potential to result in construction noise effect. The selected time periods are described below in the "Analysis Periods" section.

7. *Calculated construction noise levels for each analysis period at each receptor location*. Given the on-site equipment and construction truck trips expected during each of the analysis periods, and the location of the equipment, which is based on construction logistics diagrams and construction truck and worker vehicle trip assignments, a CadnaA model file including each analysis period was created. All models include each of the construction noise sources during the analysis period and hour, calculation points representing multiple locations on various façades and floors of the associated receptors previously identified, as well as the noise control measures that would be used on the construction site.
8. *Determined total noise levels and noise level increments during construction.* For each analysis period and each noise receptor, the calculated level of construction noise 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.
9. *Compared construction noise increments to impact criteria*. For each analysis period and each noise receptor, the predicted noise increments due to construction were compared to CEQR noise impact thresholds and additional incremental noise impact criteria as described below.
10. *Estimated interior noise levels.* At receptors representing interior locations where noise increments due to construction are predicted to exceed incremental construction noise impact thresholds, window/wall attenuation was estimated. Maximum predicted construction noise levels and estimated window/wall attenuation were used to estimate interior noise levels.
11. *Established construction noise duration*. For each receptor, the noise level increments and estimated interior noise levels in each analysis period were evaluated to determine the duration during construction that the receptor would experience exceedances of impact criteria.
12. *Identified potential construction noise impacts.* At each receptor where exceedances of construction noise impact criteria are predicted, a determination was made as to whether the Proposed Actions would have the potential to result in significant adverse construction noise impacts.

Construction Mobile Source Analysis

A Noise PCE screening was conducted for noise levels from construction mobile sources. At each of the roadway segments analyzed for construction traffic, 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 the potential increase in noise from construction worker vehicle and construction truck trips. The 6:00 AM to 7:00 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. The projected noise level increment from construction worker vehicle and construction truck trips was compared to CEQR noise impact thresholds and additional incremental noise impact criteria as described below.

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

Noise Receptor Sites

A noise-sensitive receptor is defined in **Chapter 19, "Noise,"** Section 114 of the 2025 *CEQR Technical Manual* and includes indoor receptors such as residences, hotels, health care facilities, nursing homes, schools, houses of worship, court houses, public meeting facilities, museums,

libraries, theaters, and commercial offices. Outdoor sensitive receptors include parks, outdoor theaters, golf courses, zoos, campgrounds, and beaches.

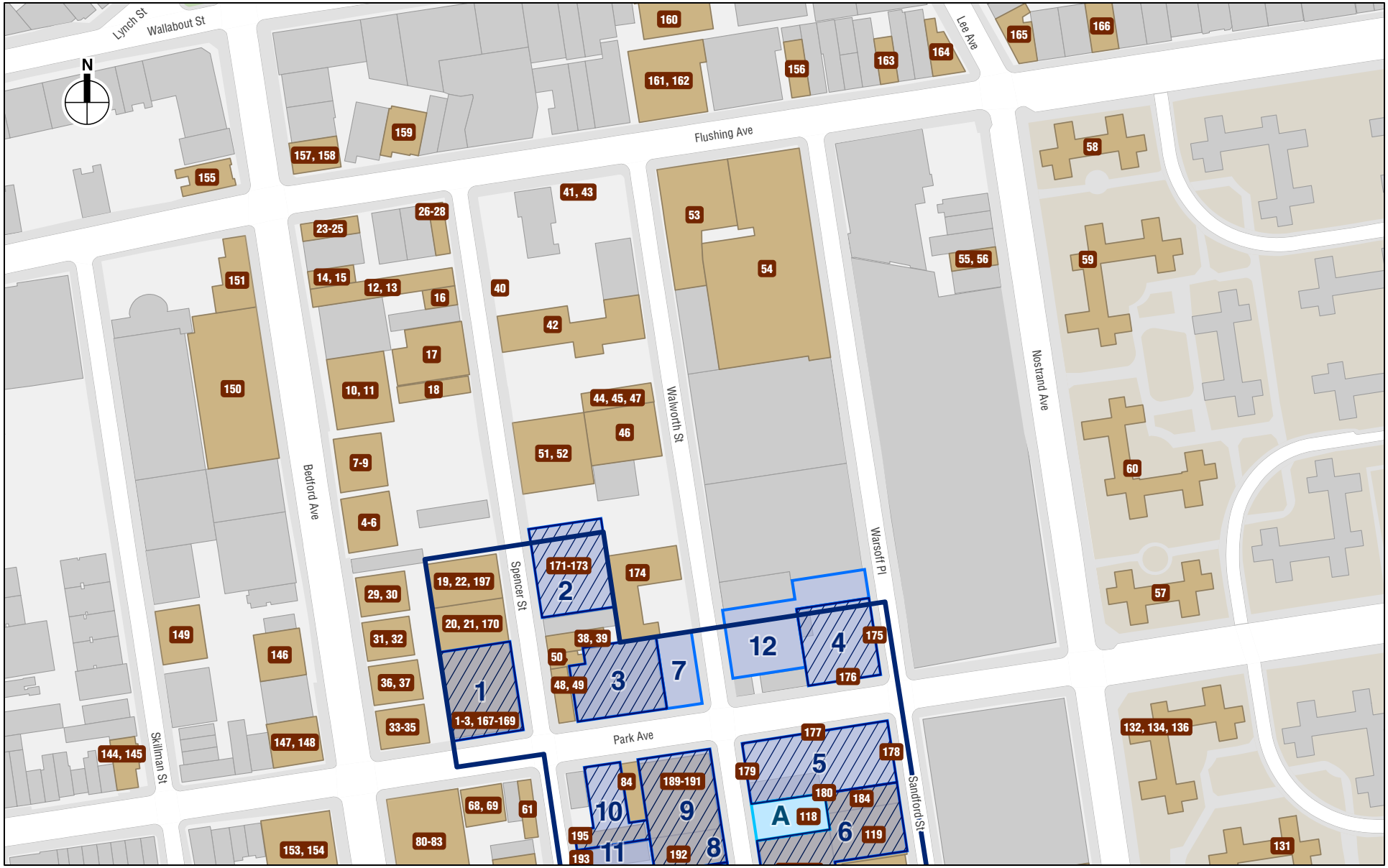
Within the study area, multiple receptor locations close to the construction areas were selected for the construction noise analysis to represent buildings or noise-sensitive open space locations that have the potential to experience elevated noise as a result of construction. These receptors are located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

Within the study area, 197 receptor locations were selected for the construction noise analysis. **Table 14-7** lists the noise receptor sites (i.e., sites 1 to 197) and the associated land use at these sites. The noise receptor locations are shown in **Figures 14-2a and 14-2b**.

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 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*.

2.11.26



Construction Noise Receptor Locations

PARK AVENUE BROOKLYN REZONING

Figure 14-2a

2.11.26



Proposed Rezoning Area
Applicant-controlled sites
Projected Development Sites
Potential Development Sites
1 Construction Noise Receptor Locations

0 500 FEET

Construction Noise Receptor Locations

PARK AVENUE BROOKLYN REZONING

Figure 14-2b

TABLE 14-7
Noise Receptors by Location and Land Use

Receptor	Location	Block / Lot	Associated Land Use
1-3	517 Park Avenue	Block 1715 / Lot 3	Commercial and Office Buildings
4-6	765 Bedford Avenue	Block 1715 / Lot 14	Residential with Commercial Below
7-9	753 Bedford Avenue	Block 1715 / Lot 19	Residential with Commercial Below
10, 11	747 Bedford Avenue	Block 1715 / Lot 21	Residential with Commercial Below
12, 13	735 Bedford Avenue	Block 1715 / Lot 29	Commercial and Office Buildings
14, 15	731 Bedford Avenue	Block 1715 / Lot 30	Residential with Commercial Below
16	14 Spencer Street	Block 1715 / Lot 41	Residential
17, 18	18 Spencer Street	Block 1715 / Lot 43	Commercial and Office Buildings
19-22, 197	48 Spencer Street	Block 1715 / Lot 103	Commercial and Office Buildings
23-25	450 Bedford Avenue	Block 1715 / Lot 7502	Residential
26-28	464 Flushing Avenue	Block 1715 / Lot 7505	Residential
29, 30	773 Bedford Avenue	Block 1715 / Lot 7506	Residential
31, 32	777 Bedford Avenue	Block 1715 / Lot 7507	Residential
33-35	789 Bedford Avenue	Block 1715 / Lot 7508	Residential
36, 37	783 Bedford Avenue	Block 1715 / Lot 7509	Residential
38, 39	53 Spencer Street	Block 1716 / Lot 1	Residential
40-43	466 Flushing Avenue	Block 1716 / Lot 24	Residential with Commercial Below
44-47	34 Walworth Street	Block 1716 / Lot 44	Public Facilities and Institutions
48, 49	523 Park Avenue	Block 1716 / Lot 66	Residential with Commercial Below
50	55 Spencer Street	Block 1716 / Lot 70	Residential
51, 52	31 Spencer Street	Block 1716 / Lot 7501	Commercial and Office Buildings
53	9 Walworth Street	Block 1717 / Lot 26	Public Facilities and Institutions
54	18 Warsoff Place	Block 1717 / Lot 7501	Public Facilities and Institutions
55, 56	38 Nostrand Avenue	Block 1718 / Lot 46	Residential
57-60	21 Nostrand Avenue	Block 1719 / Lot 1	Residential with Commercial Below
61	510 Park Avenue	Block 1734 / Lot 9	Residential with Commercial Below
62, 63	689 Myrtle Avenue	Block 1734 / Lot 7503	Residential
64, 65	100 Spencer Street	Block 1734 / Lot 7506	Residential
66, 67	829 Bedford Avenue	Block 1734 / Lot 7507	Residential with Commercial Below
68, 69	504 Park Avenue	Block 1734 / Lot 7508	Residential
70, 71	809 Bedford Avenue	Block 1734 / Lot 7509	Residential
72, 73, 121	82 Spencer Street	Block 1734 / Lot 7510	Residential
74, 75	821 Bedford Avenue	Block 1734 / Lot 7511	Residential with Commercial Below
76, 77	74 Spencer Street	Block 1734 / Lot 7513	Residential
78, 79	94 Spencer Street	Block 1734 / Lot 7514	Residential
80-83	801 Bedford Avenue	Block 1734 / Lot 7517	Residential with Commercial Below
84	518 Park Avenue	Block 1735 / Lot 4	Public Facilities and Institutions
85	86 Walworth Street	Block 1735 / Lot 13	Residential
86, 87	88 Walworth Street	Block 1735 / Lot 14	Public Facilities and Institutions
88	104 Walworth Street	Block 1735 / Lot 22	Public Facilities and Institutions
89, 90	106 Walworth Street	Block 1735 / Lot 23	Residential
91, 92	122 Walworth Street	Block 1735 / Lot 31	Residential
93, 94	713 Myrtle Avenue	Block 1735 / Lot 33	Residential with Commercial Below
95, 96	707a Myrtle Avenue	Block 1735 / Lot 36	Residential
97	103 Spencer Street	Block 1735 / Lot 48	Public Facilities and Institutions
98	87 Spencer Street	Block 1735 / Lot 56	Public Facilities and Institutions
99, 100	85 Spencer Street	Block 1735 / Lot 57	Public Facilities and Institutions
101	83 Spencer Street	Block 1735 / Lot 58	Public Facilities and Institutions
102, 196	79 Spencer Street	Block 1735 / Lot 60	Public Facilities and Institutions
103-108	114a Walworth Street	Block 1735 / Lot 7501	Residential
109-112	84 Sandford Street	Block 1736 / Lot 14	Public Facilities and Institutions
113, 114	122 Sandford Street	Block 1736 / Lot 34	Residential with Commercial Below
115	715 Myrtle Avenue	Block 1736 / Lot 44	Residential with Commercial Below
116	115 Walworth Street	Block 1736 / Lot 48	Residential
117	99 Walworth Street	Block 1736 / Lot 56	Commercial and Office Buildings
118, 119	79 Walworth Street	Block 1736 / Lot 68	Public Facilities and Institutions

Receptor	Location	Block / Lot	Associated Land Use
120	80 Spencer Street	Block 1734 / Lot 7512	Residential
122, 123	114 Sandford Street	Block 1736 / Lot 7501	Residential with Commercial Below
124, 125	110 Nostrand Avenue	Block 1737 / Lot 17	Residential with Commercial Below
126, 127	132 Nostrand Avenue	Block 1737 / Lot 29	Residential
128	741 Myrtle Avenue	Block 1737 / Lot 40	Residential with Commercial Below
129, 130	113 Sandford Street	Block 1737 / Lot 51	Residential
131-136	111 Nostrand Avenue	Block 1738 / Lot 1	Residential
137, 138	692 Myrtle Avenue	Block 1750 / Lot 24	Residential with Commercial Below
139	712 Myrtle Avenue	Block 1751 / Lot 23	Residential with Commercial Below
140	728 Myrtle Avenue	Block 1752 / Lot 21	Residential with Commercial Below
141	744 Myrtle Avenue	Block 1753 / Lot 24	Residential with Commercial Below
142, 143	756 Myrtle Avenue	Block 1754 / Lot 7502	Residential with Commercial Below
144, 145	54 Skillman Street	Block 1885 / Lot 7507	Residential with Commercial Below
146	800 Bedford Avenue	Block 1886 / Lot 7501	Residential
147, 148	810 Bedford Avenue	Block 1886 / Lot 7503	Residential with Commercial Below
149	35 Skillman Street	Block 1886 / Lot 7506	Residential
150	744 Bedford Avenue	Block 1886 / Lot 7507	Residential with Commercial Below
151	436 Flushing Ave	Block 1886 / Lot 7508	Residential
152	844 Bedford Avenue	Block 1900 / Lot 47	Vacant Land
153, 154	814 Bedford Avenue	Block 1900 / Lot 7515	Residential with Commercial Below
155	730 Bedford Avenue	Block 2262 / Lot 7507	Residential
156	517 Flushing Avenue	Block 2263 / Lot 61	Residential with Commercial Below
157, 158	721 Bedford Avenue	Block 2263 / Lot 7504	Residential
159	463 Flushing Avenue	Block 2263 / Lot 7505	Residential
160	200 Wallabout Street	Block 2263 / Lot 7507	Residential with Commercial Below
161, 162	515 Flushing Avenue	Block 2263 / Lot 7508	Residential with Commercial Below
163	527 Flushing Avenue	Block 2263 / Lot 7510	Residential
164	535 Flushing Avenue	Block 2263 / Lot 7511	Residential with Commercial Below
165	539 Flushing Avenue	Block 2264 / Lot 74	Residential with Commercial Below
166	551 Flushing Avenue	Block 2264 / Lot 7510	Residential
167-170	Projected Development Site 1	Block 1715 / Lot 3	Residential with Commercial Below
171-174	Projected Development Site 2	Block 1716 / Lot 3	Public Facilities and Institutions
175, 176	Projected Development Site 4	Block 1717 / Lot 60	Residential with Commercial Below
177-180	Projected Development Site 5	Block 1736 / Lot 1	Residential with Commercial Below
181-184	Projected Development Site 6	Block 1736 / Lots 10, 11, 13, 18, 61, 62, 63	Public Facilities and Institutions
185-188	Projected Development Site 8	Block 1735 / Lots 13, 14	Public Facilities and Institutions
189-192	Projected Development Site 9	Block 1735 / Lots 5, 11, 12	Residential with Commercial Below
193-195	Projected Development Site 11	Block 1735 / Lot 3	Residential with Commercial Below

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

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

In addition, shielding by barriers erected on the construction site and reflections and shielding from adjacent buildings will be accounted for in the model. Construction-related vehicles were assigned to the adjacent roadways. The model produces 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.[6]

Determination of Non-Construction Noise Levels

Noise generated by construction activities (calculated using the CadnaA model as described above) were added to baseline (i.e., non-construction) noise levels, including noise generated by non-construction traffic on adjacent roadways, to determine the total noise levels at each receptor location. Baseline noise levels were calculated using the CadnaA model based on existing condition traffic information. The existing condition CadnaA model includes receptors representing the noise measurement locations from the operational noise analysis to be used for the purpose of validating or calibrating the existing condition results. The existing condition CadnaA model included the noise measurement locations described in **Chapter 11, "Noise,"** for the purpose of validating the calculated existing condition noise level modeling.

Analysis Time Period Selection

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

Based on the anticipated construction schedule and preliminary construction estimates developed for the proposed project, specific time periods during construction were selected for detailed analysis. The periods selected captured each major construction stage (e.g., excavation/foundation work, superstructure work, interior fit-out work) at the buildings and structures to be constructed under the Proposed Actions, including major overlaps of construction stages between individual sites. These were the time periods with the potential to result in the maximum incremental construction noise at nearby receptors (i.e., time periods when multiple buildings would be under construction using noisy equipment) as well as resulting in the maximum levels of construction noise at the proposed buildings that would be completed and occupied during subsequent construction associated with the Proposed Actions. Each analysis time period is expected to conservatively represent 1 to 9 months of time based on the duration of activities that would be underway during the time period. The worst-case time periods selected for the detailed construction noise analysis are shown in **Table 14-8**.

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

TABLE 14-8
Construction Noise Analysis Periods

Analysis Period	Construction Activities
April 2026 – November 2026	Site 2: Demolition/Excavation/Foundation Site 6: Demolition/Excavation/Foundation and Building Superstructure/Exterior
December 2026 – March 2027	Sites 2 and 6: Building Superstructure/Exterior
April 2027 – September 2027	Sites 2 and 6: Interior Fit-Out
October 2027 – December 2027	Sites 2 and 6: Interior Fit-Out Sites 4 and 8: Demolition/Excavation/Foundation
January 2028 – March 2028	Sites 4 and 8: Building Superstructure/Exterior
April 2028 – June 2028	Site 1: Building Superstructure/Exterior Sites 4 and 8: Building Superstructure/Exterior and Interior Fit-Out Site 5: Demolition/Excavation/Foundation
July 2028 – September 2028	Sites 1 and 5: Building Superstructure/Exterior Sites 4 and 8: Interior Fit-Out Site 9: Demolition/Excavation/Foundation
October 2028	Sites 1, 4, and 8: Interior Fit-Out Sites 5 and 9: Building Superstructure/Exterior Site 11: Demolition/Excavation/Foundation
November 2028 – January 2029	Sites 1, 4, and 8: Interior Fit-Out Site 3: Demolition/Excavation/Foundation Site 5: Interior Fit-Out Sites 9 and 11: Building Superstructure/Exterior
February 2029 – April 2029	Sites 1 and 5: Interior Fit-Out Site 3: Building Superstructure/Exterior Sites 9 and 11: Interior Fit-Out
May 2029 – June 2029	Sites 1, 5, 9, and 11: Interior Fit-Out Site 3: Building Superstructure/Exterior and Interior Fit-Out Sites 7 and 12: Demolition/Excavation/Foundation
July 2029 – October 2029	Sites 3, 5, and 9: Interior Fit-Out Sites 7 and 12: Building Superstructure/Exterior Site 10: Demolition/Excavation/Foundation and Building Superstructure/Exterior
November 2029 – January 2030	Sites 3, 7, 9, and 12: Interior Fit-Out Site 10: Building Superstructure/Exterior
February 2030 – October 2030	Sites 3, 7, 10, 12: Interior Fit-Out

Construction Noise Impact Criteria

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

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

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

months or more and noise level increases that would be considered "very objectionable" (i.e., equal to or greater than 20 dBA)[7] lasting three consecutive months or more could also be considered significant impacts.

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

Noise Reduction Measures

Construction under the Proposed Actions would be required to follow 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) for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the *New York City Noise Control Code.* These measures would 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, included under New York City regulations, would be implemented:

- Equipment that meets the sound level standards specified in Subchapter 5 of the *New York City Noise Control Code* and Table 22-1 of the *CEQR Technical Manual* would be utilized from the start of construction. **Table 14-9** shows the noise levels for typical construction equipment that would be used for construction under the Proposed Actions.
- As early in the construction period as logistics allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welding machines, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practicable. Where electrical equipment cannot be used, diesel or gas-powered generators and pumps would be located within buildings to the extent feasible and practicable.
- The construction site 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 New York City 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, under New York regulations, would be implemented:

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

- Noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations to the extent practicable given site limitations (i.e., receptors on multiple sides).
- Noise barriers constructed from plywood or other materials would be utilized to provide shielding (e.g., the construction sites would have a minimum 8-foot-tall barrier around the perimeter).
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents) would be used for certain equipment as necessary to the extent feasible and practicable to remain consistent with **Table 14-9**. The details to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's *Rules for Citywide Construction Noise Mitigation.*[8]

In addition, the path control listed below would be implemented as a PCRE beyond NYC regulations for the construction of the ~~Proposed Project~~total RWCDS for the Proposed Actions:

- Concrete operations at Projected Development Site 6 would be located within the ~~Development~~ development ~~Site's~~ site's construction barrier until 86 and 88 Walworth Street are vacated.

TABLE 14-9
Construction Equipment Noise Emissions in dBA

Equipment List	Typical Lmax Noise Level at 50 feet[1]
Bar Bender	80
Concrete Mixer Truck	85
Concrete Pump Truck	82
Concrete Trowel (Walk Behind)	76
Concrete Vibrator	76[2]
Crane	85
Excavator	85
Generator	82
Impact Pile Driver	95
Jackhammer	85
Man Lift	85
Pumps	77
Vibratory Concrete Mixer	80
Welder / Torch	73

Notes:
[1] Rules for Citywide Construction Noise Mitigation, Chapter 28, DEP, 2007, except where noted.
[2] Federal Transit Administration (FTA), Report No. 0123 September 2018, Table 7-1 Construction Equipment Noise Emission Levels.

Construction Noise Analysis Results

Using the methodology described and considering the noise abatement measures specified above, a cumulative noise analysis was performed to determine maximum 1-hour equivalent ($L_{eq(1)}$) noise levels that would be expected at each of the 197 noise receptor locations during of the selected construction period.

The full results of the detailed construction noise analysis are shown in **Appendix D**. The results of the detailed construction noise analysis at locations where "objectionable" and "very

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

objectionable" noise level increases are predicted are summarized in **Table 14-10**. Locations in which significant adverse impacts were determined are shown in **Figure 14-3**.

TABLE 14-10
Construction Noise Analysis Results in dBA

Receptor	Address	Existing L10	Max Total L10	Max Change in L10	Maximum Continuous Duration (months)	
					"Objectionable" Increase	"Very Objectionable" Increase
4	765 BEDFORD AVENUE	58.4	75.5	17.0	8	0
8	753 BEDFORD AVENUE	58.4	76.5	18.0	8	0
11	747 BEDFORD AVENUE	58.4	74.2	15.8	4	0
18	18 SPENCER STREET	59.3	76.2	17.6	8	0
19	48 SPENCER STREET	65.4	88.4	24.1	8	8
20	48 SPENCER STREET	65.5	86.2	21.5	8	4
21	48 SPENCER STREET	58.4	74.7	16.3	3	0
30	773 BEDFORD AVENUE	58.4	74.0	15.6	3	0
32	777 BEDFORD AVENUE	59.3	77.9	19.0	3	0
35	789 BEDFORD AVENUE	65.6	80.9	16.0	3	0
36	783 BEDFORD AVENUE	61.5	81.3	21.2	3	3
38	53 SPENCER STREET	66.1	85.2	19.4	8	0
39	53 SPENCER STREET	58.4	87.5	29.1	19	12
49	523 PARK AVENUE	67.6	88.7	21.7	3	3
50	55 SPENCER STREET	66.4	86.7	21.1	8	3
51	31 SPENCER STREET	65.5	78.3	19.5	8	0
52	31 SPENCER STREET	61.8	78.3	17.6	6	0
61	510 PARK AVENUE	68.3	85.4	17.8	7	0
69	504 PARK AVENUE	58.4	78.8	20.4	9	3
72	82 SPENCER STREET	65.6	84.6	20.1	4	1
76	74 SPENCER STREET	65.6	87.3	22.0	7	4
82	801 BEDFORD AVENUE	58.4	74.1	15.7	2	0
83	801 BEDFORD AVENUE	58.4	75.4	17.0	3	0
84	518 PARK AVENUE	71.1	87.1	17.2	3	0
99	85 SPENCER STREET	58.4	87.0	28.6	9	9
101	83 SPENCER STREET	66.7	83.7	17.1	4	0
102	79 SPENCER STREET	66.7	87.6	20.9	7	4
109	84 SANDFORD STREET	65.0	80.4	16.3	7	0
110	84 SANDFORD STREET	61.2	81.6	22.3	8	8
111	84 SANDFORD STREET	58.4	80.2	21.8	8	8
112	84 SANDFORD STREET	60.1	86.7	28.3	8	8
117	99 WALWORTH STREET	66.3	78.2	17.5	4	0
118	79 WALWORTH STREET	67.3	87.5	20.2	13	4
119	79 WALWORTH STREET	59.2	79.8	20.6	8	4
120	80 SPENCER STREET	65.5	87.1	21.9	7	4
121	82 SPENCER STREET	65.5	86.0	21.1	7	1
167	PROJECTED DEVELOPMENT SITE 1	67.2	82.7	16.1	4	0
173	PROJECTED DEVELOPMENT SITE 2	63.4	83.2	19.8	12	0
174	PROJECTED DEVELOPMENT SITE 2	63.4	81.0	17.6	6	0
181	PROJECTED DEVELOPMENT SITE 6	67.3	86.7	20.8	13	6
183	PROJECTED DEVELOPMENT SITE 6	66.1	84.2	19.3	10	0
184	PROJECTED DEVELOPMENT SITE 6	66.8	85.8	19.2	7	0
193	PROJECTED DEVELOPMENT SITE 11	67.0	87.8	21.0	7	7
195	PROJECTED DEVELOPMENT SITE 11	65.7	89.3	23.6	7	7
196	79 SPENCER STREET	58.4	92.8	34.4	16	13
197	48 SPENCER STREET	59.9	76.2	17.7	8	0

3.6.26



0 200 FEET

Proposed Rezoning Area

Applicant-controlled sites

Projected Development Sites

Potential Development Sites

Construction Noise Impacts

Significant Adverse Impacts at Existing Buildings

Significant Adverse Impacts at Future Buildings

Construction Noise Impacts

PARK AVENUE BROOKLYN REZONING

Figure 14-3

The noise levels shown in **Table 14-10** are maximum 1-hour L_{10} noise levels; however, noise levels resulting from construction typically fluctuate throughout the day and from day to day during each construction phase and would not be sustained at these maximum values. Additionally, noise levels expected to result from the construction under the Proposed Actions would be comparable to those from typical construction sites in New York City involving a new building with concrete slab floors and column-supported foundation. Similarly, potential disruptions to adjacent residences and other receptors from elevated noise levels generated by construction would be expected to be comparable to those that would occur immediately adjacent to a typical New York City construction site during the portions of the construction period when the loudest activities would occur.

At some receptors, construction under the Proposed Actions would result in increments that would be considered "objectionable" (i.e., 15 dBA or greater) or "very objectionable" (i.e., 20 dBA or greater). The potential for significant adverse impacts at these receptors was determined by evaluating the duration of these increments and for interior receptors, estimating acceptability of interior noise levels, as described below.

COMMERCIAL OFFICE RECEPTORS AT 48 SPENCER STREET

Receptors 19 through 22 and 197 represent the commercial office uses located at 48 Spencer Street. Existing noise levels at these receptors are estimated up to mid-60s dBA, which would be considered "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptors 21, 22, and 197, representing the northern, western, and southern façades of 48 Spencer Street facing away from construction, no objectionable noise level increase lasting 12 or more consecutive months and no very objectionable noise level increase lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptors 19 and 20, representing the eastern façade of 48 Spencer Street, construction is predicted to result in noise levels up to the high 80s dBA at these receptors, resulting in noise level increases up to approximately 24 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

The façade of 48 Spencer Street would be expected to provide approximately 25 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 63 dBA at noise-sensitive spaces, approximately 13 dBA greater than the interior noise level threshold of 50 dBA considered acceptable for commercial office use by CEQR noise exposure guidance.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately eight consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the eastern façade of 48 Spencer Street represented by receptors 19 and 20. These receptors are discussed further in **Chapter 16, "Mitigation."**

RESIDENTIAL RECEPTORS AT 773, 777, 783, AND 789 BEDFORD AVENUE

Receptors 29 through 37 represent the residential buildings on the eastern side of Bedford Avenue and the northern side of Park Avenue, including 773, 777, 783, and 789 Bedford Avenue. Existing noise levels at these receptors are estimated in the high 50s to the low 70s dBA, which

would be considered “acceptable” to “marginally unacceptable” according to *CEQR Technical Manual* noise exposure criteria.

At receptor 36, representing the eastern façade of 783 Bedford Avenue, construction is predicted to result in noise levels up to the low 80s dBA, resulting in noise level increases up to approximately 21 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the “clearly unacceptable” category.

At the remaining receptors, no objectionable noise level increase lasting 12 or more consecutive months and no very objectionable noise level increase lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

783 Bedford Avenue is located within a Special Mixed-Use District. The façade would therefore be expected to provide approximately 35 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 46 dBA at noise-sensitive spaces, approximately 1 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for residential or community facility use by CEQR noise exposure guidance, respectively.

Based on the prediction of “very objectionable” noise level increases lasting up to approximately three consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the eastern façade of 783 Bedford Avenue represented by receptor 36. This receptor is discussed further in **Chapter 16, “Mitigation.”**

RESIDENTIAL RECEPTORS AT 53 SPENCER STREET, 55 SPENCER STREET, AND 523 PARK AVENUE

Receptors 38, 39, and 48 through 50 represent residential buildings on Spencer Street between Park and Flushing Avenues, including 53 Spencer Street, 55 Spencer Street, and 523 Park Avenue. Existing noise levels at these receptors are estimated in the high 50s to the low 70s dBA, which would be considered “acceptable” to “marginally unacceptable” according to *CEQR Technical Manual* noise exposure criteria.

At receptor 38 representing the western façade of 53 Spencer Street and receptor 48 representing the southern façade of 523 Park Avenue facing away from construction, no objectionable noise level increase lasting 12 or more consecutive months and no very objectionable noise level increase lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptor 39, which represents the eastern façade of 53 Spencer Street, construction is predicted to result in noise levels up to the high 80s dBA, resulting in noise level increases up to approximately 29 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the “clearly unacceptable” category.

At receptors 49 and 50, which represent the western façades of 523 Park Avenue and 55 Spencer Street respectively, construction is predicted to result in noise levels up to the high 80s dBA, resulting in noise level increases up to approximately 22 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the “clearly unacceptable” category.

The façades of 53 Spencer Street, 55 Spencer Street, and 523 Park Avenue would be expected to provide approximately 25 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 64 dBA at noise-sensitive spaces, approximately 19 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for residential or community facility use by CEQR noise exposure guidance, respectively.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately 12 consecutive months and/or "objectionable" noise level increases lasting up to approximately 19 consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the eastern façade of 53 Spencer Street represented by receptor 39 and western façades of 55 Spencer Street and 523 Park Avenue represented by receptors 49 and 50. These receptors are discussed further in **Chapter 16, "Mitigation."**

RESIDENTIAL RECEPTORS AT 504 PARK AVENUE

Receptors 68 and 69 represent residential receptors on Park Avenue between Bedford Avenue and Spencer Street, including 504 Park Avenue. Existing noise levels at these receptors are estimated in the high 50s to low 70s dBA, which would be considered "acceptable" to "marginally unacceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptor 68, representing the northern façade of 504 Park Avenue, no objectionable noise level increase lasting 12 or more consecutive months and no very objectionable noise level increase lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at this receptor.

At receptor 69, representing the southern façade of 504 Park Avenue, construction is predicted to result in noise levels up to the high 70s dBA, resulting in noise level increases up to approximately 20 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" category.

504 Park Avenue is located within a Special Mixed-Use District. The façade would therefore be expected to provide approximately 35 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 44 dBA at noise-sensitive spaces. Since interior noise levels would remain below the threshold of 45 dBA considered acceptable for residential use by CEQR noise exposure guidance, noise resulting from construction would not rise to the level of a significant adverse impact at this receptor.

RESIDENTIAL RECEPTORS AT 74 THROUGH 94 SPENCER STREET

Receptors 72 73, 76 through 79, 120, and 121 represent residential receptors on Spencer Street between Park Avenue and Myrtle Avenue, including 74, 80, 82, 86, 90, and 94 Spencer Street. Existing noise levels at these receptors are estimated in the high 50s to mid-60s dBA, which would be considered "acceptable" to "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptors 73, 77, and 79, representing the western façades of 74 through 94 Spencer Street facing away from construction, no objectionable noise level increase lasting 12 or more consecutive months and no very objectionable noise level increase lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptors 72, 78, and 121, representing the eastern façades of 82 through 94 Spencer Street, no objectionable noise level increase lasting 12 or more consecutive months and no very objectionable noise level increase lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptors 76 and 120, representing the eastern façades of 74 and 80 Spencer Street, construction is predicted to result in noise levels up to the mid-80s dBA, resulting in noise level increases up to approximately 22 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

74 and 80 Spencer Street are located within a Special Mixed-Use District. The façades would therefore be expected to provide approximately 35 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 52 dBA at noise-sensitive spaces, approximately 7 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for residential use by CEQR noise exposure guidance.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately three consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the eastern façade of 74 and 80 Spencer Street represented by receptors 76 and 120. These receptors are discussed further in **Chapter 16, "Mitigation."**

HOUSE OF WORSHIP RECEPTORS AT 79-85 SPENCER STREET

Receptors 99, 100, 102, and 196 represent house of worship receptors on Spencer Street between Park Avenue and Myrtle Avenue, including 79 through 85 Spencer Street. Existing noise levels at these receptors are estimated in the high 50s to mid-60s dBA, which would be considered "acceptable" to "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptor 100, representing the western façades of 85 Spencer Street facing away from construction, no objectionable noise level increase lasting 12 or more consecutive months and no very objectionable noise level increase lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptors 99, 102, and 196, representing the eastern façade of 85 Spencer Street as well as the northern and western façades of 79 Spencer Street, construction is predicted to result in noise levels up to the low 90s dBA, resulting in noise level increases up to approximately 34 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

The façades of 79 through 85 Spencer Street would be expected to provide approximately 25 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 68 dBA at noise-sensitive spaces, approximately 23 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for residential or community facility use by CEQR noise exposure guidance, respectively.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately 13 consecutive months and/or "objectionable" noise level increases lasting up to approximately 16 consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the eastern façade of

85 Spencer Street and the northern and western façade of 79 Spencer Street represented by receptors 99, 102, and 196. These receptors are discussed further in **Chapter 16, "Mitigation."**

SCHOOL RECEPTORS AT 84 SANDFORD STREET

Receptors 109 through 112 represent school receptors on Sandford Street between Park Avenue and Myrtle Avenue, including 84 Sandford Street. Existing noise levels at these receptors are estimated in the high 50s to mid-60s dBA, which would be considered "acceptable" to "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptor 109, representing the eastern façades of 84 Sandford Street facing away from construction, no objectionable noise level increases lasting 12 or more consecutive months and no very objectionable noise level increases lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at this receptor.

At receptors 110 through 112, representing the northern, southern, and western façades of 84 Sandford Street, construction is predicted to result in noise levels up to the mid-80s dBA, resulting in noise level increases up to approximately 28 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

The façade of 84 Sandford Street would be expected to provide approximately 32 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 55 dBA at noise-sensitive spaces with air conditioning, approximately 10 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for community facility use by CEQR noise exposure guidance.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately eight consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the northern, southern, and western façades of 84 Sandford Street represented by receptors 110 through 112. These receptors are discussed further in **Chapter 16, "Mitigation."**

HOUSE OF WORSHIP RECEPTORS AT 79 WALWORTH STREET

Receptors 118 and 119 represent house of worship receptors at 79 Walworth Street. Existing noise levels at these receptors are estimated in the high 50s to mid-60s dBA, which would be considered "acceptable" to "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At these receptors, representing the eastern and western façades of 79 Walworth Street, construction is predicted to result in noise levels up to the mid-80s dBA, resulting in noise level increases up to approximately 21 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

The façade of 79 Walworth Street would be expected to provide approximately 25 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 63 dBA at noise-sensitive spaces, approximately 18 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for residential or community facility use by CEQR noise exposure guidance.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately four consecutive months and/or "objectionable" noise level increases lasting up to approximately 13 consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at 79 Walworth Street represented by receptors 118 and 119. These receptors are discussed further in **Chapter 16, "Mitigation."**

RESIDENTIAL RECEPTORS AT PROJECTED DEVELOPMENT SITE 2

Receptors 171 through 174 represent residential receptors at Projected Development Site 2, on Spencer Street between Flushing Avenue and Park Avenue. Existing noise levels at these receptors are estimated up to mid-60s dBA, which would be considered "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptors 171, 172, and 174, representing the northern, eastern, and western façades of Projected Development Site 2 facing away from construction, no objectionable noise level increases lasting 12 or more consecutive months and no very objectionable noise level increases lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptor 173, representing the southern façades of Projected Development Site 2, construction is predicted to result in noise levels up to the low 80s dBA, resulting in noise level increases just below 20 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

The façade of the future building at Projected Development Site 2 would be expected to provide approximately 25 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 58 dBA at noise-sensitive spaces, approximately 13 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for community facility use by CEQR noise exposure guidance.

Based on the prediction of "objectionable" noise level increases lasting up to approximately 12 consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the southern façade of Projected Development Site 2 represented by receptor 173. This receptor is discussed further in **Chapter 16, "Mitigation."**

RESIDENTIAL RECEPTORS AT PROJECTED DEVELOPMENT SITE 6

Receptors 181 through 184 represent residential receptors at Projected Development Site 6, on Spencer Street between Park Avenue and Myrtle Avenue. Existing noise levels at these receptors are estimated in the high 50s to mid-60s dBA, which would be considered "acceptable" to "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptors 182 through 184, representing the northern, southern, and recessed western façades of Projected Development Site 6, no objectionable noise level increases lasting 12 or more consecutive months and no very objectionable noise level increases lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptor 181, representing the western façade of Projected Development Site 6, construction is predicted to result in noise levels up to the mid-80s dBA, resulting in noise level increases up

to approximately 21 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

The façade of the future building at Projected Development Site 6 would be expected to provide approximately 28 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 59 dBA at noise-sensitive spaces, approximately 14 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for community facility use by CEQR noise exposure guidance.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately six consecutive months and/or "objectionable" noise level increases lasting up to approximately 13 consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the western façade of Projected Development Site 6 represented by receptor 181. This receptor is discussed further in **Chapter 16, "Mitigation."**

RESIDENTIAL RECEPTORS AT PROJECTED DEVELOPMENT SITE 11

Receptors 193 through 195 represent residential receptors at Projected Development Site 11, on Spencer Street between Park Avenue and Myrtle Avenue. Existing noise levels at these receptors are estimated up to mid-60s dBA, which would be considered "marginally acceptable" according to *CEQR Technical Manual* noise exposure criteria.

At receptor 194, representing the southern façades of Projected Development Site 11 facing away from construction, no objectionable noise level increases lasting 12 or more consecutive months and no very objectionable noise level increases lasting three or more consecutive months are predicted. As such, construction noise would not rise to the level of a significant impact at these receptors.

At receptors 193 and 195, representing the western and northern façades of Projected Development Site 11, construction is predicted to result in noise levels up to the high 80s dBA, resulting in noise level increases up to approximately 24 dBA during the most noise-intensive stages of construction. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" category.

The façade of the future building at Projected Development Site 11 would be expected to provide approximately 35 dBA of window/wall attenuation. Consequently, maximum interior L_{10} noise levels during construction would be up to approximately 54 dBA at noise-sensitive spaces, approximately 9 dBA greater than the interior noise level threshold of 45 dBA considered acceptable for community facility use by CEQR noise exposure guidance.

Based on the prediction of "very objectionable" noise level increases lasting up to approximately seven consecutive months, as well as interior noise levels exceeding the acceptable limits, construction noise would result in a temporary significant adverse impact at the western and northern façades of Projected Development Site 11 represented by receptors 193 and 195. These receptors are discussed further in **Chapter 16, "Mitigation."**

OTHER RECEPTORS EXPERIENCING "OBJECTIONABLE" OR "VERY OBJECTIONABLE" INCREASES

At receptors 4, 8, 11, 18, 51, 52, 61, 82 through 84, 101, 117, and 167, construction of the RWCDS associated with the Proposed Actions would result in noise level increases that would

be perceptible to noticeable and at times "objectionable" or even "very objectionable." However, at these receptors, "objectionable" noise level increases would occur for periods of fewer than 12 consecutive months, and "very objectionable" noise level increases would occur for periods of fewer than three consecutive months. Consequently, while construction noise at these receptors would be perceptible, it would not rise to the level of a significant adverse impact according to the impact criteria described above.

OTHER NEARBY RECEPTORS

At the remaining receptors, construction under the Proposed Actions would, for some portion of the construction period, result in noise level increases that would be perceptible to noticeable. However, at these receptors, maximum noise level increases would not result in "objectionable" or "very objectionable" noise level increases. Consequently, while construction noise at these receptors may be perceptible at times, it would not rise to the level of a significant impact according to the impact criteria described above.

Conclusions

Construction under the Proposed Actions would have the potential to result in significant adverse impacts related to noise. At some receptors, construction under the Proposed Actions would result in increments that would be considered objectionable (i.e., 15 dBA or greater) or very objectionable (i.e., 20 dBA or greater). The potential for significant adverse impacts at these receptors was determined by evaluating the duration of these increments and whether CEQR interior noise level thresholds would be exceeded or not. Construction under the Proposed Actions is anticipated to result in significant adverse impacts. However, building construction would typically occur during weekday daytime hours and would therefore not produce noise during nighttime hours when residents would be most sensitive to noise. Further, construction would comply with *New York City Noise Control Code* regulations as well as commit to staging concrete operations at Projected Development Site 6 within the construction barrier until 86 and 88 Walworth Street are vacated. Per *New York City Noise Control Code* regulations, construction under the Proposed Actions would be required to prepare a Construction Noise Mitigation Plan, which may identify more control measures that would further reduce construction noise levels. This is discussed further in **Chapter 16, "Mitigation."**

TABLE 14-11
Adverse Significant Construction Noise Impact Locations

Receptors	Address	Land Use	Façade(s)
19, 20	48 Spencer Street	Commercial Office	E
36	783 Bedford Avenue	Residential	E
39	53 Spencer Street	Residential	E
49, 50	523 Park Avenue	Residential	W
50	55 Spencer Street	Residential	W
76	74 and 76 Spencer Street	Residential	E
120	78 and 80 Spencer Street	Residential	E
99	85 Spencer Street	House of Worship	E
102, 196	79 Spencer Street	House of Worship	N, W
110 through 112	84 Sandford Street	School	N, S, W
118, 119	79 Walworth Street	House of Worship	All
173	Projected Development Site 2	School	S
181	Projected Development Site 6	School	W
193, 195	Projected Development Site 11	Residential	N, W

Vibration

Construction activities have the potential to result in vibration that could cause structural or architectural damage, and/or annoyance or interference with vibration-sensitive activities. Vibration levels at a receiver are a function of the source strength (which depends on the construction equipment and methods used), the distance between the equipment and the receiver, the characteristics of the transmitting medium (i.e., soil, rock, etc.), and the receiver building construction materials. Construction equipment can cause ground vibrations that dissipate with distance. Vehicular traffic typically does not result in perceptible vibration levels, even at receivers close to major roadways, unless there are discontinuities in the roadway surface. Excepting 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 Development 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 peak particle velocity (PPV) of 0.50 inches/second as specified in the DOB *Technical Policy and Procedure Notices (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 structural or architectural damage.

For purposes of evaluating potential annoyance or interference with vibration-sensitive activities, vibration levels greater than 65 vibration decibel (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 14-12 shows vibration source levels for typical construction equipment.

TABLE 14-12
Vibration Source Levels for Construction Equipment

Equipment	PPVref (in/sec)	Approximate Lv (ref) (VdB)
Pile Driver (impact)	0.644 – 1.518	104 – 112
Jackhammer	0.035	79
Source: Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06, September 2018.		

The source vibration levels shown in **Table 14-11** were projected to nearby receptors to estimate the levels of construction vibration that would occur near the Projected Development Sites.

Construction Vibration Analysis Results

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are the existing buildings and structures immediately adjacent to the Development Sites. Vibration levels within 55 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, including during impact pile driving, which would be the most vibration-intensive activities associated with the Proposed Actions. Additional receptors farther away from the Projected Development Sites would experience less vibration than those listed above, which would not be expected to cause structural or architectural damage.

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 impact pile driver. It would have the potential to produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within 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, significant adverse vibration impacts would not result from construction of the RWCDS associated with the Proposed Actions.