Chapter 17: Construction

A. INTRODUCTION

This chapter summarizes the construction plans for the proposed actions and assesses the potential for significant adverse impacts during the construction period. As described in Chapter 1, "Project Description," the proposed rezoning area is located on the block bounded by West 56th and West 57th Streets and Eleventh and Twelfth Avenues (the "project block"). The proposed actions, including the rezoning, would facilitate a mixed-use development that would replace the existing structures on the proposed project site (development site 1) with a mix of primarily residential and commercial uses, and up to 500 parking spaces. For analysis purposes, it is also assumed that the proposed actions would result in the development of a new hotel at the corner of West 56th Street and Eleventh Avenue (development site 2, which is not controlled by the applicant).

All development as a result of the proposed actions is expected to be complete by 2017. As described in greater detail below, with the proposed actions construction is conservatively assumed to take place over an approximately 24-month period. This chapter summarizes the construction plans for the proposed actions and assesses the potential for significant adverse construction impacts. The city, state, and federal regulations and policies that govern construction are described, followed by the construction schedule and the types of activities likely to occur during construction. 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.

PRINCIPAL CONCLUSIONS

This analysis concludes that the proposed actions would result in significant adverse construction impacts with respect to vehicular traffic, which can be mitigated by using the same operational-period mitigation measures described in Chapter 19, "Mitigation." The results of the construction analyses for each technical area are discussed in more detail below.

TRANSPORTATION

Peak construction conditions in the sixth quarter of construction were considered for the analysis of potential transportation (traffic, parking, transit, and pedestrians) impacts during construction. Based on the construction trip projections and comparison with operational analysis results, construction under the proposed actions is expected to result in significant adverse traffic impacts. However, no significant adverse impacts to parking, transit, pedestrian conditions are anticipated due to construction.

Traffic

During peak construction in the sixth quarter of construction, the project-generated trips would be less than what would be realized upon the full build-out of the proposed actions in 2017. Therefore, the potential traffic impacts during peak construction would be within the envelope of significant adverse traffic impacts identified for the Build condition in Chapter 11, "Transportation." As detailed in Chapter 19, "Mitigation," measures to mitigate the operational traffic impacts were recommended for implementation at 13 different intersections during one or more analysis peak hours. These measures would entail primarily signal timing changes and approach daylighting, all of which could be implemented early at the discretion of the New York City Department of Transportation (NYCDOT) to address actual conditions experienced at that time.

Maintenance and Protection of Traffic (MPT) plans would be developed, reviewed, and approved by the NYCDOT Office of Construction Mitigation and Coordination (OCMC) for curb-lane and sidewalk closures as well as equipment staging activities.

Parking

The anticipated construction activities are projected to generate a maximum parking demand of 178 spaces during the sixth quarter of construction. This parking demand could be fully accommodated by off-street spaces and parking facilities within a ¼-mile radius of the project site, where an estimated 1,621 and 1,647 public parking spaces are currently available during the overnight and morning parking utilization periods, respectively, as shown in Chapter 11, "Transportation." Therefore, the proposed actions would not result in any significant adverse parking impacts during construction.

Transit

The estimated number of total peak hour transit trips would be 223 during peak construction condition in the sixth quarter of construction. These construction worker trips would occur outside of peak periods of transit ridership and would be distributed and dispersed to nearby transit facilities and would not result in any significant adverse transit impacts during construction.

Pedestrians

The estimated number of total peak hour pedestrian trips traversing the area's sidewalks, corners, and crosswalks would be up to 398 during peak construction condition in the sixth quarter of construction. These trips are expected to have minimal impacts on pedestrian operations during the construction peak hours. In addition, the 398 incremental peak hour pedestrian trips would be distributed among numerous sidewalks and crosswalks in the area. Therefore, there would not be a potential for significant adverse pedestrian impacts during construction.

AIR QUALITY

No significant adverse air quality impacts would be expected at any sensitive receptor locations due to the on-site and off-site construction activities under the proposed actions. To ensure that construction under the proposed actions would result in the lowest practicable diesel particulate matter (DPM) emissions, the applicant would implement through a Restrictive Declaration an emissions reduction program for all construction activities to the extent practicable during

construction of the applicant's mixed-use development on the proposed project site, including: diesel equipment reduction; clean fuel; best available tailpipe reduction technologies; utilization of newer equipment; source location; dust control; and idle restriction. However, there would be no mechanism under CEQR to provide for a commitment to implement any of the above emission reduction measures on sites not controlled by the applicant.

The overall construction duration under the proposed actions is expected to be short-term (less than two years). In addition, the most intense construction activities (demolition, excavation, and foundation work where a number of large non-road diesel engines would be employed) in terms of air pollutant emissions would last for only a portion of this duration, taking approximately 11 months for the applicant's mixed-use development on the project site and approximately 7 months for the potential hotel development on the development site 2, which is not controlled by the applicant. Based on the nature of the construction work involved, construction activities under the proposed actions would not be considered out of the ordinary in terms of intensity, and, in fact, emissions would be lower due to the emission control measures that would be implemented through a Restrictive Declaration during construction under the proposed actions. The nearest residences are the Helena Building and 625 West 57th Street (a site that is currently under construction and expected to be complete by 2015), located 75 feet north of the rezoning area across West 57th Street. West 57th Street would serve as a buffer between the emissions sources and these sensitive locations and such distance would result in enhanced dispersion of pollutants and, therefore, potential concentration increments from on-site sources at such locations would be reduced. Furthermore, the construction would not result in increases in vehicle volumes higher than those identified in the operational condition and, therefore, an off-site construction mobile source analysis is not warranted.

Based on analysis of all of the factors affecting construction emissions, on-site and off-site construction activities due to construction under the proposed actions would not result in any significant adverse impact on air quality.

NOISE AND VIBRATION

Noise

Noise associated with the proposed actions' construction activities would not result in any significant adverse impacts. Construction on the project site would include noise control measures as required by the New York City Noise Control Code, including both path and source controls, as well as additional project-specific source and path control measures.

Immediately north of the construction site across West 57th Street are existing and approved residential buildings (the existing Helena Building and the approved 625 West 57th Street), which represent the nearest noise sensitive receptor locations to the project site. These buildings are located approximately 75 feet from the site. Construction on the proposed project site and development site 2 would be expected to last a total of approximately 24 months, but the most noise-intensive construction activities (demolition/excavation/foundation work) would last for only a portion of this duration, taking approximately 11 months for the applicant's mixed-use development and approximately 7 months for the hotel on development site 2, which is not controlled by the Applicant. Construction would have the potential to result in exceedances of the *CEQR Technical Manual* noise impact criteria at the residential receptors north of the project site on West 57th Street continuously for up to 19 months, which, according to the *CEQR Technical Manual* criteria, would not be considered a significant impact since it would be less than 24 months. The *CEQR Technical Manual* states that significant noise impacts due to

construction would occur "only at sensitive receptors that would be subjected to high construction noise levels for an extensive period of time." This has been interpreted to mean that such impacts would occur only at sensitive receptors where the activity with the potential to create high noise levels would occur continuously for approximately two years or longer. In addition, according to the 625 West 57th Street FEIS (*CEQR* No. 12DCP020M), each of these two buildings were designed to provide 28-35 dBA of window/wall attenuation, and would be expected to experience interior $L_{10(1)}$ values less than 45 dBA during the construction period, which would be considered acceptable according to the *CEQR Technical Manual* criteria. Therefore, based on these factors, no significant adverse noise impacts would be expected at any sensitive receptor locations from the proposed construction activities.

Vibration

The proposed actions are not expected to result in significant adverse construction impacts with respect to vibration. The buildings and structures of most concern with regard to the potential for structural or architectural damage due to vibration are The Helena residential building and the future building at 625 West 57th Street both located immediately north of the project site. However, both buildings are located more than 55 feet away from any pile driving locations, which is sufficiently far from the construction site that vibration levels would be below the threshold for structural damage for non-fragile structures. However, some construction activities would have the potential for resulting in vibration levels that exceed 65 VdB and would be perceptible and annoying. The equipment that would have the most potential for producing these levels is the pile driver. It would produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within a distance of approximately 230 feet. However, operation of this equipment would only occur for limited periods of time at a particular location and therefore would not result in any significant adverse impacts. In no case are significant adverse impacts from vibrations expected to occur.

OTHER TECHNICAL AREAS

Land Use and Neighborhood Character

Construction activities would affect land use in the rezoning area but would not alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the construction sites. There would also be noise, sometimes intrusive, from demolition, excavation, and foundation activities as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary in nature and would have limited effects on land uses within the study area, particularly as most construction activities would take place within the construction sites or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to the construction sites. Overall, while the construction under the proposed actions would be evident to the local community, the limited duration of construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

Socioeconomic Conditions

Construction activities associated with the proposed actions would not result in any significant adverse impacts on socioeconomic conditions. Construction under the proposed actions would not block or restrict access to any facilities in the area, affect the operations of any nearby

businesses, or obstruct major thoroughfares used by customers or businesses. Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the construction activity. The presence of construction personnel would increase revenues for local businesses such as eating and drinking establishments. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

Community Facilities

While construction under the proposed actions would result in temporary increases in traffic during the construction period, access to and from any facilities in the area would not be affected during the construction period. In addition, the construction sites would be surrounded by construction fencing and barriers that 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. The New York City Police Department (NYPD) and the New York City Fire Department (FDNY) emergency services and response times would not be materially affected by construction significantly due to the geographic distribution of the police and fire facilities and their respective coverage areas.

Open Space

There are no publicly accessible open spaces within the rezoning area, and no open space resources would be used for staging or other construction activities. The nearest resources are the open space area at the approved 625 West 57th Street (a site that is currently under construction and expected to be complete by 2015), which is located 75 feet north of the project site, and the 555 West 57th Street open space area, which is located across the Eleventh Avenue and West 57th Street, approximately 200 feet east of the construction sites. At limited times, activities such as demolition, excavation, and foundation construction may generate noise that could impair the enjoyment of nearby open space users, but such noise effects would be temporary. Construction under the proposed actions would not limit access to any open space resources in the vicinity of the rezoning area. Therefore, proposed actions would not result in significant adverse impacts on open space during construction.

Historic and Cultural Resources

The Landmarks Preservation Commission (LPC) determined that the rezoning area is not archaeologically sensitive. Therefore, no significant adverse impacts to archaeological resources would occur during construction under the proposed actions.

One architectural resource was identified in the study area, the early 20th century Consolidated Edison Power House, is located more than 345 feet from the project site, far more than the 90 feet as defined by the New York City Department of Buildings (NYCDOB) at which a resource could be damaged from vibration and additional damage from adjacent construction that could occur from falling objects, subsidence, collapse, or damage from construction machinery. Therefore the proposed actions would not result in adverse physical impacts to any architectural resource in the study area during construction.

Hazardous Materials

To reduce the potential for human or environmental exposure to contamination during and construction under the proposed actions, remediation and monitoring of active-status Spill No.

0708204 on the proposed project site would continue in accordance with New York State Department of Environmental Conservation (NYSDEC) requirements, including implementation of a NYSDEC-approved Remedial Action Work Plan (RAWP) dated February 2013. An (E) designation would be assigned to the proposed project site to ensure that remedial activities would be undertaken prior to its redevelopment. A New York City Mayor's Office of Environmental Remediation (OER) approved Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP) would be prepared for implementation during subsurface disturbance associated with project construction. The RAP would address requirements for items such as soil stockpiling, soil disposal and transportation; capping of soil disturbed by the project with impervious surfaces or clean soil; dust control; quality assurance; vapor control measures, such as the installation of a vapor barrier beneath new building foundations; and procedures for addressing known or unexpectedly encountered petroleum storage tanks, underground hydraulic lifts, or contamination. The CHASP would identify potential hazards that may be encountered during construction and specify appropriate health and safety measures to be undertaken to ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment (such as personal protective equipment, air monitoring, and emergency response procedures). Since the bottom of the foundation would extend below the water table, the use of a sub-slab ventilation system is not considered feasible, as it would be inundated with water. Below-grade garage levels would be equipped with a separate ventilation system

Suspect lead-based paint, asbestos-containing materials (ACM), and suspect polychlorinated biphenyl (PCB) containing electrical and hydraulic equipment and fluorescent lighting fixtures may be present at the proposed project site and/or at development site 2. During and following demolition associated with the proposed actions, regulatory requirements pertaining to ACM, lead-based paint, and PCBs would be followed.

With the above-described measures, the proposed actions would not result in any significant adverse impacts related to hazardous materials during construction.

B. GOVERNMENTAL COORDINATION AND OVERSIGHT

Construction oversight involves several city, state, and federal agencies. **Table 17-1** lists the primary involved agencies and their areas of responsibility. For projects in New York City, primary construction oversight lies with NYCDOB, which ensures that the construction projects meet the requirements of the New York City Building Code and that the buildings constructed are structurally, electrically, and mechanically safe. In addition, NYCDOB 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 and lifts, sidewalk sheds, and safety netting and scaffolding. The New York City Department of Environmental Protection (NYCDEP) enforces the New York City Noise Code and regulates water disposal into the sewer system as well as removal of fuel tanks and abatement of hazardous materials. The New York City Mayor's Office of Environmental Remediation (OER) reviews and approved any needed RAPs and CHASPs. The City of New York Department of Sanitation (DSNY) has regulatory and enforcement oversight of the storage, transport, and disposal of asbestos waste. FDNY has primary oversight of compliance with the New York City Fire Code and the installation of tanks containing flammable materials. NYCDOT's OCMC reviews and approves any traffic lane and sidewalk closures.

The New York State Department of Labor (NYSDOL) licenses asbestos workers. NYSDEC regulates disposal of hazardous materials, and construction and operation of bulk petroleum and chemical storage tanks. At the federal level, the Environmental Protection Agency (EPA) has wide ranging authority over environmental matters, including air emissions, noise, hazardous materials, and the use of poisons, but much of the responsibility is delegated to the state level. The Occupational Safety and Health Administration (OSHA) sets standards for work site safety and construction equipment.

Table 17-1
Construction Oversight in New York City

Agency	Areas of Responsibility
New York City	
Department of Buildings	Primary oversight for Building Code and site safety
Department of Environmental Protection	Noise, dewatering, fuel tank removal, hazardous materials abatement
Office of Environmental Remediation	RAPs/CHASPs
City of New York Department of Sanitation	Storage, transport, and disposal of asbestos waste
Fire Department	Compliance with Fire Code, fuel tank installation
Department of Transportation	Lane and sidewalk closures
New York State	
Department of Labor	Asbestos Workers
Department of Environmental Conservation	Hazardous materials and fuel/chemical storage tanks
United States	
Environmental Protection Agency	Air emissions, noise, hazardous materials, poisons
Occupational Safety and Health Administration	Worker safety

C. CONSTRUCTION PHASING AND SCHEDULE

Construction under the proposed actions is conservatively assumed to take place over an approximately 24-month period, with all developments complete by 2017. The conceptual construction schedule is shown on **Table 17-2,** and reflects the sequencing of construction events as currently contemplated. The EIS considers the potential impacts of the entire rezoning area and not just the site-specific redevelopment of the property under the applicant's control. In the conceptual construction schedule, the redevelopment of the property under the Applicant's control on the proposed project site would take approximately 24 months to complete. The proposed actions would also facilitate development of a hotel on development site 2 at the corner of West 56th Street and Eleventh Avenue. Although there is no specific construction program or design for the hotel development, it is conservatively assumed that construction activities for the hotel development would overlap with those for the applicant's project. The analyses thus conservatively account for overlapping construction activities for developments in proximity to one another to capture the cumulative nature of construction impacts and therefore is representative of the reasonable worst-case for potential impacts. The construction of the hotel development would be expected to take approximately 15 months to complete.

For each of the technical areas, appropriate construction analysis years are 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 the construction may not be at the same time as when the highest construction traffic volumes occur. Therefore, the analysis periods may differ for different analysis areas.

Table 17-2
Anticipated Construction Schedule

Construction Task	Start Month	Finish Month	Approximate Duration (months)
Applicant's Projected Development on Proposed Project Site[1]			
Demolition	Month 1	Month 3	3
Excavation and Foundation	Month 4	Month 11	8
Superstructure and Exterior Facade	Month 12	Month 19	8
Interior and Finishing	Month 15	Month 24	10
Development Site 2 (Not controlled by the applicant)[2]			
Demolition	Month 7	Month 9	3
Excavation and Foundation	Month 10	Month 13	4
Superstructure and Exterior Facade	Month 12	Month 19	8
Interior and Finishing	Month 17	Month 21	5

Source:
[1] TF Cornerstone.
[2] There is no specific construction program or design for the hotel development at this time. It is conservatively assumed that construction activities for the hotel development would overlap with those for the applicant's mixed-use development and is representative of the reasonable worst-case for potential impacts.

D. CONSTRUCTION DESCRIPTION

Construction of large-scale buildings in New York City typically follows a general pattern. The first task is construction startup, which involves the siting of work trailers, installation of temporary power and communication lines, and the erection of site perimeter fencing. At the project site where there are existing structures, the structures are demolished with some of the materials (such as concrete, block, and brick) either recycled or crushed on-site to be reused as fill and the debris taken to a licensed disposal facility. Excavation of the soils is next along with the construction of the foundations. When the below-grade construction is completed, construction of the superstructure of the new building begins. As the core and floor decks of the building are being erected, installation of the mechanical and electrical internal networks would start. As the building progresses upward, the exterior cladding is placed, and the interior fit out begins. During the busiest time of building construction, the upper core and structure is being built while mechanical/electrical connections, exterior cladding, and interior finishing are progressing on lower floors.

GENERAL CONSTRUCTION PRACTICES

An employee from the Applicant would be available throughout the entire construction period. The field representative would serve as the contact person for the community and local leaders, and would be available to address concerns or problems that may arise during the construction process. New York City maintains a 24-hour-a-day telephone hotline (311) so that concerns can be registered with the City.

HOURS OF WORK

Construction under the proposed actions would be carried out in accordance with New York City laws and regulations, which allow construction activities between 7 AM and 6 PM on weekdays. Construction work would begin at 7 AM on weekdays, with most workers arriving between 6 AM and 7AM. Normally weekday work would end by 4 PM, but it can be expected that, in order

to meet the construction schedule or to complete certain critical construction tasks, the workday may occasionally be extended beyond normal work hours. Any extended workdays would generally last until about 6 PM and would not include all construction workers on-site, but only those involved in the specific task requiring additional work time.

Weekend and night work would not be regularly scheduled, but may occur occasionally to make up for weather delays or for specific construction operations (i.e., dismantling and removal of cranes). In such cases, appropriate work permits from NYCDOB would be obtained. Similar to an extended workday, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular task at hand. The typical weekend workday would be on Saturday from approximately 9 AM to 5 PM.

DELIVERIES AND ACCESS

During construction under the proposed actions, access to the construction sites would be controlled. The work areas would be fenced off, and limited access points for workers and trucks would be provided. Security guards and flaggers would be posted as necessary. After work hours, the gates would be closed and locked. Security guards may patrol the construction sites after work hours and over the weekends to prevent unauthorized access. Material deliveries to the site would be controlled and scheduled.

The NYCDOT OCMC reviews and approves all MPT plans which specify any planned sidewalk or lane closures and staging for all construction sites. In general practice construction managers for major projects on adjacent sites would coordinate their activities to avoid delays and inefficiencies.

DSNY GARAGE

An existing garage and storage facility operated by DSNY is located immediately west of the proposed project site. Construction under the proposed actions would not block or restrict access to this facility, or affect its operation.

RODENT CONTROL

Construction contracts would include provisions for a rodent (i.e., mouse and rat) control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During construction, the contractor would carry out a maintenance program, as necessary. Signage would be posted, and coordination would be maintained with appropriate public agencies. Only EPA- and NYSDEC-registered rodenticides would be permitted, and the contractor would be required to implement the rodent control programs in a manner that is not hazardous to the general public, domestic animals, and non-target wildlife.

DESCRIPTION OF CONSTRUCTION ACTIVITIES

CONSTRUCTION STARTUP TASKS

Construction startup work prepares a site for the construction work and would involve the installation of public safety measures, such as fencing, sidewalk sheds, and Jersey barriers. The construction sites would be fenced off, typically with solid fencing to minimize interference between the persons passing by the site and the construction work. Separate gates for workers

and for trucks would be installed, and sidewalk shed and Jersey barriers would be erected. Trailers for the construction engineers and managers would be hauled to the site and installed. These trailers could be placed within the fence line, in curb lane, or over the sidewalk sheds. Also, portable toilets, dumpsters for trash, and water and fuel tankers are brought to the site and installed. Temporary utilities would be connected to the construction trailers. During the startup period, permanent utility connections may be made, especially if the construction manager has obtained early electric power for construction use, but utility connections may be made almost any time during the construction sequence.

New utility connections can be made at any time during the construction process. The initial investigatory work would often occur early during excavation and foundations, with the actual connections typically occurring once the building mechanical, electrical and plumbing systems are installed. Connections to the new buildings would be made from the existing utility lines.

DEMOLITION

Development under the proposed actions would require the demolition of existing buildings on the proposed project site and development site 2. These areas would be abated of asbestos and any other hazardous materials within the existing buildings and structures, where applicable.

A New York City-certified asbestos investigator would inspect the buildings for asbestos-containing materials (ACM), and those materials must be removed by a NYSDOL-licensed asbestos abatement contractor prior to interior demolition. Asbestos abatement is strictly regulated by NYCDEP, NYSDOL, EPA, and OSHA to protect the health and safety of construction workers and the general public. Depending on the extent and type of ACMs, these agencies would be notified of the asbestos removal and may inspect the abatement site to ensure that all work is performed in accordance with applicable regulations. Any areas of the building with ACM would be isolated with containment and decontamination systems. Specially trained and certified workers, wearing personal protective equipment, would remove the ACM and place them in bags or containers lined with plastic sheeting, for disposal at an asbestos-permitted landfill. Depending on the extent and type of ACM, an independent third-party air-monitoring firm would collect air samples before, during, and after the asbestos abatement, as needed. These samples would be analyzed in a laboratory to ensure that regulated airborne asbestos fiber levels are not exceeded.

Any activities with the potential to disturb lead-based paint would be performed in accordance with the applicable OSHA regulation (OSHA 29 CFR 1926.62—*Lead Exposure in Construction*). When conducting demolition (unlike lead abatement work), lead-based paint is generally not stripped from surfaces. Structures may be disassembled or broken apart with most paint still intact. Dust control measures (spraying with water) would be used if necessary. The lead content of any resulting dust is therefore expected to be low. Work zone air monitoring for lead may be performed during certain activities with a high potential for releasing airborne lead-containing particulates in the immediate work zone, such as manual demolition of walls with lead paint or cutting of steel with lead-containing coatings. Such monitoring would be performed to ensure that workers performing these activities are properly protected against lead exposure.

Any suspected PCB-containing equipment (such as fluorescent light ballasts) that would be disturbed would be evaluated prior to disturbance. Unless labeling or test data indicate that the suspected PCB-containing equipment does not contain PCBs, it would be assumed to contain PCBs and removed and disposed of at properly licensed facilities in accordance with all applicable regulatory requirements.

All of these procedures related to the handling of ACM, lead-based paint, and potential PCB-containing equipment would be contained in the OER-approved CHASP.

General demolition is the next step. All of the existing buildings at the proposed project site would be demolished; the existing buildings on development site 2 would be demolished as well to make room for the hotel development assumed for that site. Demolition would occur in accordance with NYCDOB guidelines/requirements. In general, the first step is to remove any economically salvageable materials. Then the building is deconstructed using back hoes with hoe ram attachments. Demolition activities would require fencing around the building to prevent accidental dispersal of building materials into areas accessible to the general public. The demolition debris would be sorted prior to being disposed at landfills to maximize recycling opportunities. Other equipment that may be used during demolition would include compressors, bobcats, front end loaders, and portable generators.

EXCAVATION AND FOUNDATION

Excavators and front end loaders would be used for the tasks of soil excavation. The soils would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse on a construction site that needs fill. Rock excavation would likely occur on the eastern portion of the project site but blasting is not anticipated to be required. The bottom of the foundation is expected to extend below the water table. The below-grade space would be designed to withstand groundwater-induced water pressures and to minimize the potential for flooding. The expected type of foundations to be constructed is a spread footing system founded on rocks on the eastern portion of the site and end-bearing piles driven to rocks on the western portion of the site. . Foundations would include driven piles and concrete foundation walls and slab. The concrete footings would be erected and subsequently the basement floors would be installed. The installation of the footings and basements would require concrete trucks, concrete pumps, backhoes, pile driving rig, line drills, compressors, and portable generators.

Below-Grade Hazardous Materials

All construction subsurface soil disturbances would be performed in accordance with an OER-approved RAP and CHASP. The RAP would provide for the appropriate handling, stockpiling, testing, transportation, and disposal of excavated materials, as well as any unexpectedly encountered tanks, in accordance with all applicable federal, state, and local regulatory requirements. The CHASP would ensure that all subsurface disturbances are done in a manner protective of workers, the community, and the environment.

Dewatering

The excavated area at any given construction site could be subject to accumulating groundwater until the slab-on-grade and/or above-grade portions of buildings are built. In addition to groundwater, rain and snow could collect in the excavation, and that water would have to be removed. Temporary erosion and sediment controls during construction may include settling tank and approved filtration systems, some of which could become integrated into permanent site features. Hay bales would be provided at local catch basins and sewer inlets to prevent sediment from leaving the construction site. If necessary, the water would be pretreated prior to discharge. The decanted water would then be discharged into the New York City sewer system. Discharge in the sewer system is governed by NYCDEP regulations.

NYCDEP has a formal procedure for issuing a Letter of Approval to discharge into the New York City sewer system. The authorization is issued by the NYCDEP Borough office if the discharge is less than 10,000 gallons per day; an additional approval by the Division of Connections & Permitting is needed if the discharge is more than 10,000 gallons per day. All chemical and physical testing of the water has to be done by a laboratory that is certified by the New York State Department of Health (NYSDOH). The design of the pretreatment system has to be signed by a New York State Professional Engineer or Registered Architect. NYCDEP regulations specify the maximum pollutants concentration limits for water discharged into New York City sewers. NYCDEP can also impose project-specific limits, depending on the location of the project and contamination that has been found in nearby areas.

SUPERSTRUCTURE AND EXTERIOR FACADE

The cores of a building create the building's framework (columns and floor decks). For the proposed actions, the superstructures of the applicant's mixed-use development would consist of reinforced concrete and the potential hotel building not controlled by the applicant would be expected to either consist of reinforced concrete or be constructed of steel. Construction of the interior structure, or core, of the proposed buildings would include elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; core stairs; and restroom areas. Core construction would begin when the podium over the foundation is completed and would continue through the interior construction and finishing stage.

Core and shell construction activities would require the use of tower cranes, mobile cranes, concrete pumps, concrete vibrators, portable generators, grinding machines, and bending machines. Temporary construction elevators (hoists) would also be constructed for the delivery of materials and vertical movement of workers during this stage. Cranes would be used to lift structural components, façade elements, and other large materials. Smaller construction materials and debris generated during this stage of construction would generally be moved with hoists.

INTERIOR AND FINISHING

This stage would include the construction of interior partitions, installation of lighting fixtures, , amenity construction, and interior finishes (flooring, painting, millwork, glass and glazing, door and hardware, etc.), and mechanical and electrical work, such as the installation of elevators, and plumbing and fire protection fit-out work. Equipment used during interior construction would include exterior hoists, hydraulic truck cranes, pneumatic equipment, delivery trucks, and a variety of small hand-held tools.

E. NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Table 17-3 shows the estimated averaged daily numbers of workers and deliveries to the project area by calendar quarter for all construction activities, including activities for both the applicant's building on the proposed project site and the hotel on development site 2. The average number of workers throughout the construction period would be 205 per day. The peak number of workers would be 497 per day in the sixth quarter of construction. For truck trips, the average number of trucks would be 22 per day, and the peak would occur in the fifth quarter of construction, with 62 trucks per day.

Table 17-3
Average Number of Daily Construction Workers and Trucks by Quarter

Quarter	1st	2nd	3rd	4th	5th	6th	7th	8th	Average	Peak
Workers	20	32	44	121	332	497	356	233	205	497
Trucks	3	5	5	24	62	54	12	10	22	62

Note: Estimates include activities for both the applicant's building on the proposed project site and the hotel on development site 2 not controlled by the Applicant. TF Cornerstone provided estimates for the applicant's mixed-use building on the proposed project site. There is no specific construction program or design for the hotel development at this time; therefore estimates for the hotel development were projected from the estimates for the applicant's building.

F. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, all existing uses in the rezoning area would remain. No new development would take place within the rezoning area.

G. ENVIRONMENTAL IMPACTS OF PROJECT CONSTRUCTION ACTIVITIES

Similar to many large development projects in New York City, construction activities may be disruptive to the surrounding area for periods of time. The following analyses describe potential construction impacts with respect to transportation, air quality, noise and vibration, land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, and hazardous materials. The EIS considers the potential impacts of the entire rezoning area and not just the site-specific redevelopment of the property under the applicant's control.

TRANSPORTATION

The impacts of the construction activities from the proposed actions were compared to the operational impacts identified for the full build-out of the proposed actions in 2017 to assess the potential transportation impacts during construction and the measures that can be implemented to mitigate these impacts. Since the potential transportation impacts during construction are based on peak construction related activities, the quarter with the highest level of construction trip generation was assessed. For traffic, the cumulative peak construction worker vehicle and truck trip generation would occur during the sixth quarter of construction. For parking, transit, and pedestrians, the greatest demand would also take place during the sixth quarter of construction when there is the greatest number of construction workers traveling to/from the site.

TRAFFIC

Construction activities would generate construction worker and truck traffic. An evaluation of construction sequencing and worker/truck projections was undertaken to assess potential traffic impacts. As demonstrated below, the peak construction traffic would be less than what would be realized upon the full build-out of the proposed actions in 2017. Therefore, the anticipated impacts during construction would be within the envelope of significant adverse traffic impacts identified for the Build condition in Chapter 11, "Transportation," and can be similarly addressed with the mitigation measures described in Chapter 19, "Mitigation."

Construction Trip Generation Projections

Average daily construction worker and truck activities by quarter were projected for the entire construction period. As detailed above, construction activities within the rezoning area could be completed by 2017. The projected quarterly average worker and truck trip projections were further refined to account for worker modal splits and vehicle occupancy, arrival and departure distribution, and passenger car equivalent (PCE) factor for construction truck traffic.

Daily Workforce and Truck Deliveries

For a reasonable worst-case analysis of potential transportation-related impacts during construction, the daily workforce and truck trip projections in the peak quarter were used as the basis for estimating peak hour construction trips. It is expected that construction activities would generate the highest amount of incremental daily traffic in the sixth quarter of construction, with an estimated incremental average of 497 workers and 54 truck deliveries per day (see **Table 17-3** above for details). These estimates of construction activities are discussed further below.

Construction Worker Modal Splits and Vehicle Occupancy

Based on 2000 U.S. Census data on workers in the construction and excavation industry, it is anticipated that 44 percent of the construction workers' commute to the construction sites by private autos at an average occupancy of approximately 1.23 persons per vehicle.

Peak Hour Construction Worker Vehicle and Truck Trips

Similar to other typical construction projects in New York City, most of the construction activities under the proposed actions are expected to take place during the construction shift of 7 AM to 4 PM. While construction truck trips would be made throughout the day (with more trips made during the early morning), and most trucks would remain in the area for short durations, construction workers would typically commute during the hours before and after the work shift. For analysis purposes, each worker vehicle was assumed to arrive in the morning and depart in the afternoon, whereas each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out"). Furthermore, in accordance with the *CEQR Technical Manual*, the traffic analysis assumed that each truck has a PCE of 2.

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. For construction workers, the majority (80 percent) of the arrival and departure trips would take place during the hour before and after each shift. For construction trucks, deliveries would occur throughout the day when the construction site is active. Construction truck deliveries typically peak during the early morning (25 percent), overlapping with construction worker arrival traffic. Peak construction hourly trip projections for the sixth quarter of construction are summarized in **Table 17-4**. As shown, the maximum incremental construction activities would result in 198 PCEs between 6 and 7 AM and 142 PCEs between 4 and 5 PM on weekdays.

Table 17-4
Peak Construction Vehicle Trip Projections

Hour	Auto Trips			Truck Trips			Total					
	Regular Shift			Regular Shift			Vehicle Trips			PCE Trips		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Sixth Quarter of Construction												
6 AM - 7 AM	142	0	142	14	14	28	156	14	170	170	28	198
7 AM - 8 AM	36	0	36	5	5	10	41	5	46	46	10	56
8 AM - 9 AM	0	0	0	5	5	10	5	5	10	10	10	20
9 AM -10 AM	0	0	0	5	5	10	5	5	10	10	10	20
10 AM -11 AM	0	0	0	5	5	10	5	5	10	10	10	20
11 AM - 12 PM	0	0	0	5	5	10	5	5	10	10	10	20
12 PM - 1 PM	0	0	0	5	5	10	5	5	10	10	10	20
1 PM - 2 PM	0	0	0	4	4	8	4	4	8	8	8	16
2 PM - 3 PM	0	0	0	3	3	6	3	3	6	6	6	12
3 PM - 4 PM	0	36	36	3	3	6	3	39	42	6	42	48
4 PM - 5 PM	0	142	142	0	0	0	0	142	142	0	142	142
Daily Total	**178**	**178**	**356**	**54**	**54**	**108**	**232**	**232**	**464**	**286**	**286**	**572**

Note: Prepared by AKRF based on projections from TF Cornerstone.

The construction traffic increments summarized in **Table 17-4** provide an indication that although there is a potential for significant adverse traffic impacts during construction, the peak hour traffic conditions during peak construction would be more favorable than those identified for full build-out under the proposed actions in 2017. A comparison of the projected traffic levels generated at the construction sites during peak construction and those upon full build-out of the proposed actions was developed and summarized in **Table 17-5.** The construction traffic increments would be lower than the operational traffic increments for the full build-out under the proposed actions in 2017. Therefore, the potential traffic impacts during peak construction would be within the envelope of significant adverse traffic impacts identified for the 2017 With Action conditions in Chapter 11, "Transportation." As detailed in Chapter 19, "Mitigation," measures to mitigate the operational traffic impacts in 2017 were recommended for implementation at 13 different intersections during one or more analysis peak hours. These measures would encompass primarily signal timing adjustments and approach daylightling, all of which could be implemented early at the discretion of NYCDOT to address actual conditions experienced at that time.

Table 17-5
Comparison of Construction and Operational Peak Vehicle Trip Generation

Peak Construction Trips in PCEs (Sixth Quarter of Construction)				2017 Full Build-Out Incremental Operational Trips in PCEs			
Peak Period	**In**	**Out**	**Total**	**Peak Period**	**In**	**Out**	**Total**
Weekday Arrival Peak Hour (6–7 AM)	170	28	198	Weekday AM Peak Hour (8–9 AM)	122	132	254
Weekday Departure Peak Hour (4–5 PM)	0	142	142	Weekday PM Peak Hour (5–6 PM)	180	173	353

Curb-Lane Closures and Staging

Similar to many other construction projects in New York City, temporary curb-lane and sidewalk closures are expected to be required adjacent to the project site, which would have dedicated gates, driveways, or ramps for delivery vehicle access. Flag-persons are expected to be present at construction site entrances/exits, where needed, to manage the access and movement of trucks and to ensure no on-street queuing. Site deliveries would occur within the construction

site fence boundaries and in the curb-lane closure zone. MPT plans would be developed for any curb-lane and sidewalk closures. Approval of these plans and implementation of all temporary sidewalk and curb-lane closures during construction would be coordinated with NYCDOT OCMC. It is expected that traffic and pedestrian flow along all surrounding streets would be maintained throughout the entire construction period.

PARKING

The anticipated construction activities are projected to generate a maximum parking demand of 178 spaces during the sixth quarter of construction. This parking demand could be fully accommodated by off-street spaces and parking facilities within a ¼-mile radius of the project site, where an estimated 1,621 and 1,647 public parking spaces are currently available during the overnight and morning parking utilization periods, respectively, as shown in Chapter 11, "Transportation." Therefore, the proposed actions would not result in any significant adverse parking impacts during construction.

TRANSIT

Slightly more than half of the construction workers (56 percent) are estimated to travel to and from the construction site via transit. During peak construction (maximum of 497 average daily construction workers) in the sixth quarter of construction, this distribution would represent correspondingly up to 278 daily workers traveling by transit. With 80 percent of these workers arriving or departing during the construction peak hours, the estimated number of total peak hour transit trips would be 223 for the Build construction condition. These construction worker trips would occur outside of peak periods of transit ridership. In addition, since the project block is well served by mass transit including the A, B, C, D, N, Q, and No.1 subway lines and various local bus routes including M11, M31, and M57, only nominal increases in incremental transit demand would be experienced along each of those routes and at each of the transit access locations. Therefore there would not be a potential for any significant adverse transit impacts during construction.

PEDESTRIANS

As summarized above, up to 497 average daily construction workers were projected during peak construction in the sixth quarter of construction. With 80 percent of these workers arriving or departing during the construction peak hours (6 to 7 AM and 4 to 5 PM), the corresponding numbers of peak hour pedestrian trips traversing the area's sidewalks, corners, and crosswalks would be up to 398 under the Build construction condition. These trips are expected to have minimal impacts on pedestrian operations during the construction peak hours. In addition, the 398 incremental peak hour pedestrian trips would be distributed among numerous sidewalks and crosswalks in the area, such that no pedestrian elements are expected to incur 200 or more incremental pedestrian trips (the *CEQR Technical Manual* analysis threshold) resulting from the construction under the proposed actions. Therefore, travel by construction workers would not result in any significant adverse pedestrian impacts.

AIR QUALITY

Emissions from on-site construction equipment and on-road construction-related vehicles, as well as dust generating construction activities, have the potential to affect air quality. In general, much of the heavy equipment used in construction has diesel-powered engines and produces

relatively high levels of nitrogen oxides (NO_x) and particulate matter (PM). Fugitive dust generated by construction activities also contains particulate matter. Finally, gasoline engines produce relatively high levels of carbon monoxide (CO). As a result, the primary air pollutants of concern for construction activities include nitrogen dioxide (NO_2), particulate matter with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}) and less than or equal to 2.5 micrometers ($PM_{2.5}$), and CO.

The *CEQR Technical Manual* lists several factors for consideration in determining whether a quantified on-site and/or off-site construction impact assessment for air quality is appropriate. For on-site assessment, these factors include the duration and intensity of construction activities, the location of nearby sensitive receptors, and the use of emissions control measures. For off-site assessment, if a quantified transportation analysis is required, a corresponding air quality analysis for mobile sources is generally also conducted.

ON-SITE SOURCES

Duration

As described above in "Construction Phasing and Schedule," the overall construction duration under the proposed actions is expected to be short-term (less than two years). Construction of the applicant's mixed-use development on the project site would take approximately 24 months to complete while the construction of the potential hotel building on development site 2 is assumed to conservatively overlap with the activities for the applicant's mixed-use development and is expected to take approximately 15 months to complete. Furthermore, the most intense construction activities (demolition, excavation, and foundation work where a number of large non-road diesel engines would be employed) in terms of air pollutant emissions would last for only a portion of this duration, taking approximately 11 months for the applicant's mixed-use development and 7 months for the potential hotel development on development site 2, which is not controlled by the applicant. Although core and shell construction and interior and finishing would continue after demolition, excavation and foundation work is complete, those efforts would result in much lower air emissions since most of the heavy duty diesel equipment such as excavators and drill rigs would no longer be needed on-site. The equipment required for these tasks would generally have small engines with much lower emissions than heavy duty diesel equipment and/or would be dispersed vertically throughout the building such that concentrations would be greatly dispersed before reaching the receptors in adjacent areas.

Intensity

During the construction under the proposed actions, several large non-road diesel engines would operate at development sites 1 and 2. The only engines expected to remain stationary for long periods of time are the tower cranes. Given the elevation of the tower crane engines, their locations relative to nearby sensitive elevated locations (as discussed below), and the emissions controls that would be implemented, the tower cranes would not result in substantial concentration increments. Other engines would generally move throughout the site. Based on the nature of the construction work involved, construction activities under the proposed actions would be similar to other construction projects in New York City and would not be considered out of the ordinary in terms of intensity; in fact, emissions would be lower due to the emission control measures that would be implemented during construction under the proposed actions (see "Emission Control Measures," below).

Location of Nearby Sensitive Receptors

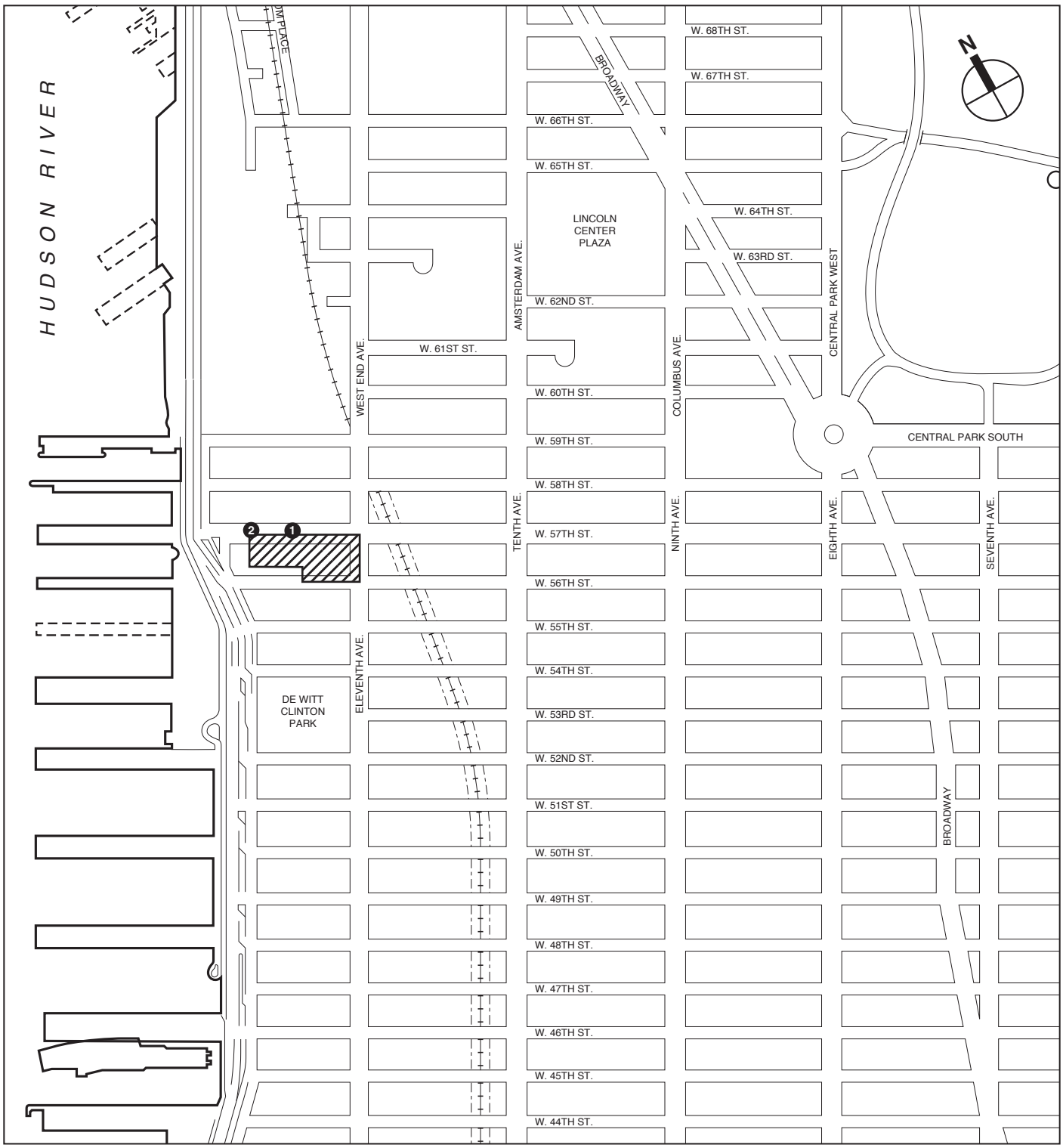
The area immediately surrounding the rezoning area is predominantly commercial in nature, with a mix of different types of commercial activity, and built to varying scales. Generally, the rezoning area is located at some distance away from residential uses, with the nearest residences at the Helena Building and the 625 West 57th Street Building approximately 75 feet north of the construction sites and are separated by West 57th Street, as shown in **Figure 17-1**. West 57th Street would serve as a buffer between the emissions sources and these sensitive locations and such distance would result in enhanced dispersion of pollutants and, therefore, potential concentration increments from on-site sources at such locations would be reduced. Given the size of the project site and the space available, most of the intense activities could take place within the site, in the mid-block or southern portions (along 56th Street) of the site and away from the Helena building and the 625 West 57th Street Building to the extent practicable.

Emission Control Measures

Proposed Project Site (Development Site 1)

To ensure that construction under the proposed actions would result in the lowest practicable diesel particulate matter (DPM) emissions, the applicant would implement an emissions reduction program for all construction activities, consisting of the following components which will be included as part of contract specifications (commitments relating to the items set forth below will be included in a Restrictive Declaration):

- *Diesel Equipment Reduction.* Where practicable, the applicant would apply for a grid power connection early on so as to ensure the availability of grid power, reducing the need for on-site generators.
- *Clean Fuel.* Ultra-low sulfur diesel (ULSD) would be used exclusively for all diesel engines throughout the construction site.
- *Best Available Tailpipe Reduction Technologies*. Nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the project) including but not limited to concrete mixing and pumping trucks, would utilize the best available tailpipe (BAT) technology for reducing DPM emissions. Diesel particle filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contract for the applicant's projected development would specify that all diesel nonroad engines rated at 50 hp or greater would utilize DPFs, either installed on the engine by the original equipment manufacturer (OEM) or retrofit with a DPF verified by EPA or the California Air Resources Board, and may include active DPFs if necessary; or other technology proven to achieve an equivalent emissions reduction.
- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for nonroad engines regulate the emission of criteria pollutants from new engines, including PM, CO, NO_x, and hydrocarbons (HC). All nonroad construction equipment for the applicant's projected development with a power rating of 50 hp or greater would meet at least the Tier 3 emissions standard to the extent practicable. Tier 3 NO_x emissions range from 40 to 60 percent lower than Tier 1 emissions and considerably lower than uncontrolled engines. All nonroad engines in the project rated less than 50 hp would meet at least the Tier 2 emissions standard.
- *Dust Control.* Fugitive dust control plans would be required as part of contract specifications. For example, chutes would be used for material drops during demolition.



Proposed Rezoning Area

❶ *The Helena*

❷ *625 West 57th Street*

Sensitive Receptor Locations

Figure 17-1

Truck routes within the site would be watered as needed to avoid the re-suspension of dust. All trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the construction site. Water sprays would be used to ensure that materials are dampened as necessary to avoid the suspension of dust into the air. In addition, all necessary measures would be implemented to ensure that the New York City Air Pollution Control Code regulating construction-related dust emissions is followed.

- *Source Location.* In order to reduce the resulting concentration increments, large emissions sources and activities such as concrete trucks and pumps would be located away from sensitive receptor locations to the extent practicable and where logistics allow.
- *Idle Restriction.* In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time would also 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 otherwise required for the proper operation of the engine.

Overall, the proposed emission reduction program is expected to significantly reduce DPM emissions consistent with the goals of the currently best available control technologies under New York City Local Law 77, which are required only for publicly funded City projects. Accordingly, a detailed qualitative rather than quantitative air quality analysis was provided to assess the potential impacts of on-site construction activities.

Based on analysis of all of the above factors affecting on-site construction emissions, the proposed actions would not result in any significant adverse impact on air quality related to on-site construction sources.

Development Site 2

It is expected that similar emissions control measures to those committed to by the applicant may be implemented during construction of a hotel on development site 2, which is not controlled by the applicant, to the extent practicable and feasible. ULSD and construction equipment rated Tier 3 or higher is now readily available; DPFs are commonly found on construction equipment used in New York City; and the New York City Air Pollution Control Code regulates construction-related dust emissions. However, there would be no mechanism presently to provide for a commitment to implement any of the above emission reduction measures on sites not controlled by the applicant at this time.

OFF-SITE SOURCES

As mentioned above, a quantified construction air quality analysis for off-site mobile sources is generally conducted if a corresponding transportation analysis is required, which as demonstrated above under "Transportation," is not necessary for the proposed actions. The peak hour traffic conditions during peak construction would be more favorable than those identified for the full build-out of the proposed actions in 2017 since peak construction would not result in increases in vehicle volumes higher than those identified in the operational condition. In addition, although temporary curb-lane closures would be required adjacent to the project site (as is typical with New York City construction projects), construction activities would not result in substantial moving lane or roadway closures, or traffic diversions. As discussed in Chapter 13, "Air Quality," no significant adverse impacts are predicted due to operational mobile sources. Therefore, construction under the proposed actions would not result in significant adverse air quality impacts related to vehicular traffic, and further mobile-source analysis is not required.

CONCLUSION

Based on analysis presented above, the proposed actions would not result in any significant adverse construction air quality impacts and no further analysis is required.

NOISE AND VIBRATION

NOISE

Introduction

Impacts on community noise levels during construction under the proposed actions could result from noise from construction equipment operation and from construction and delivery vehicles traveling to and from the construction site. Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating at full power), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by construction activities vary widely and depend on the phase of construction and the location of the construction relative to receptor locations. The most significant construction noise sources are expected to be the operation of impact equipment such as excavators with ram hoes, pile rigs, rock drills, tower cranes, and paving breakers, as well as movements of trucks to and from the project site.

Noise from construction activities and some construction equipment is regulated by the New York City Noise Control Code and by EPA. The New York City Noise Control Code, as amended December 2005 and effective July 1, 2007, requires the adoption and implementation of a noise mitigation plan for each construction site, limits construction (absent special circumstances as described below) to weekdays between the hours of 7:00 AM and 6:00 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6:00 PM and 7:00 AM, and on weekends) may be authorized in the following circumstances: (1) emergency conditions; (2) public safety; (3) construction projects by or on behalf of City agencies; (4) construction activities with minimal noise impacts; and (5) where there is a claim of undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. EPA requirements mandate that certain classifications of construction equipment meet specified noise emissions standards.

Construction Noise Impact Criteria

The *CEQR Technical Manual* states that significant noise impacts due to construction would occur "only at sensitive receptors that would be subjected to high construction noise levels for an extensive period of time." This has been interpreted to mean that such impacts would occur only at sensitive receptors where the activity with the potential to create high noise levels (the "intensity") would occur continuously for approximately two years or longer (the "duration"). The *CEQR Technical Manual* states that the impact criteria for vehicular sources, using the No Action noise level as the baseline, should be used for assessing construction impacts. As recommended in the *CEQR Technical Manual*, this study uses the following criteria to define a significant adverse noise impact from mobile and on-site construction activities:

- If the No Action noise level is less than 60 dBA $L_{eq(1)}$, a 5 dBA $L_{eq(1)}$ or greater increase would be considered significant.

- If the No Action noise level is between 60 dBA $L_{eq(1)}$ and 62 dBA $L_{eq(1)}$, a resultant $L_{eq(1)}$ of 65 dBA or greater would be considered a significant increase.
- If the No Action noise level is equal to or greater than 62 dBA $L_{eq(1)}$, or if the analysis period is a nighttime period (defined in the *CEQR* criteria as being between 10:00 PM and 7:00 AM), the incremental significant impact threshold would be 3 dBA $L_{eq(1)}$.

Noise Analysis Fundamentals

Construction activities for the proposed actions would be expected to result in increased noise levels as a result of: (1) the operation of construction equipment on-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 project site.

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

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

Location of Nearby Sensitive Receptors

As discussed above in "Air Quality," the site is located on the block bounded by West 57th Street to the north, West 56th Street to the south, 11th Avenue to the east, and 12th Avenue to the west. As shown in **Figure 17-1,** the Helena, a residential building located immediately north of the project site, is the only existing sensitive receptor site in close proximity to the project site. This building has double glazed windows and central air conditioning, and was designed to provide at least 35 dBA of attenuation of exterior noise. While not currently completed, an approved building at 625 West 57th Street also immediately north of the project site is expected to be complete and occupied during construction under the proposed actions. This building has double glazed windows and central air conditioning, and was designed to provide at least 28-35 dBA of attenuation of exterior noise on the façade facing West 57th Street.

The next closest receptor is a residential building with ground-floor retail at 778 11th Avenue between West 55th and West 54th Streets, located approximately 330 feet from the project site. This building includes double glazed windows and an alternate means of ventilation and would be expected to provide 25-30 dBA of attenuation of exterior noise for interior spaces, although it also includes outdoor balcony spaces.

Noise Reduction Measures

Construction under the proposed actions would be required to follow the requirements of the New York City Noise Control Code (New York City Noise Code) for construction noise control measures. Specific noise control measures would be described in a noise mitigation plan required under the New York City Noise 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 would be implemented in accordance with the New York City Noise Code (commitments relating to the items set forth below will be included in a Restrictive Declaration):

- Equipment that meets the sound level standards specified in Subchapter 5 of the New York City Noise Control Code would be used from the start of construction. **Table 17-6** shows the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction under the proposed actions.
- As early in the construction period as logistics will allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practicable.
- Where feasible and practical, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than three minutes at the construction site based upon New York City Local Law.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented to the extent feasible and practical (commitments relating to the items set forth below will be included in a Restrictive Declaration):

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations. Once building foundations are completed, delivery trucks would operate behind a construction fence, where possible;
- Noise barriers would be utilized to provide shielding (e.g., the construction sites would have a site perimeter barrier and, where logistics allow, truck deliveries would take place behind these barriers once building foundations are completed); and
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) would be used for certain dominant noise equipment to the extent feasible and practical (e.g., excavators with ram hoe). These barriers are conservatively assumed to offer only a 10 dBA reduction in noise levels for each piece of equipment to

which they are applied, as shown in **Table 17-6**. The details for construction of portable noise barriers, enclosures, etc. are based upon DEP Citywide Construction Noise Mitigation.

Table 17-6
Typical Construction Equipment Noise Emission Levels (dBA)

Equipment List	NYCDEP & FTA Typical Noise Level at 50 feet[1]	Noise Level with Path Controls at 50 feet[2]
Backhoe/Loader	80	
Compressors	58	
Concrete Pump	82	
Concrete Trowel	85	75
Concrete Vibrator	80	
Cranes	85	75
Concrete Trucks	85	
Cranes (Tower Cranes)	85	75
Delivery Trucks	84	
Drill Rigs	84	
Dump Trucks	84	
Excavator	85	
Excavator with Ram Hoe	90	
Generators	82	72
Hand Tool	59	
Hoist	85	
Impact Wrenches	85	75
Pile Driving Rig (Impact)	95	
Pumps	77	
Rebar Bender	80	
Welding Machines	73	

Notes:
[1] Sources: Citywide Construction Noise Mitigation, Chapter 28, Department of Environmental Protection of New York City, 2007. Transit Noise and Vibration Impact Assessment, FTA, May 2006.
[2] Path controls include portable noise barriers, enclosures, acoustical panels, and curtains, whichever feasible and practical.
[3] Source: Kessler, Frederick M., "Noise Control for Construction Equipment and Construction Sites," report for Hydro Quebec,

Construction Noise Analysis

The construction noise analysis considers the noise generated by construction-related traffic, including delivery trucks and worker vehicles, traveling to and from the project site as well as by on-site construction equipment and activity. As discussed above, the analysis looks first at the intensity of noise levels during construction, then assesses the potential duration of those noise levels, and finally makes a determination of the potential for impact. The most noise-intensive construction activities for both the applicant's building on the proposed project site and the hotel on development site 2 would be demolition, excavation, and foundation work, which would be expected to last for only approximately 11 months for the applicant's mixed-use development and approximately 7 months for the hotel development on development site 2.

Mobile Construction Noise Sources

Throughout the construction period, vehicles including construction related trucks and vehicles driven by workers at the construction site would travel to and from the project site. Most of these vehicles would be expected to use Route 9A, 12th Avenue, and 11th Avenue. These large roadways are already heavily trafficked, and the construction traffic would therefore not be expected to result in substantially increased noise at locations along these roadways. Some vehicles associated with construction under the proposed actions would be expected use West 56th Street or West 57th

Street, although further away from the project, the vehicles would be distributed amongst the different routes to and from the project, and the amount of construction traffic would be low compared to the existing and No Build traffic levels on these streets. Consequently, the construction noise analysis focuses on noise receptors adjacent to the site and the roadways immediately surrounding the site.

Intensity of Construction Noise from On-Site Sources

The existing and approved residential buildings immediately north of the project site across West 57th Street represent the two locations most likely to experience increased noise levels resulting from the operation of stationary construction equipment. With the construction noise control measures described, maximum $L_{eq(1)}$ noise levels during construction would be expected to be approximately in the mid to high 70s dBA at these locations, based on detailed noise analyses prepared for several other large-scale construction projects with comparable noise-control measure commitments, including Seward Park (*CEQR* No. 11DME012M), Riverside Center (*CEQR* No. 09DCP020M), and Domino Sugar (*CEQR* No. 07DCP094K). Measured existing noise levels at the two noise receptor locations described above were in the low to mid 70s dBA, and would be expected to remain unchanged in the future without the proposed actions. Consequently, noise generated by on-site construction activities would be expected to result in exceedances of the *CEQR Technical Manual* noise impact criteria at these locations. Therefore, these residential receptors north of the project site on West 57th Street are discussed further in the following section "Duration of Construction Noise" and the potential for significant noise impacts is evaluated.

At the residential building with ground-floor retail along 11th Avenue between West 55th and West 54th Streets, located approximately 330 feet from the project site, noise levels during construction would be expected to be approximately in the mid 60s dBA, based on detailed noise analyses prepared for several other large-scale construction projects with comparable noise-control measure commitments, including Seward Park, Riverside Center, and Domino Sugar. Measured existing noise levels along 11th Avenue were in the mid 70s dBA, and would be expected to remain unchanged in the future without the proposed actions. Consequently, noise generated by on-site construction activities would not be expected to result in exceedances of the *CEQR Technical Manual* noise impact criteria at this location, and this residential building is not discussed further, since construction activities would not have the potential for causing significant noise impacts at this location.

There are no other noise sensitive receptor locations near the proposed rezoning area.

Duration of Construction Noise from On-Site Sources

The noisiest construction activities would include the demolition, excavation, and foundation work; this work is expected to last approximately 11 months for the applicant's mixed-use development and approximately 7 months for the hotel development on development site 2, which is not controlled by the Applicant (as shown in **Table 17-1**). The later phases of construction under the proposed actions would include superstructure and exterior façade and interior and finishing. Superstructure and exterior façade work, which would be expected last up to 7 months, would require less heavy construction equipment as compared to the demolition, excavation and foundation work. Construction equipment with higher noise levels such as pile drivers, drill rigs, excavators, etc. will not be used during the superstructure and exterior façade phases of construction. In addition, fewer dump trucks would travel to and from the site during the superstructure and exterior façade phases of construction than during demolition, excavation, and foundation activities. Therefore, the superstructure and exterior façade activities would be expected

to result in noise levels less than those during demolition/excavation/foundation work, although it still may result in some limited exceedances of the *CEQR Technical Manual* noise impact criteria.

Interiors and finishing, which would last up to 11 months, would require much less heavy construction equipment, and would be better shielded from the nearby sensitive receptors by the buildings being constructed. Equipment used during interiors and finishing would mainly include a variety of small hand-held tools, along with a construction hoist. In addition, most of the construction activities would occur within the buildings so this stage of construction is usually the quietest. Therefore, during these later phases of construction (i.e., interiors and finishing), the noise levels from construction would not be expected to result in exceedances of the *CEQR Technical Manual* noise impact criteria. Given this, no exceedances of the *CEQR Technical Manual* noise impact criteria lasting for two consecutive years and thus no significant adverse construction noise impacts would be expected to occur at these two residential buildings immediately north of the project site on West 57th Street during the construction period: the existing Helena Building and the approved 625 West 57th Street.

In addition, according to the 625 West 57th Street FEIS (*CEQR* No. 12DCP020M), both of these buildings have both have double-glazed windows and a means of alternate ventilation (i.e., air conditioning), and were designed to achieve between 28 and 35 dBA of attenuation. With this level of building attenuation, these buildings would be expected to experience interior $L_{10(1)}$ values less than 45 dBA during the construction period, which would be considered acceptable according to the *CEQR Technical Manual* criteria.

Consequently, noise due to construction under the proposed actions is not expected to result in any significant adverse impacts on nearby sensitive receptor locations.

VIBRATION

Introduction

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

Construction Vibration Criteria

For purposes of assessing potential structural or architectural damage, the determination of a significant impact was based on the vibration impact criterion used by LPC of a peak particle velocity (PPV) of 0.50 inches/second. For non-fragile buildings, vibration levels below 0.60 inches/second would not be expected to result in any structural or architectural damage.

For purposes of evaluating potential annoyance or interference with vibration-sensitive activities, vibration levels greater than 65 vibration decibels (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;

$L_v(ref)$ 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 17-7 shows vibration source levels for typical construction equipment.

Table 17-7
Vibration Source Levels for Construction Equipment

Equipment	PPVref (in/sec)	Approximate Lv (ref) (VdB)
Pile Driver (Impact)*	0.644-1.518	104-112
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Note: * Sonic rather than impact pile drivers will be utilized.
Source: *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

Construction Vibration Analysis Results

The buildings and structures of most concern with regard to the potential for structural or architectural damage due to vibration are The Helena residential building and the future building at 625 West 57th Street both located north of the project site. However, as a result of both nearby structures' distances from the construction site, vibration levels at these buildings and structures would not be expected to exceed 0.50 inches/second PPV .

In terms of potential vibration levels that would be perceptible and annoying, the equipment that would have the most potential for producing levels which exceed the 65 VdB limit is the pile driver. It would produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within a distance of approximately 230 feet, including The Helena residential building and the future building at 625 West 57th Street. 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. In no case are significant adverse impacts from vibrations expected to occur.

OTHER TECHNICAL AREAS

LAND USE AND NEIGHBORHOOD CHARACTER

Construction activities would affect land use in the rezoning area but would not alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the construction sites. There would also be noise, sometimes intrusive, from demolition, excavation, and foundation activities as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary in nature and would have limited effects on land uses within the study area, particularly as most construction activities would take place within the construction sites or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to the construction sites. Overall, while the construction under the proposed actions would be evident to the local community, the limited duration of construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

SOCIOECONOMIC CONDITIONS

Construction activities associated with the proposed actions would not result in any significant adverse impacts on socioeconomic conditions. Construction under the proposed actions would not block or restrict access to any facilities in the area, affect the operations of any nearby businesses, or obstruct major thoroughfares used by customers or businesses. Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the construction activity. The presence of construction personnel would increase revenues for local businesses such as eating and drinking establishments. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

COMMUNITY FACILITIES

While construction under the proposed actions would result in temporary increases in traffic during the construction period, access to and from any facilities in the area would not be affected during the construction period. In addition, the construction sites would be surrounded by construction fencing and barriers that 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. NYPD and FDNY emergency services and response times would not be materially affected by construction significantly due to the geographic distribution of the police and fire facilities and their respective coverage areas.

OPEN SPACE

There are no publicly accessible open spaces within the rezoning area, and no open space resources would be used for staging or other construction activities. The nearest resources are the open space area at the approved 625 West 57th Street (a site that is currently under construction and expected to be complete by 2015), which is located 75 feet north of the

construction site, and the 555 West 57th Street open space area, which is located across the Eleventh Avenue and West 57th Street approximately 200 feet east of the construction sites. At limited times, activities such as demolition, excavation, and foundation construction may generate noise that could impair the enjoyment of nearby open space users, but such noise effects would be temporary and of short duration. Construction under the proposed actions would not limit access to any open space resources in the vicinity of the rezoning area. Therefore, proposed actions would not result in significant adverse impacts on open space during construction.

HISTORIC AND CULTURAL RESOURCES

Historic and cultural resources include both archaeological and architectural resources. As described in Chapter 7, "Historic and Cultural Resources," provides a detailed assessment of potential impacts on archaeological and architectural resources. This section summarizes potential impacts during construction.

LPC determined that the rezoning area is not archaeologically sensitive. Therefore, no significant adverse impacts to archaeological resources would occur during construction under the proposed actions.

The one architectural resource in the study area, the early 20th century Consolidated Edison Power House, is located more than 345 feet from the project site, less than the 90 feet distance as defined by NYCDOB at which a resource could be damaged from vibration and additional damage from adjacent construction that could occur from falling objects, subsidence, collapse, or damage from construction machinery. Therefore the proposed actions would not result in adverse physical impacts to any architectural resource in the study area during construction.

HAZARDOUS MATERIALS

As described in Chapter 9, "Hazardous Materials," the future with the proposed actions would entail subsurface disturbance for the construction of new buildings on the applicant-controlled proposed project site and the non-applicant controlled development site 2, as well as changes in use on both of these sites. The proposed project site is underlain by fill materials with elevated concentrations of SVOCs and metals, and residual petroleum contamination in soil and groundwater associated with active-status Spill No. 0708204. Subsurface conditions beneath development site 2 may also have been affected by past and present, on and off-site uses. In addition, existing structures on both sites may contain hazardous materials such as ACM, PCBs, and/or lead-based paint. The proposed actions could result in the disturbance of these hazardous materials and potentially increase pathways for human or environmental exposure. Impacts would be avoided by implementing the following measures:

Proposed Project Site:

- Remediation of Spill No. 0708204 would continue in accordance with NYSDEC requirements, including continued implementation of the NYSDEC-approved RAWP. Remediation is anticipated to take place in the summer of 2013 with NYSDEC closure of this active-status spill following the completion of the necessary remedial activities. Excavation of soil for spill remediation and construction purposes would be performed in accordance with applicable federal, state, and local regulations and guidelines.
- An (E) designation would be assigned to the proposed project site to ensure that remedial activities would be undertaken prior to its redevelopment. An OER-approved RAP and

CHASP would be prepared for implementation during subsurface disturbance associated with project construction. The RAP would address requirements for items such as soil stockpiling, soil disposal and transportation; capping of soil disturbed by the project with impervious surfaces or clean soil; dust control; quality assurance; vapor control measures, such as the installation of a vapor barrier beneath new building foundations; and procedures for addressing known or unexpectedly encountered petroleum storage tanks, underground hydraulic lifts or contamination. The CHASP would identify potential hazards that may be encountered during construction and specify appropriate health and safety measures to be undertaken to ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment (such as personal protective equipment, air monitoring, and emergency response procedures). Since the bottom of the foundation would extend below the water table, the use of a sub-slab ventilation system is not considered feasible, as it would be inundated with water. Below-grade garage levels would be equipped with a separate ventilation system. Following construction, proper implementation of the RAP/CHASP would be documented to OER before occupancy permits can be obtained.

- During subsurface disturbance, excavated soil would be handled and disposed of in accordance with applicable regulatory requirements. This would include characterization of all fill material sent for off-site disposal in accordance with the requirements of the receiving facility.
- Based on the anticipated depth of excavation, dewatering will be required during the proposed construction, which would be performed in accordance with NYCDEP requirements.
- Known ASTs and any other petroleum storage tanks encountered during construction would be registered, if required, with NYSDEC and/or the FDNY, and closed and removed, along with any associated contaminated soil, in accordance with applicable regulatory requirements. Any evidence of a petroleum spill would be reported to NYSDEC and addressed in accordance with applicable requirements.
- Prior to demolition, an asbestos survey would be conducted by a NYC-certified asbestos investigator and all ACM would be removed and disposed of in accordance with local, state and federal requirements.
- All demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—Lead Exposure in Construction).
- Unless there is labeling or test data indicating that suspect PCB-containing lighting fixtures, electrical equipment and hydraulic equipment do not contain PCBs and that fluorescent lighting fixtures do not contain mercury, if disposal is required, it would be performed in accordance with applicable federal, state, and local requirements.
- Any oils or chemicals requiring disposal would be properly disposed of in accordance with applicable requirements.

Development Site 2

- Since proposed development site 2 is not controlled by the applicant, an (E) Designation would be assigned to this site to ensure that investigation and, if warranted, remedial activities would be undertaken prior to its redevelopment. An (E) Designation indicates the presence of requirements relating to hazardous materials and mandates that prior to beginning construction or renovation involving subsurface disturbance (excavation), a Phase

I ESA be conducted followed by a subsurface investigation (e.g., soil, groundwater, and soil gas sampling) in accordance with a scope submitted to the OER for review and approval. Based on the results of these studies, a RAP and CHASP are usually required to be prepared, submitted to the OER for review and approval prior to construction, and implemented during construction. A RAP typically addresses requirements for items such as: soil stockpiling, soil disposal, and transportation; dust control; quality assurance; and contingency measures should petroleum storage tanks or soil or groundwater contamination be encountered. A CHASP typically includes measures for worker and community protection, including personal protective equipment, dust control and air monitoring. Following construction, proper implementation of the RAP/CHASP would be documented to OER before occupancy permits can be obtained.

- Similarly to the future without the proposed actions, legal requirements (including NYSDEC regulations) pertaining to petroleum storage tank maintenance and suspect ACM, lead-based paint and PCB-containing equipment would need to be followed.

With these measures, the proposed actions would not result in any significant adverse impacts related to hazardous materials during construction. ✷