Chapter 19: Construction

A. INTRODUCTION

This chapter describes the preliminary construction plans and assesses the potential for the proposed actions to result in significant adverse construction impacts in accordance with the 2014 *City Environmental Quality Review (CEQR) Technical Manual*. As discussed in Chapter 1, "Project Description," the applicant is seeking several land use actions (the "proposed actions") to facilitate construction of five new mixed-use buildings (the "proposed project") on the existing Lenox Terrace property, a superblock bounded by West 132nd and West 135th Streets and Lenox and Fifth Avenues in the Central Harlem neighborhood of Manhattan. The new buildings would be constructed on portions of the property that are currently vacant or contain one-story retail structures. One additional site, located within the rezoning area but outside the Lenox Terrace complex and not owned by the applicant, is analyzed as a projected future development site: Block 1730, Lot 65.

Construction of the proposed project is anticipated to occur in two phases over a period of approximately six years, with Phase 1 expected to be constructed by 2023 and full build out of Phase 2 expected in 2026. Phase 1 comprises of the construction of Proposed Buildings NW, SW, and NE~~ and the central podium connecting Proposed Buildings NW and SW~~, while Phase 2 comprises the construction of Proposed Buildings N and SE. In addition, it is assumed that any construction on the projected future development site would occur by 2026.

This chapter provides a discussion of the governmental coordination and oversight related to construction, a conceptual construction schedule, activities likely to occur during construction, the types of equipment that are expected to be used, construction logistics (e.g., site access points and potential staging area locations), and construction workers and truck delivery estimates. Based on this information, potential impacts from construction activities are assessed 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.

For each of the various technical areas presented below, appropriate construction analysis years were selected to represent reasonable worst-case conditions relevant to that technical area, which can occur at different times for different analyses. For example, the noisiest part of the construction may not be at the same time as the heaviest construction traffic. Therefore, the analysis periods differ for different technical analyses. Where appropriate, the analysis accounted for the effects of those components of the project that would be completed and operational during the selected construction analysis years.

PRINCIPAL CONCLUSIONS

Construction of the proposed project would result in temporary disruptions in the surrounding area. However, to extent practicable, the applicant has committed to implementing a variety of

measures during construction to minimize the effects of the proposed project on the nearby community, including:

COMMUNICATION WITH COMMUNITY

- Regular construction updates would be provided to the community and local leaders.
- A dedicated hotline would be established for community members to register concerns or problems that may arise during the construction period. In addition, New York City maintains a 24-hour telephone hotline (311) so that concerns can be registered with the City.

COMMUNITY SAFETY

- A number of measures would be employed to ensure public safety during the construction of the proposed project, including the erection of sidewalk bridges, the employment of flag persons, and the installation of safety nettings;
- Maintenance and Protection of Traffic (MPT) plans would be developed for any temporary sidewalk, lane, and/or street closures. Approval of these plans and implementation of the closures would be coordinated with the New York City Department of Transportation (DOT)'s Office of Construction Mitigation and Coordination (OCMC);
- A pest management program would be implemented to reduce the presence of rodents at and near the proposed development site; and
- All New York City Department of Building (DOB) safety requirements and protocols would be followed and construction of the proposed project would be undertaken so as to ensure the safety of the community and the construction workers themselves.

ENVIRONMENTAL PERFORMANCE

- An emissions reduction program would be implemented during construction to minimize the effects on air quality and would include, to the extent practicable, measures such as the use of dust control, ultra-low sulfur diesel (ULSD) fuel, best available technologies, and newer and cleaner equipment;
- A site-specific Remedial Action Plan and Construction Health and Safety Plan (RAP and CHASP) would be prepared for implementation during construction at that site, and submitted to the New York City Office of Environmental Remediation (OER) for review and approval. The RAP and CHASP would address requirements for items such as: soil stockpiling, soil disposal and transportation; dust control; quality assurance; and contingency measures should petroleum storage tanks or contamination be unexpectedly encountered. The CHASP would include measures for worker and community protection, including personal protective equipment and dust control;
- In addition to noise control measures required by the *New York City Noise Control Code*, construction of the proposed project would include measures such as the use of a 12-foot tall barrier with a 3-foot cantilever towards the construction work area, the installation of a structure enclosed on three sides with a roof to house the concrete pump and concrete mixer trucks as they access the pump, and the installation of a structure enclosed on three sides with a roof to house concrete mixer trucks as they are washed out before leaving the project site;
- To avoid inadvertent demolition and/or construction-related damage from ground-borne construction period vibrations, falling debris, collapse, etc., the buildings to be retained on the

proposed development site would be included in a Construction Protection Plan (CPP) for historic structures that would be prepared in coordination with the New York City Landmarks Preservation Commission (LPC) and implemented in consultation with a licensed professional engineer.

With the implementation of the measures described above, the construction effects of the proposed project on the surrounding area would be substantially reduced. However, as described below, even with these measures in place, the proposed project's construction activities would result in significant adverse transportation, noise, and historic and cultural resources impacts. Additional information for key technical areas is summarized below.

TRANSPORTATION

Peak construction and Phase 2 cumulative operational and construction conditions were considered for the analysis. Potential transportation impacts during peak construction and Phase 2 cumulative operational and construction conditions were assessed in the same manner as the operational impacts, as presented in Chapter 13, "Transportation."

Traffic

For purposes of the construction traffic analysis, the combined daily workforce and truck trip projections in the peak quarter were used as the basis for estimating peak hour construction trips. The ~~fourth~~ first quarter of 202~~2~~1 to the ~~second~~ third quarter of 2022 was identified as the peak construction traffic period for Phase 1 construction, and the ~~third and~~ fourth quarter~~s~~ of 2024 was identified as the peak construction traffic period for Phase 2 construction. For the 2022 Phase 1 construction With Action condition, one of the analyzed intersections would be significantly impacted during the weekday 6 AM to 7 AM construction peak hour, and three of the analyzed intersections would be significantly impacted during the weekday 3 PM to 4 PM construction peak hour. For the 2024 Phase 2 construction With Action condition, one of the analyzed intersections would be significantly impacted during the weekday 6 AM to 7 AM construction peak hour, and ~~three~~ four of the analyzed intersections would be significantly impacted during the weekday 3 PM to 4 PM construction peak hour. These temporary construction period impacts could be fully mitigated by implementing standard traffic mitigation measures that are the same or similar to those recommended to mitigate the operational impacts.

~~Further refinements to the construction transportation studies may be made between the Draft and Final EIS. Resulting modifications to the impacts and mitigation measures, if any, would be reflected in the FEIS.~~

Transit

Both Phase I and Phase II construction of the proposed project would yield incremental transit trips that are lower than those analyzed in Chapter 13, "Transportation," for the completion of the project's two development phases. Considering there were no potential significant adverse transit impacts anticipated for these operational conditions, a detailed construction period transit analysis is not warranted, and neither Phase 1 nor Phase 2 construction of the proposed project would result in any significant transit impacts.

Pedestrians

A detailed pedestrian analysis for Phase 1 construction was conducted for the south crosswalk at West 135th Street and Lenox Avenue, where operational impacts were identified in Chapter 13,

"Transportation." For Phase 2 construction, a detailed pedestrian analysis was prepared for the south crosswalk at West 135th Street and Lenox Avenue, as well as for the threefour sidewalks and one corner where incremental trips generated by the combination of construction and occupied new buildings would be greater than those generated by the full build-out of the proposed actions. Similar to the conclusions made for the operational pedestrian analyses in Chapter 13, "Transportation," no significant adverse pedestrian impacts were identified for the threefour sidewalks and one corner. However, as with the operational impacts, the south crosswalk of West 135th Street and Lenox Avenue would incur significant adverse pedestrian impacts, which cannot be mitigated, during the 6 AM to 7 AM and 3 PM to 4 PM construction peak hours during both Phase 1 and Phase 2 construction.

Parking

The peak number of workers is estimated to be 863 per day, which is expected to occur during the Phase 1 construction period. The estimated peak construction parking demand of 17067 parking space is expected to be accommodated by the available off-street parking supply within a ½-¼-mile radius of the project site. Therefore, construction for the proposed project would not result in a parking shortfall or the potential for any significant adverse parking impacts.

AIR QUALITY

An emissions reduction program would be implemented for the proposed project to minimize the effects of construction activities on the surrounding community. Measures would include, to the extent practicable, dust suppression measures, use of ultra-low sulfur diesel (ULSD) fuel, idling restrictions, diesel equipment reduction, best available tailpipe reduction technologies, and the utilization of newer equipment. With the implementation of these emission reduction measures, the dispersion modeling analysis of construction-related air emissions for both non-road and on-road sources determined that particulate matter ($PM_{2.5}$ and PM_{10}), annual-average nitrogen dioxide (NO_2), and carbon monoxide (CO) concentrations would be below their corresponding *de minimis* thresholds or National Air Quality Ambient Standards (NAAQS), respectively. Therefore, construction of the proposed project would not result in significant adverse air quality impacts due to construction sources.

NOISE

In addition to noise control measures as required by the *New York City Noise Control Code*, construction of the proposed project would include measures such as the use of quieter equipment and the installation of partially enclosed structures to house the concrete pump and concrete mixer trucks as they access the pump and when they are washed out before leaving the site.

With these noise control measures in place, noise levels from project construction are expected to be comparable to those from typical New York City construction involving new building or buildings with concrete slab floors and foundation on piles. Similarly, potential disruptions to adjacent residences and other receptors resulting from elevated noise levels generated by construction would be expected to be comparable to those that would occur immediately adjacent to a typical New York City construction site during the portions of the construction period when the loudest activities would occur.

The detailed analysis of construction noise concluded that construction pursuant to the proposed actions has the potential to result in construction noise levels that exceed *CEQR Technical Manual* construction noise screening threshold for an extended period of time or the additional

construction noise impact criteria defined herein at receptors within the rezoning area and surrounding the proposed construction work areas, including existing residential buildings within the rezoning area (i.e., 470 Lenox Avenue, 40 West 135th Street, 10 West 135th Street, 2186 Fifth Avenue, 25 West 132nd Street, and 45 West 132nd Street), Metropolitan African Methodist Episcopal (AME) Church, Harlem Hospital Center, 2235 Fifth Avenue, 2120 and 2140 Madison Avenue, 485 Malcolm X Boulevard, receptors along the south side of West 132nd Street between Lenox Avenue and 45 West 132nd Street, and receptors along the south side of West 132nd Street between 25 West 132nd Street and Fifth Avenue.

At these receptors, construction could produce noise level increases that would be noticeable and potentially intrusive during the most noise-intensive nearby construction activities, and would produce noticeable increases over the course of construction. While the greatest levels of construction noise would not persist throughout construction, and the noise levels would fluctuate resulting in noise increases that would be intermittent, these locations would experience construction noise levels whose magnitude and duration could constitute significant adverse impacts.

At proposed Building NW, which would be completed and occupied while other project construction is still ongoing, construction is predicted to result in interior noise levels exceeding the 45 dBA criterion considered acceptable by up to 19 dBA when the most noise-intensive construction activities would occur nearest to this building. Construction could produce noise level increases that would be noticeable and potentially intrusive during the most noise-intensive nearby construction activities, and would produce noticeable increases over the course of construction. While the greatest levels of construction noise would not persist throughout construction, and the noise levels would fluctuate resulting in noise increases that would be intermittent, these locations would experience construction noise levels whose magnitude and duration could constitute significant adverse impacts.

At proposed Buildings NE and, SW ~~and Midrise Central Podium~~ that would be completed and occupied while other project construction is still ongoing, construction is predicted to result in interior noise levels exceeding the 45 dBA criterion considered acceptable by up to 6 dBA when the most noise-intensive construction activities would occur nearest to these buildings. While construction noise would be noticeable and potentially intrusive at times, the greatest predicted noise exposure would be temporary and intermittent, and would not occur during the evening or nighttime hours when residence are most sensitive to noise. Consequently, the predicted levels of construction noise exposure at completed project elements would not constitute a significant adverse impact.

VIBRATION

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are the existing buildings and structures within the rezoning area. However, given their distances from the proposed development sites, vibration levels at these buildings and structures would not be expected to exceed 0.50 in/sec PPV, including during sheeting driving, which would be the most vibration intensive activity. Additional receptors farther away from the rezoning area would experience less vibration than those listed above, and similarly would not be expected to cause structural or architectural damage.

In terms of potential vibration levels that would be perceptible and annoying, the equipment that would have the most potential for producing levels that exceed the 65 VdB limit is the pile driver. It would have the potential to produce perceptible vibration levels (i.e., vibration levels exceeding

65 VdB) at receptor locations within a distance of approximately 550 feet depending on soil conditions. However, the operation would occur for limited periods of time at a given location and therefore would not result in any significant adverse impacts.

Consequently, there is no potential for significant adverse vibration impacts from the development under the proposed actions.

HISTORIC AND CULTURAL RESOURCES

The proposed actions would result in a significant adverse impact associated with the demolition of the five one-story retail buildings on the proposed development site. In addition, should standard DOB controls governing the protection of adjacent properties during construction activities not provide sufficient protection, it is possible that redevelopment of the projected future development site and the potential development site could have a direct, physical impact on the Lenox Terrace resource during construction. The proposed actions would not be anticipated to result in significant adverse impacts to other historic and cultural resources in the study area, with the preparation and implementation of a CPP to avoid inadvertent demolition and/or construction-related damage to resources within 90 feet of the proposed development site.

B. GOVERNMENTAL COORDINATION AND OVERSIGHT

As shown in **Table 19-1**, construction oversight involves several City, state, and federal agencies. For projects in New York City, primary construction oversight lies with DOB, which oversees compliance with the New York City Building Code. The areas of oversight include installation and operation of equipment such as cranes, sidewalk bridges, safety netting, and scaffolding. DOB also enforces safety regulations to protect workers and the general public during construction. The New York City Department of Parks and Recreation (NYC Parks) has oversight on tree protection and tree removal during construction. The New York City Department of Environmental Protection (DEP) enforces the *New York City Noise Code* and regulates water disposal into the sewer system. OER reviews and approves any needed RAPs and abatement of hazardous materials. The New York City Fire Department (FDNY) has primary oversight of compliance with the *New York City Fire Code* and the installation of tanks containing flammable materials. DOT's OCMC reviews and approves any traffic lane and sidewalk closures. LPC approves the CPP and oversees measures established to prevent damage to historic structures.

Table 19-1
Summary of Primary Agency Construction Oversight

Agency	Areas of Responsibility
New York City	
Department of Buildings	Building Code, site safety, and public protection
Department of Parks & Recreation	Tree protection and removal
Department of Environmental Protection	Noise Code, RAPs/CHASPs, water and sewer connections, hazardous materials
Fire Department	Compliance with Fire Code, fuel tank installation
Department of Transportation	Lane and sidewalk closures
Landmarks Preservation Commission	Archaeological and architectural protection
New York State	
Department of Labor	Asbestos Workers
Department of Environmental Conservation	Hazardous materials and fuel/chemical storage tanks
United States	
Environmental Protection Agency	Air emissions, noise, hazardous materials, poisons (for rodent control)
Occupational Safety and Health Administration	Worker safety

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

C. CONSTRUCTION SCHEDULE

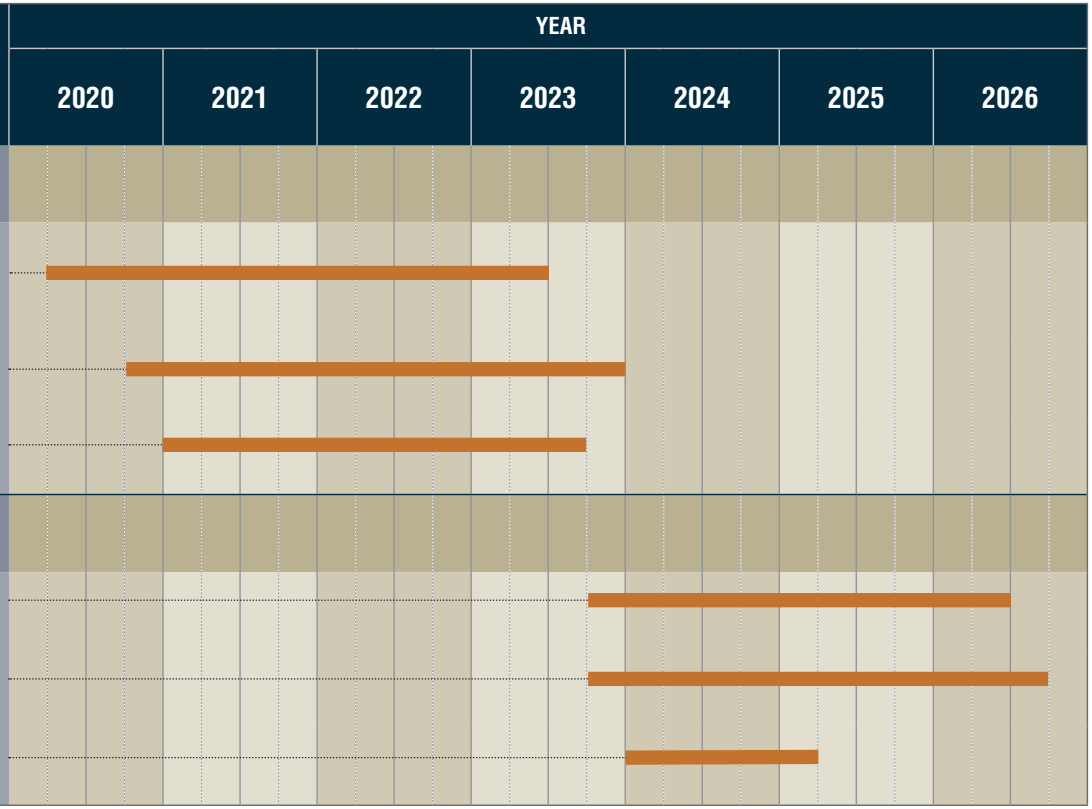
Construction of the proposed project is anticipated to occur in two phases over a period of approximately six years, with Phase 1 expected to be constructed by 2023 and full build out of Phase 2 expected in 2026. In addition, it is assumed that any construction on the projected future development site would occur by 2026. Therefore, for analysis purposes, it is conservatively assumed that the heavy construction activities (i.e., excavation and foundation stages of construction) for the projected future development site would overlap with those for Proposed Buildings N and SE. The anticipated construction schedule under the proposed actions is presented in **Table 19-2** and **Figure 19-1**.

Table 19-2
Anticipated Construction Schedule

Project Component	Approximate Start Date	Approximate Finish Date	Approximate Duration
Phase 1			
Proposed Building NW ~~and Proposed Midrise Central Podium~~	~~First~~ Second Quarter 2020	~~First~~ Second Quarter 2023	39 months
Proposed Building SW	~~Third~~ Fourth Quarter 2020	~~Third~~ Fourth Quarter 2023	39 months
Proposed Building NE	~~Fourth~~ First Quarter ~~2020~~2021	~~Second~~ Third Quarter 2023	33 months
Phase 2			
Proposed Building N	~~Third~~ Fourth Quarter 2023	~~First~~ Second Quarter 2026	33 months
Proposed Building SE	~~Third~~ Fourth Quarter 2023	~~Second~~ Third Quarter 2026	36 months
Projected Future Development Site	~~Fourth~~ First Quarter ~~2023~~2024	~~Fourth~~ First Quarter ~~2024~~2025	15 months
Source: Hunter Roberts Construction Group, 2018			

Construction for each of the proposed buildings and the potential building on the projected future development site would generally consist of the following primary construction stages, which may overlap at certain times: demolition; excavation and foundations; core and shell construction; and interior fit-outs. These construction stages are described in greater detail under "General Construction Tasks."

TASK	APPROXIMATE START DATE	APPROXIMATE FINISH DATE
PHASE I		
Proposed Building NW and Proposed Midrise Central Podium	Second Quarter 2020	Second Quarter 2023
Proposed Building SW	Fourth Quarter 2020	Fourth Quarter 2023
Proposed Building NE	First Quarter 2021	Third Quarter 2023
PHASE 2		
Proposed Building N	Fourth Quarter 2023	Second Quarter 2026
Proposed Building SE	Fourth Quarter 2023	Third Quarter 2026
Projected Future Development Site	First Quarter 2024	First Quarter 2025



Source: Hunter Roberts Construction Group, 2018

This figure has been updated for the FEIS

Construction Schedule
Figure 19-1

D. DESCRIPTION OF CONSTRUCTION ACTIVITIES

GENERAL CONSTRUCTION PRACTICES

HOURS OF WORK

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

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

ACCESS, DELIVERIES, AND STAGING AREAS

Access to the proposed development site during construction would be fully controlled. The work areas would be fenced off and limited access points for workers and construction-related trucks would be provided. Construction workers are generally prohibited from parking their vehicles on-site during the construction period.

MPT plans would be developed for any required temporary sidewalk, lane, and/or street closures to ensure the safety of the construction workers and the public passing through the area. Approval of these plans and implementation of the closures would be coordinated with DOT's OCMC. Measures specified in the MPT plans that are anticipated to be implemented would include parking lane closures, safety signs, safety barriers, and construction fencing.

Additional details on the preliminary construction logistics for each of the proposed buildings are described below.

Proposed Building NW ~~and Midrise Central Podium~~

Proposed Building NW ~~and the midrise central podium are~~is anticipated to rise to 28 stories ~~and 6 stories, respectively~~. As presented in **Table 19-2**, construction activities associated with Proposed Building NW ~~and the midrise central podium~~ are anticipated to overlap with the activities at the adjacent Proposed Building SW and Proposed Building NE. Based on preliminary construction logistics, access to adjacent residential buildings (40 West 135th Street and 470 Lenox Avenue) and the Metropolitan AME Church to the east of these proposed buildings would be maintained at all times during construction via 135th Street and 132nd Street, while access from Lenox Avenue would be temporarily closed. Construction trucks are anticipated to enter and exit the construction area via Lenox Avenue and/or near the intersection of Lenox Avenue and West 135th Street. Temporary sidewalk and parking lane closure is anticipated on Lenox Avenue

and West 135th Street immediately adjacent to the proposed building to accommodate construction staging and deliveries. However, pedestrian circulation through these areas would be maintained at all time during construction. As is typical with construction in New York City, the pedestrian pathway may be temporarily shifted from the sidewalk to the parking lane where safety barriers would be installed to ensure the safety of the public passing through this area. Access to the 135th Street Station (No. 2 and 3 trains) located near the southeast corner of Lenox Avenue and West 135th Street would be maintained during construction. The cranes and hoists are anticipated to operate on the street-side of the proposed building, away from existing buildings on the project block.

Proposed Building SW

Proposed Building SW would be a 28-story mixed-use building ~~connected to the midrise central podium linking the Proposed Building NW and Proposed Building SW~~. Construction activities at this site are anticipated to overlap with the activities at the adjacent Proposed Building NW ~~and the midrise central podium~~ as well as Proposed Building NE. Based on preliminary logistics, access to the adjacent residential building (45 West 132nd Street) east of the proposed building would be maintained at all times during construction. Construction trucks are anticipated to enter and exit the construction area near the intersection of Lenox Avenue and West 132nd Street. Temporary sidewalk and parking lane closures are anticipated on Lenox Avenue and West 132nd Street immediately adjacent to the proposed building to accommodate construction staging and deliveries. However, pedestrian circulation through these areas would be maintained at all times during construction by shifting the pedestrian pathway from the sidewalk to the parking lane. The crane and hoist are anticipated to operate along Lenox Avenue, away from existing buildings on the project block.

Proposed Building NE

Proposed Building NE would be a 28-story mixed-use building. Construction activities at this site are anticipated to overlap with the activities at Proposed Buildings NW and~~,~~ SW ~~and the midrise central podium~~. Based on preliminary logistics, access to the adjacent residential buildings to the west (10 West 135th Street) and to the south (2186 Fifth Avenue) would be maintained at all times during construction. Construction trucks are anticipated to enter and exit the construction area via West 135th Street and Fifth Avenue. Temporary sidewalk and parking lane closures are anticipated on West 135th Street and Fifth Avenue immediately adjacent to the proposed building to accommodate construction staging and deliveries. However, pedestrian circulation through these areas would be maintained at all times during construction by shifting the pedestrian pathway from the sidewalk to the parking lane. The crane is anticipated to operate along Fifth Avenue while the hoist is anticipated to operate along West 135th Street, both away from existing buildings on the project block.

Proposed Building N

Proposed Building N would be a 28-story mixed-use building. Construction activities at this site are anticipated to overlap with the activities at Proposed Building SE. Based on preliminary logistics, access to the adjacent residential building to the east (10 West 135th Street) and the main entrance to the Hansborough Recreation Center to the south (via Lenox Terrace Place) would be maintained at all times during construction; however, during construction of this building a pedestrian gate to the east of the construction site may need to be temporarily closed, limiting access to the Hansborough Recreation Center from that location. Construction trucks are anticipated to enter and exit the construction area via West 135th Street. Temporary sidewalk and

parking lane closures are anticipated on West 135th Street immediately adjacent to the proposed building to accommodate construction staging and deliveries. However, pedestrian circulation through these areas would be maintained at all times during construction by shifting the pedestrian pathway from the sidewalk to the parking lane. The crane is anticipated to operate on the western portion of the proposed building while the hoist is anticipated to operate along West 135th Street, away from existing buildings on the project block.

Proposed Building SE

Proposed Building SE would be a 28-story mixed-use building. Construction activities at this site are anticipated to overlap with the activities at Proposed Building N. Based on preliminary logistics, access to the adjacent residential buildings to the west (25 West 132nd Street) and to the north (2186 Fifth Avenue) would be maintained at all times during construction. Construction trucks are anticipated to enter and exit the construction area via West 135th Street. Temporary sidewalk and parking lane closures are anticipated on West 135th Street immediately adjacent to the proposed building to accommodate construction staging and deliveries. However, pedestrian circulation through these areas would be maintained at all times during construction by shifting the pedestrian pathway from the sidewalk to the parking lane. The crane is anticipated to operate along West 132nd Street while the hoist is anticipated to operate along Fifth Avenue, away from existing buildings on the project block.

PUBLIC SAFETY

A variety of measures would be employed to ensure public safety during the construction of the proposed buildings, including: sidewalk bridges to provide overhead protection; safety signs to alert the public about active construction work; safety barriers to ensure the safety of the public passing by the project construction areas; flag persons to control trucks entering and exiting the project construction areas and/or to provide guidance for pedestrians and bicyclists safety; and safety nettings during demolition and on the sides of the proposed buildings as the superstructure work advances upward to prevent debris from falling to the ground. All DOB safety requirements would be followed and construction of the proposed project would be undertaken, so as to ensure the safety of the community and the construction workers themselves.

RODENT CONTROL

Construction contracts for the proposed project would include provisions for a rodent 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. Measures that may be implemented during construction include baiting the project sites within fenced construction areas, providing covered trash receptacles that would be emptied daily, trimming all vegetation regularly, and elevating construction trailers, dumpsters, and sheds to discourage rodents from nesting in them. To keep the community safe, signage on all baiting areas would be posted, and coordination would be conducted with the appropriate public agencies.

GENERAL CONSTRUCTION STAGES

Prior to the commencement of construction, the work area for each of the proposed buildings would be prepared for construction. Preparation of the work areas would include the installation of public safety measures such as fencing, netting, and signs. The fencing would typically be a solid construction fence to minimize interference between passersby and the construction work.

Worker and truck access points would be established and portable toilets, construction trailers, and dumpsters for trash would be brought on site and installed. Existing street trees would be protected where necessary but based on current plans, two trees along West 135th Street and one tree along Lenox Avenue are anticipated to be removed to accommodate new curb cuts for the proposed project. 55 new street trees are proposed as part of the landscape plan for the proposed project. All work would be performed in compliance with Local Law 3 of 2010 and the NYC Parks Tree Protection Protocol approved by the NYC Parks Manhattan Borough Forester, to minimize potential adverse impacts to existing trees that will remain in place.

Construction of each of the proposed buildings would consist of the following primary construction stages: demolition; excavation and foundation; core and shell construction; and interior fit-out. These construction stages are discussed in further detail below.

DEMOLITION

The proposed actions would provide for five new mixed-use buildings on the perimeter of the proposed development site, replacing existing single-story retail structures and portions of the property that are currently vacant. Before the commencement of demolition of these retail structures, the portion of the buildings to be demolished or renovated would first be abated of any hazardous materials. A New York City-certified asbestos investigator would inspect the building for asbestos-containing materials (ACM), and if present, those materials would be removed by a DOL-licensed asbestos abatement contractor prior to interior demolition. Asbestos abatement is strictly regulated by DEP, DOL, EPA, and OSHA to protect the health and safety of construction workers and nearby residents, workers, and visitors. Depending on the extent and type of ACMs (if any), these agencies would be notified of the asbestos removal and may inspect the abatement area to ensure that work is being performed in accordance with applicable New York State and New York City regulations. Any activities with the potential to disturb lead-based paint (LBP) would be performed in accordance with the applicable OSHA regulation (including federal OSHA regulation 29 CFR 1926.62—*Lead Exposure in Construction*). In addition, any suspected poly-chlorinated biphenyls (PCB)-containing equipment (such as fluorescent light ballasts) would be evaluated prior to disturbance. Unless labeling or test data indicate the contrary, such equipment would be assumed to contain PCBs, and would be removed and disposed of at properly licensed facilities in accordance with all applicable regulatory requirements.

Prior to demolition, any economically salvageable materials that could be reused would typically be removed. Then the building would be demolished and demolition debris removed from the proposed development site. Hand tools and excavators with hoe ram attachments would be used for the demolition of the existing structures. Demolition debris would typically be sorted prior to being disposed at landfills to maximize recycling opportunities.

EXCAVATION AND FOUNDATION

During this stage of construction, sheeting would first be installed to contain soil around the excavation area and excavators would then be used to excavate soil. The soil would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse on any portion of the proposed development site that needs fill. As the excavation becomes deeper, a temporary ramp may be built to provide access for the dump trucks to the excavation area. No blasting is anticipated for the construction of the proposed project. Concrete trucks and pumps would be used to pour the foundation and the below-grade structures including walls and columns. Excavation

and foundation activities may also involve the use of, pile drivers, mobile cranes, generators, compressors, and rebar benders.

CORE AND SHELL CONSTRUCTION

The core is the central part of the building and is the main part of the structural system. It contains the building's beams and columns, as well as elevator shafts, vertical risers for mechanical, electrical, and plumbing systems, electrical and mechanical equipment rooms, and core stairs. The shell is the exterior of the building. A crane would be brought onto the construction area and would be used to lift structural components, façade elements, and other large materials. Core and shell construction activities would also require the use of compressors, concrete trowels, rebar benders, and a variety of small handheld tools. In addition, temporary construction elevators (hoists) would be used for the vertical movement of workers and materials during this stage of construction.

INTERIOR FIT-OUT

Interior fit-out activities would include the construction of interior partitions, installation of lighting fixtures, and interior finishes (e.g., flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators and lobby finishes. Final cleanup and touchup of the buildings and final building system (e.g., electrical system, fire alarm, plumbing, etc.) testing and inspections would be part of this stage of construction. Equipment used during this stage of construction would include hoists, delivery trucks, and a variety of small handheld tools. Interior fit-out activities would typically be the quietest period of construction in terms of its effect on the public, because most of the construction activities would occur inside the building with the façades substantially complete and the proposed buildings enclosed.

NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Table 19-3 shows the estimated average daily numbers of workers and deliveries by calendar quarter for Phase 1 of the construction period, during which proposed Buildings NW, SW, and NE ~~and the midrise central podium~~ would be completed. The average number of workers throughout this construction period would be approximately 450 per day, while the peak number of workers by calendar quarter would be approximately 863 per day. The average number of truck trips throughout Phase 1 of the construction period would be approximately 51 per day, and the peak number of deliveries by calendar quarter would be approximately 94 truck trips per day. As shown in **Table 19-3**, the peak level of construction works and truck trips would not persist throughout the construction period. During non-peak periods, the number of construction workers and truck trips would be less than the average 863 workers and 94 truck trips per day estimated for the peak period.

Table 19-3
Average Number of Daily Workers and Trucks by Year and Quarter, Phase 1

Year	2020			2021				2022				2023					
Quarter	~~1~~2	~~2~~3	~~3~~4	~~4~~1	~~2~~1	~~3~~2	~~4~~3	~~4~~1	~~1~~2	~~2~~3	~~3~~4	~~4~~1	~~1~~2	~~2~~3	~~3~~4	Average	Peak
Workers	72	101	140	206	610	611	774	863	863	863	679	329	329	203	62	450	**863**
Trucks	4	15	17	27	77	69	84	94	94	94	78	40	40	24	4	51	**94**

Table 19-4 shows the estimated average daily numbers of workers and deliveries for the proposed actions by calendar quarter for Phase 2 of the construction period, during which proposed Buildings N and SE would be completed. The average number of workers throughout this construction period would

be approximately 281 per day, while the peak number of workers by calendar quarter would be approximately 547 per day. The average number of truck trips throughout Phase 2 of the construction period would be approximately 29 per day, and the peak number of deliveries by calendar quarter would be approximately 56 truck trips per day. As shown in **Table 19-4**, the peak level of construction workers and truck trips would not persist throughout the construction period. During non-peak periods, the number of construction workers and truck trips would be less than the average 547 workers and 56 truck trips per day estimated for the peak period.

Table 19-4
Average Number of Daily Workers and Trucks by Year and Quarter, Phase 2

Year	2023	2024				2025				2026				
Quarter	~~3~~4	~~4~~1	~~1~~2	~~2~~3	~~3~~4	~~4~~1	~~1~~2	~~2~~3	~~3~~4	~~4~~1	~~1~~2	~~2~~3	Average	Peak
Workers	62	135	506	381	547	547	529	360	167	167	88	0	281	547
Trucks	4	21	51	35	56	56	51	37	20	20	11	0	29	56

E. FUTURE WITHOUT THE PROPOSED PROJECT

As described in Chapter 1, "Project Description," absent the proposed project, it is assumed that the rezoning area would continue in its current condition, with the exception that currently vacant retail space on the proposed development site would likely be re-tenanted depending upon market conditions. While the Metropolitan AME Church could be redeveloped independent of the proposed actions, the No Action scenario conservatively assumes that the projected future development site would continue in its current condition.

F. FUTURE WITH THE PROPOSED PROJECT

Construction of the proposed project would result in some temporary disruptions in the surrounding area. The following analysis describes the overall temporary effects on transportation, air quality, noise, and vibration, as well as consideration of other technical areas including land use and neighborhood character, socioeconomic conditions, community facilities and services, open space, historic and cultural resources, natural resources, and hazardous materials.

TRANSPORTATION

The construction transportation analysis assesses the potential for construction activities to result in significant adverse impacts to traffic, transit (i.e., subway and bus), pedestrian elements (i.e., sidewalks, corners, and crosswalks), and parking conditions. The analysis is based on the peak worker and truck trips during construction under the proposed actions which, as described below, are developed based on several factors including worker modal splits (how the workers access the sites per mode of transportation: automobile, transit, or walking), vehicle occupancy and trip distribution, truck passenger car equivalents (PCEs), and arrival/departure patterns. As presented above in **Tables 19-3 and 19-4**, the greatest construction-related traffic demand for Phase 1 and Phase 2 would occur during the ~~fourth~~ first quarter of ~~2021~~ 2022 to the ~~second~~ third quarter of 2022 and the ~~third and~~ fourth quarter~~s~~ of 2024, respectively, when the combination of worker vehicle trips and truck trips would be the highest. The greatest construction-related pedestrian, transit, and parking demand would occur during the period with the highest number of construction workers on-site, which is anticipated to be the ~~fourth~~ first quarter of ~~2021~~ 2022 to the ~~second~~ third quarter of 2022 during Phase 1 construction and the ~~third and~~ fourth quarter~~s~~ of 2024 during Phase 2 construction. The Phase 2 analysis accounts for the Phase 1 construction

components that are completed and operational (2023) and the remaining buildings (Proposed Buildings N and SE) that are under construction (until 2026) as well as the projected future development site.

TRAFFIC

The average worker and truck trip projections discussed above in "Construction Truck and Worker Estimates" were further refined to account for worker modal splits and vehicle occupancy, arrival and departure distribution, and truck PCEs.

Daily Workforce and Truck Deliveries

For a reasonable worst-case analysis of potential transportation-related impacts during construction, the combined daily workforce and truck trip projections in the peak quarter were used as the basis for estimating peak-hour construction trips. The ~~fourth~~ first quarter of ~~2021~~ 2022 to the ~~second~~ third quarter of 2022 was identified as the peak construction traffic period (when the combination of worker vehicle trips and truck trips would be the highest) when construction activities at Proposed Buildings NW, SW, and NE ~~and the midrise central podium~~ would overlap, with a peak of approximately 863 workers and 94 truck trips. These estimates of construction activities are discussed further below.

Construction Worker Modal Splits and Vehicle Occupancy

Subsequent to the publication of the Draft EIS, the construction worker modal splits and vehicle occupancy were updated in consultation with DOT. The updated construction worker modal splits and vehicle occupancy were based on 2000 U.S. Census data for construction workers in tracts encompassing the study area ~~the *East Harlem Rezoning FEIS*~~. It is anticipated that approximately 67~~8~~ percent of construction workers would use public transportation in their commute to and from the construction sites, which is well-served by subway and bus transit. Approximately 23~~17~~ percent of workers are expected to travel to the proposed development site by personal automobile with an average occupancy of 1.17~~2.2~~ persons per vehicle, and 10~~5~~ percent are expected to walk or bike ~~cycle~~. Since construction worker vehicles are not substantial air emission or noise sources compared to on-site equipment and trucks, the increase in worker vehicles due to changes in the modal split and vehicle occupancy assumptions subsequent to the publication of the Draft EIS will not materially affect the construction air quality noise analysis results and conclusions presented below in the "Air Quality" and "Noise" sections.

Peak-Hour, Construction Worker Vehicle and Truck Trips

Similar to other construction projects in New York City, most of the construction activities at the proposed development site are expected to take place from 7:00 AM to 3:30 PM. While construction truck trips would occur throughout the day (with more trips during the morning), and most trucks would remain in the area for short durations, most construction workers would commute during the hours before and after the work shift. For analysis purposes, each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out"), whereas each worker vehicle was assumed to arrive near the work shift start hour and depart near the work-shift end hour. Further, 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 likely arrival/departure patterns for construction workers and trucks. For construction workers, the majority (approximately 80 percent) of the arrival and departure

trips would take place during the hour before and after each work shift (6:00 to 7:00 AM for arrival and 3:00 to 4:00 PM for departure on a regular day shift). Construction truck deliveries into the construction site typically peak during the hour (6:00 to 7:00 AM) before each shift (25 percent), overlapping with construction worker arrival traffic; construction truck deliveries departing the construction site typically peak during the hour after the work shift has started (7:00 to 8:00 AM) since on-site activities do not commence until 7:00 AM.

Tables 19-5 and 19-6 present the hourly trip projections for the peak construction quarter during Phase 1 and Phase 2 construction, respectively. As shown, the maximum construction-related traffic increments during Phase 1 construction would be approximately 18401 PCEs between 6:00 and 7:00 AM and 15673 PCEs between 3:00 and 4:00 PM; the maximum construction-related traffic increments during Phase 2 construction would be approximately 11462 PCEs between 6:00 AM and 7:00 AM and 9442 PCEs between 3:00 and 4:00 PM.

Table 19-5
Peak Construction Vehicle Trip Projections (Phase 1)

	Auto Trips			Truck Trips			Total					
	Regular Shift			Regular Shift			Vehicle Trips			PCE Trips		
Hour	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6 AM–7 AM	13653	0	13653	24	0	24	16077	0	16077	18401	0	18401
7 AM–8 AM	3413	0	3413	9	24	33	4322	24	6746	5231	48	10079
8 AM–9 AM	0	0	0	9	9	18	9	9	18	18	18	36
9 AM–10 AM	0	0	0	9	9	18	9	9	18	18	18	36
10 AM–11 AM	0	0	0	9	9	18	9	9	18	18	18	36
11 AM–12 PM	0	0	0	9	9	18	9	9	18	18	18	36
12 PM–1 PM	0	0	0	9	9	18	9	9	18	18	18	36
1 PM–2 PM	0	0	0	6	9	15	6	9	15	12	18	30
2 PM–3 PM	0	83	83	5	6	11	5	149	194	10	2015	3025
3 PM–4 PM	0	13653	13653	5	5	10	5	14158	14663	10	14663	15673
4 PM–5 PM	0	2610	2610	0	5	5	0	3115	3115	0	3620	3620
Daily Total	17066	17066	340132	94	94	188	264160	264160	528320	358254	358254	716508

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

Table 19-6
Peak Construction Vehicle Trip Projections (Phase 2)

	Auto Trips			Truck Trips			Total					
	Regular Shift			Regular Shift			Vehicle Trips			PCE Trips		
Hour	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6 AM–7 AM	8634	0	8634	14	0	14	10048	0	10048	11462	0	11462
7 AM–8 AM	228	0	228	6	14	20	2814	14	4228	3420	28	6248
8 AM–9 AM	0	0	0	6	6	12	6	6	12	12	12	24
9 AM–10 AM	0	0	0	6	6	12	6	6	12	12	12	24
10 AM–11 AM	0	0	0	6	6	12	6	6	12	12	12	24
11 AM–12 PM	0	0	0	6	6	12	6	6	12	12	12	24
12 PM–1 PM	0	0	0	6	6	12	6	6	12	12	12	24
1 PM–2 PM	0	0	0	2	6	8	2	6	8	4	12	16
2 PM–3 PM	0	52	52	2	2	4	2	74	96	4	96	130
3 PM–4 PM	0	8634	8634	2	2	4	2	8836	9038	4	9038	9442
4 PM–5 PM	0	176	176	0	2	2	0	198	198	0	2110	2110
Daily Total	10842	10842	21684	56	56	112	16498	16498	328196	220154	220154	440308

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

Projected traffic levels generated during the peak period for Phase 1 and Phase 2 construction and those upon Phase 1 completion and Phase 2 full build-out of the proposed project are compared in

Tables 19-7 and 19-8, respectively. As presented, the Phase 1 construction traffic increments would be comparable to ~~substantially lower than~~ the operational traffic increments for the Phase 1 completion and the Phase 2 construction traffic increments would be substantially lower than the operational traffic increments for Phase 2 full build-out of ~~under~~ the proposed project ~~in 2023 and 2026, respectively~~.

Table 19-7
Comparison of Incremental Construction (Phase 1) and Operational Peak Period Vehicle Trips in PCEs

Time	Peak Incremental Construction Vehicle Trips in PCEs			Peak Incremental Operational Vehicle Trips in PCEs		
	In	Out	Total	In	Out	Total
AM Peak Period (6:00 AM to 9:00AM)						
AM Peak Hour[1]	18~~401~~	0	18~~401~~	52	108	160
PM Peak Period (3:00 PM to 6:00PM)						
PM Peak Hour[2]	10	146~~63~~	156~~73~~	107	77	184

Notes:
[1] The AM peak hour of trip generator is 6:00 to 7:00 AM for construction and 8:00 to 9:00 AM for operational.
[2] The PM peak hour of trip generator is 3:00 to 4:00 PM for construction and 5:00 to 6:00 PM for operational.

Table 19-8
Comparison of Incremental Construction (Phase 2) and Operational Peak Period Vehicle Trips in PCEs

Time	Peak Incremental Construction Vehicle Trips in PCEs			Peak Incremental Operational Vehicle Trips in PCEs		
	In	Out	Total	In	Out	Total
AM Peak Period (6:00 AM to 9:00AM)						
AM Peak Hour[1]	114~~62~~	0	114~~62~~	78	163	241
PM Peak Period (3:00 PM to 6:00PM)						
PM Peak Hour[2]	4	90~~38~~	94~~42~~	159	112	271

Notes:
[1] The AM peak hour of trip generator is 6:00 to 7:00 AM for construction and 8:00 to 9:00 AM for operational.
[2] The PM peak hour of trip generator is 3:00 to 4:00 PM for construction and 5:00 to 6:00 PM for operational.

Cumulative Operational and Construction Traffic Effects of the Proposed Project

An analysis was prepared to assess conditions when Phase 1 construction is completed and operational (2023) and Phase 2 of the proposed project is still under construction (until 2026). **Table 19-9** compares trip-making from the full build-out of the proposed project with the cumulative operational and construction trip-making during peak Phase 2 construction. This shows that the cumulative trip-making during any point of project development in the morning and afternoon hours would be lower than the critical operational AM and PM commuter peak hours, for which project-related impacts were identified.

Based on the construction traffic increments and operational vehicle trips comparisons presented above, Level 2 trip assignment screening assessments (Phase 1—construction vehicle trips only; and Phase 2—cumulative construction vehicle trips and Phase 1 operational vehicle trips) were prepared by assigning incremental vehicle trips to the study area traffic network to determine if there is a need for additional quantified traffic analysis during the weekday AM and PM construction peak hours for both Phase 1 and Phase 2 peak construction.

Table 19-9
Phase 1 Operational and Phase 2 Construction
Cumulative Peak Period Vehicle Trips in PCEs

Time	Phase 2 Construction Vehicle Trips in PCEs			Phase 1 Operational Vehicle Trips in PCEs			Total Construction and Operational Vehicle Trips in PCEs			Full Build-Out Operational Vehicle Trips in PCEs		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
AM Peak Period (6:00 AM to 9:00AM)												
6-7 AM	114~~62~~	0	114~~62~~	3	3	6	117~~65~~	3	120~~68~~	7	6	13
7-8 AM	34~~20~~	28	62~~48~~	8	48	56	42~~28~~	76	118~~04~~	11	73	84
8-9 AM	12	12	24	52	108	160	64	120	184	78	163	241
PM Peak Period (3:00 PM to 6:00PM)												
3-4 PM	4	~~38~~90	~~42~~94	57	52	109	61	142~~90~~	203~~151~~	84	78	162
4-5 PM	0	21~~10~~	~~10~~21	75	59	134	75	~~80~~69	155~~44~~	111	84	195
5-6 PM	0	0	0	107	77	184	107	77	184	159	112	271

Note: Based on the study area Automatic Traffic Recorder (ATR) counts, general traffic levels for the 6:00 to 7:00 AM and 7:00 to 8:00 AM hours are approximately 76 percent of and approximately the same as the 8:00 to 9:00 AM hour, respectively. Correspondingly, general traffic levels for the 3:00 to 4:00 PM and 4:00 to 5:00 PM hours are approximately the same as the 5:00 to 6:00 PM hour.

As part of the Level 2 traffic screening assessment, construction traffic increments and operational vehicle trips have been assigned to specific intersections in the traffic study area. In consultation with DOT, ~~As previously stated, further quantified analyses would be warranted during Phase 1 and Phase 2 construction of the proposed project if the trip assignments were to identify intersections incurring 50 or more peak hour vehicle trips during the weekday AM and PM construction peak hours.~~

Phase 1 and Phase 2 construction-generated vehicle trips were assigned to area intersections similar to the operational vehicle trip assignments, which are based on the most likely travel routes to and from the project site, prevailing travel patterns, commuter origin-destination (O-D) summaries from the census data. ~~Construction-generated auto trips were assigned to off-street garages with a ¼-mile radius from the project site.~~ Construction-generated truck trips would follow NYCDOT-designated truck routes and would enter and exit the construction site from gates located on Lenox Avenue, West 135th Street, and Fifth Avenue. Phase 1 operational vehicle trips during Phase 2 peak construction were assigned to the area intersections based on the aggregate trip-making patterns described in Chapter 13, "Transportation."

The Phase 1 construction vehicle trips and Phase 2 cumulative construction and operational vehicle trips are shown in **Figures 19-2 to 19-5** ~~and summarized in **Table 19-10**~~. As noted above, the overall Phase 1 construction peak hour traffic increments would be comparable to the Phase 1 completion operational peak hour traffic increments. For a conservative traffic analysis, the same 11 intersections ~~In total, 4 intersections were selected for analysis for Phase 1 construction and 6 intersections were selected for analysis for Phase 2 construction. These intersections were also~~ analyzed for the operational conditions in ~~for the~~ Chapter 13, "Transportation," were also analyzed for the Phase 1 peak construction traffic analysis presented below. And consistent with the operational traffic analysis, which analyzed the same traffic study area for both Phase 1 and Phase 2 conditions, the same 11 traffic intersections were also analyzed for the Phase 2 peak construction traffic analysis presented further below. ~~operational traffic analysis, and were selected by comparing the construction increments against the operational increments for lane groups at each location, and by considering the operational traffic analysis results and whether impacts had been identified during the operational peak hours.~~ The Phase 1 and Phase 2 peak ~~selected~~ construction traffic analysis locations are shown in **Figure 19-6**.

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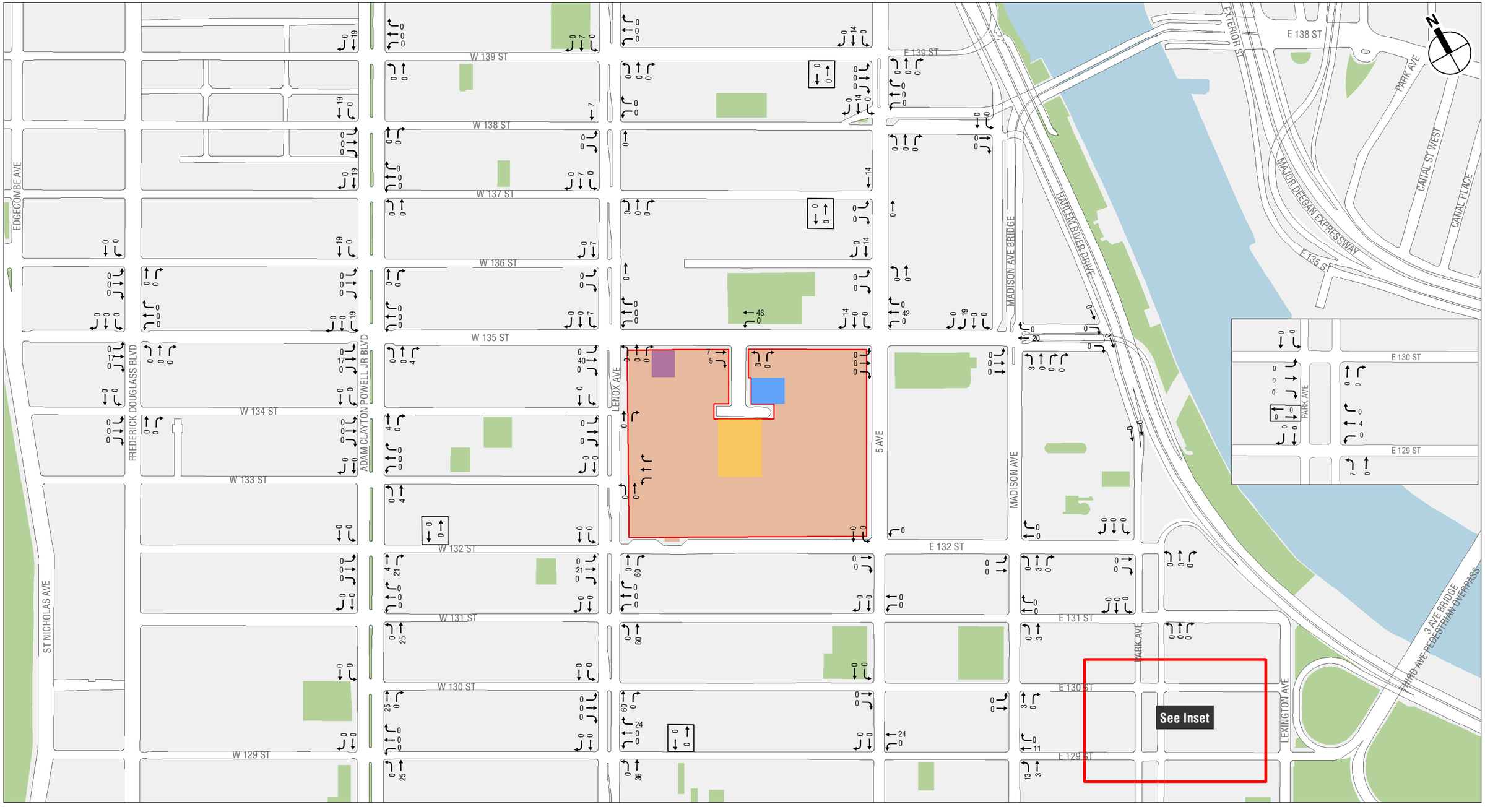


Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site
Parking Garages

0 400 FEET

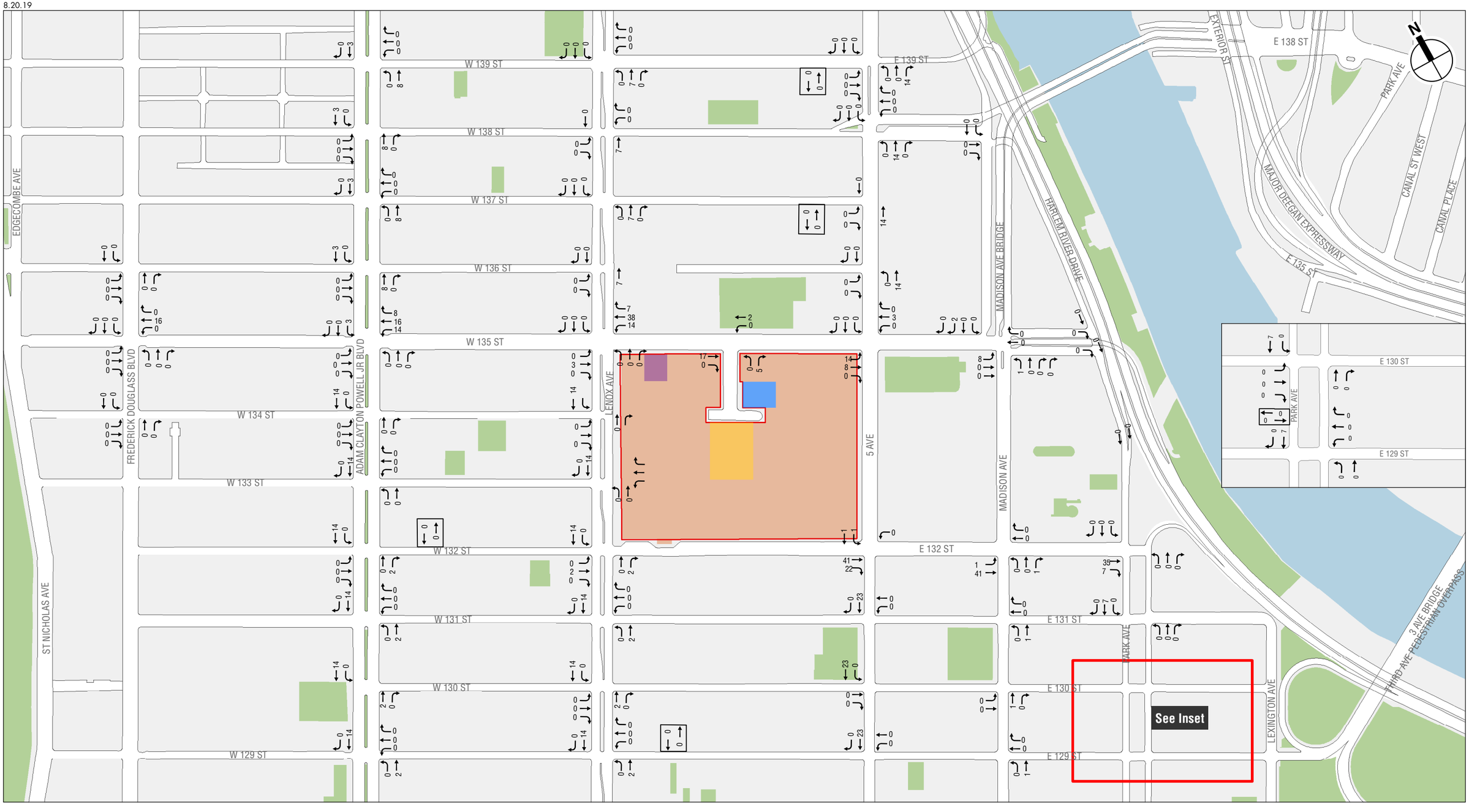
LENOX TERRACE

This figure has been updated for the FEIS

Phase 1 Construction PCE Vehicle Trips
Weekday AM Construction Peak Hour

Figure 19-2

8.20.19



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site
Parking Garages

0 400 FEET

LENOX TERRACE

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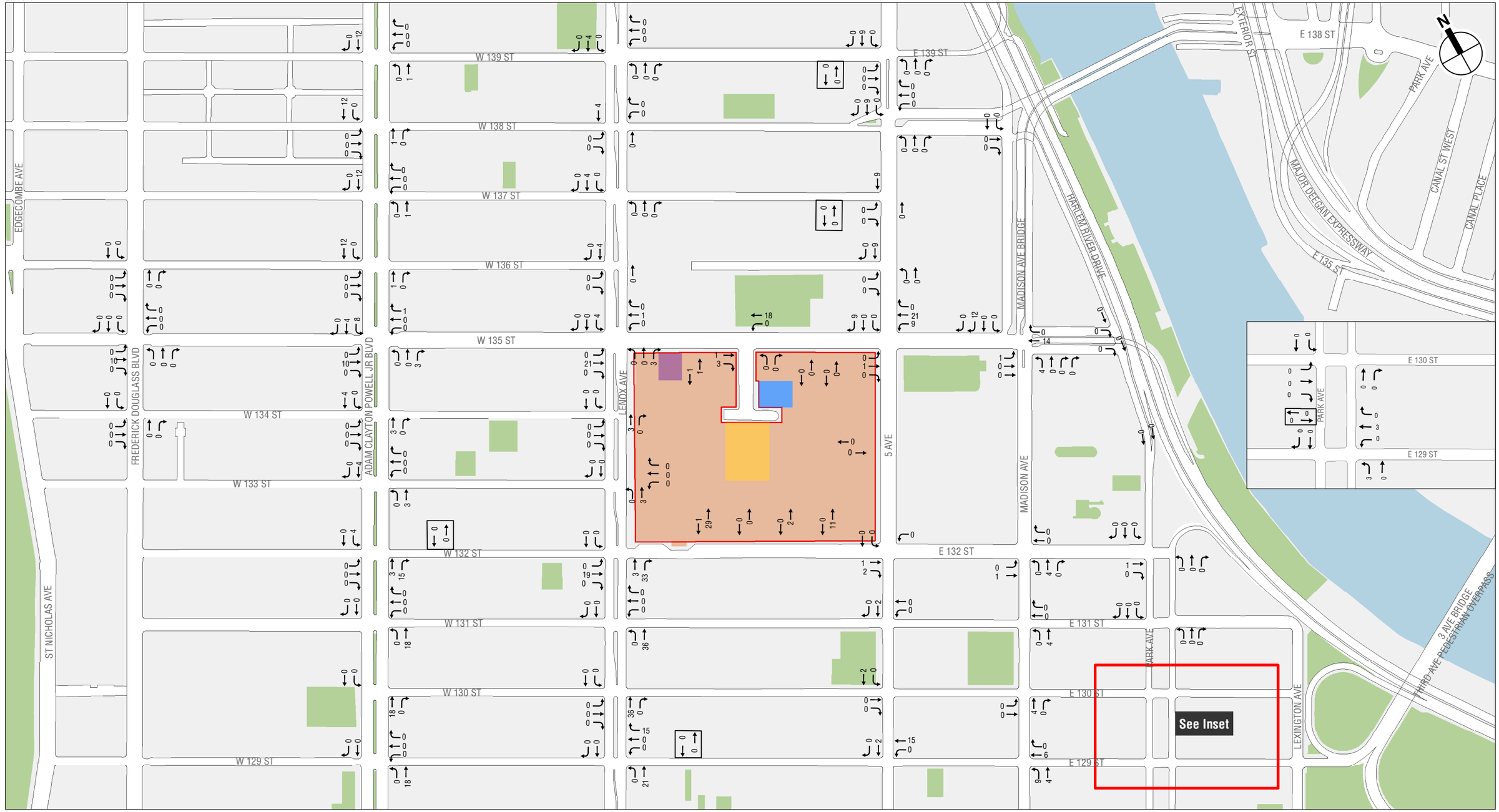
Phase 1 Construction PCE Vehicle Trips
Weekday PM Construction Peak Hour

Figure 19-3

12.19.19



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site
Parking Garages

0 400 FEET

Cumulative Phase 2 Construction and Phase 1 Operational PCE Vehicle Trips
Weekday AM Construction Peak Hour

This figure has been updated for the FEIS

Figure 19-4

12.19.19

Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site
Parking Garages

0 400 FEET

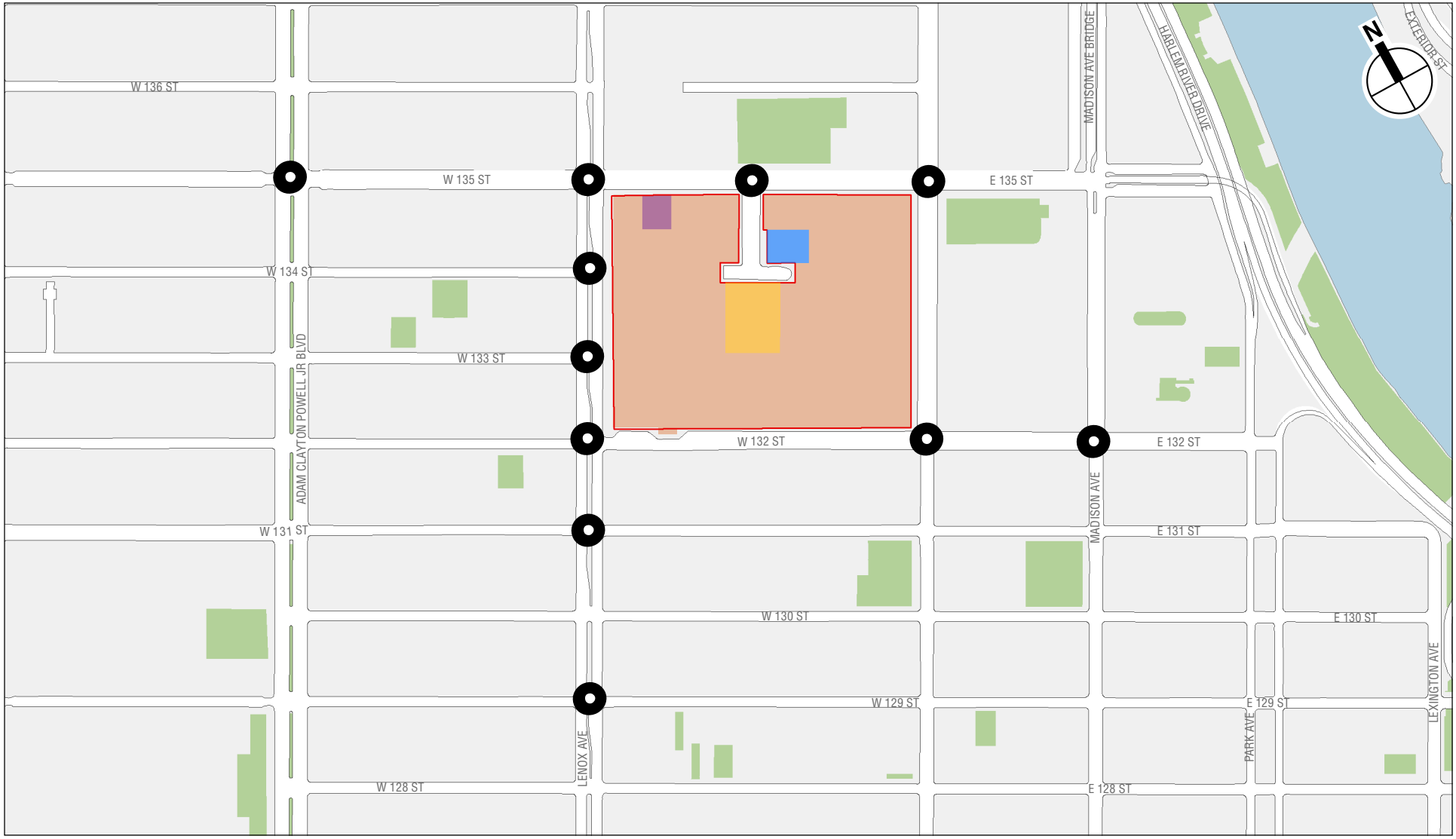
Cumulative Phase 2 Construction and Phase 1 Operational PCE Vehicle Trips
Weekday PM Construction Peak Hour

This figure has been updated for the FEIS

LENOX TERRACE

Figure 19-5

8.20.19



Rezoning Area

Proposed Development Site

Projected Future Development Sites

Potential Development Site

City-Owned Site

Traffic Analysis Location - Phase 1 and Phase 2 Construction

0 600 FEET

Phase 1 and Phase 2 Construction Traffic Analysis Locations

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-6

Construction Traffic Capacity Analysis

Phase 1 Construction

To establish a construction No Action condition against which to measure the potential construction traffic impacts, automatic traffic recorder (ATR) data collected for the operational analyses were reviewed to determine relative traffic levels between the operational and construction analysis peak hours (i.e., 8:00 to 9:00 AM vs. 6:00 to 7:00 AM and 5:00 to 6:00 PM vs. 3:00 to 4:00 PM). Based on this review, the operational 2023 Phase 1 No Action traffic volumes were reduced by 24 percent for the AM peak hour and 4 percent for the PM peak to arrive at the representative construction traffic analysis volumes.

Although peak Phase 1 construction would occur approximately one year prior to Phase 1 project completion, a reduction in background growth was conservatively not applied for purposes of the construction traffic analyses.

The 2022 Phase 1 construction No Action traffic volumes are shown in **Figures 19-7 and 19-8** for the weekday construction peak hours. The 2022 Phase 1 construction With Action traffic volumes are shown in **Figures 19-9 and 19-10** for the weekday construction peak hours, by adding the construction vehicle trips presented in **Figures 19-2 and 19-3** to the No Action traffic volumes.

The operation of all signalized intersections in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual* (HCM) using the *Highway Capacity Software* (HCS+ 5.5). The results of the traffic analysis summarized in **Table 19-10~~1~~** show that one intersection would be significantly impacted during the weekday 6 AM to 7 AM construction peak hour and ~~one~~ three intersections would be significantly impacted during the weekday 3 PM to 4 PM construction peak hour under the 2022 Phase 1 construction With Action condition. **Table 19-11~~2~~** summarizes the mitigation measures recommended to address the identified impacts under the 2022 Phase 1 construction With Action condition. With the implementation of these mitigation measures, the significant adverse traffic impacts identified during the weekday AM and PM construction peak hours could be fully mitigated at the impacted intersections.

Table 19-10~~1~~
2022 Phase 1 Construction With Action Condition—
Summary of Significant Adverse Traffic Impacts

Intersection		Weekday AM Construction Peak Hour	Weekday PM Construction Peak Hour
EB/WB Street	**NB/SB Street**		
West 135th Street	Lenox Avenue	WB-LTR	WB-LTR
West 135th Street	Fifth Avenue	No Significant Impact	EB-LTR
West 132nd Street	Fifth Avenue	No Significant Impact	EB-TR WB-L
Total Impacted Intersections/Lane Groups		**~~0/0~~1/1**	**~~1/1~~3/4**

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left Turn; T = Through; R = Right Turn.

Based on the 2022 Phase 1 construction With Action condition traffic analysis results, construction-related mitigation measures may be needed prior to the peak construction quarter. A review of the average number of daily workers and trucks by quarter presented in **Table 19-3**, the Phase 1 peak construction vehicle trip projections presented in **Table 19-5**, and the Phase 1 construction traffic assignments ~~Level 2 screening analysis results~~ presented in **Figures 19-2 and 19-3~~Table 19-10~~** indicates that the first ~~three~~ quarters of Phase 1 construction (~~1st~~ 2nd ~~through 3rd~~ 4th quarters of Year 1) would result in construction peak hour vehicle trips below the *CEQR*

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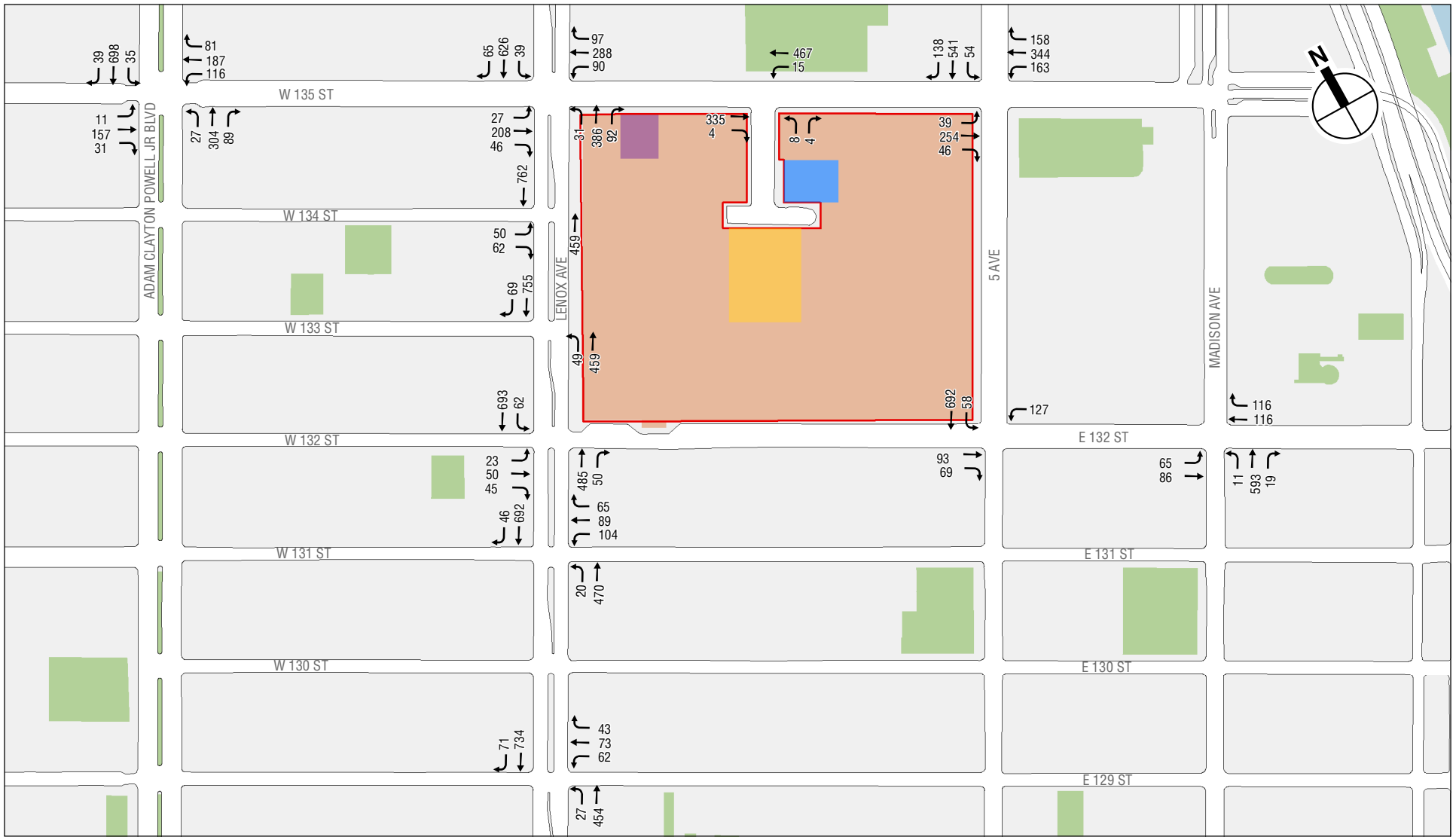


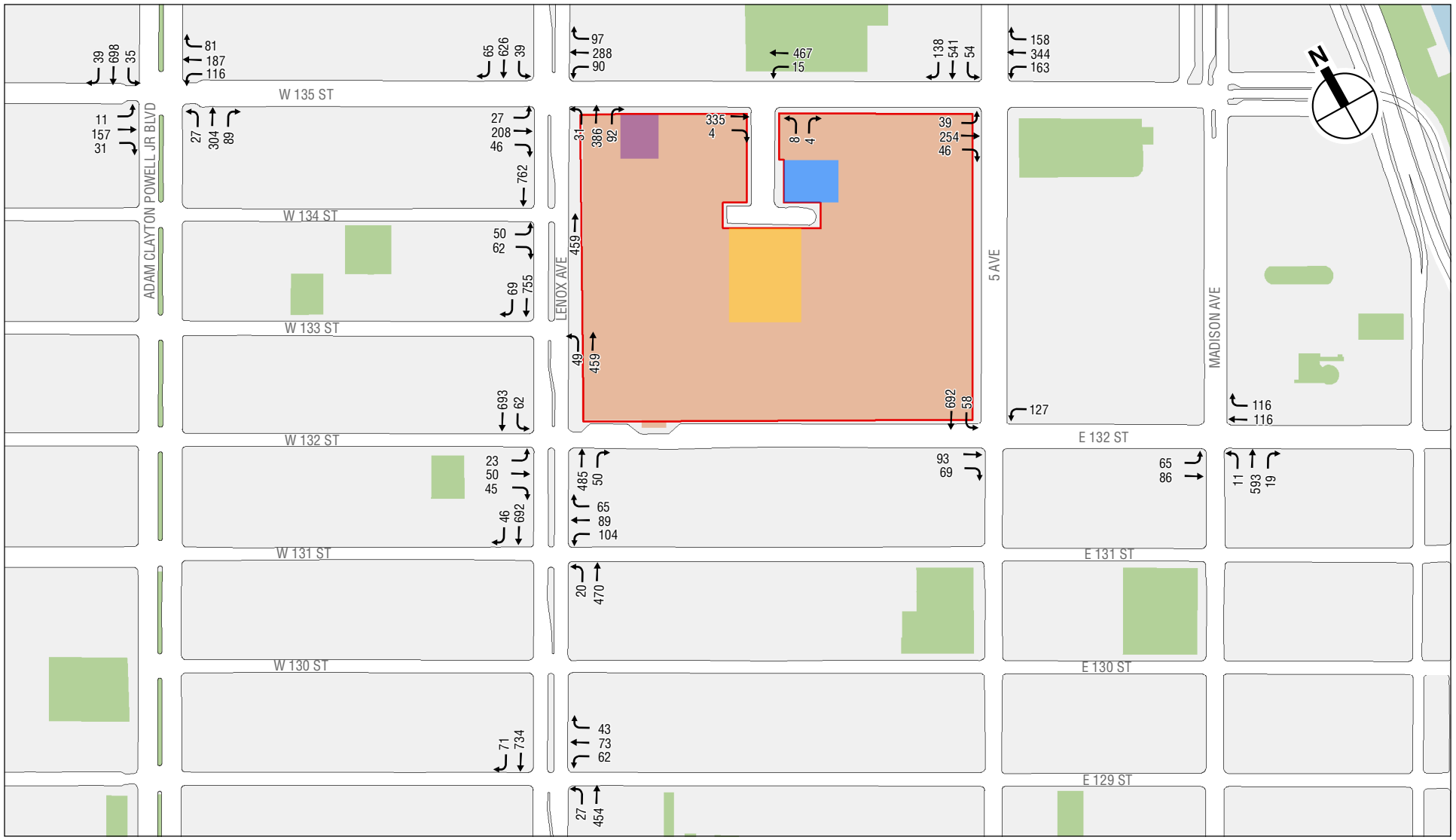
2022 Phase 1 Construction No Action Traffic Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-7

1.14.20



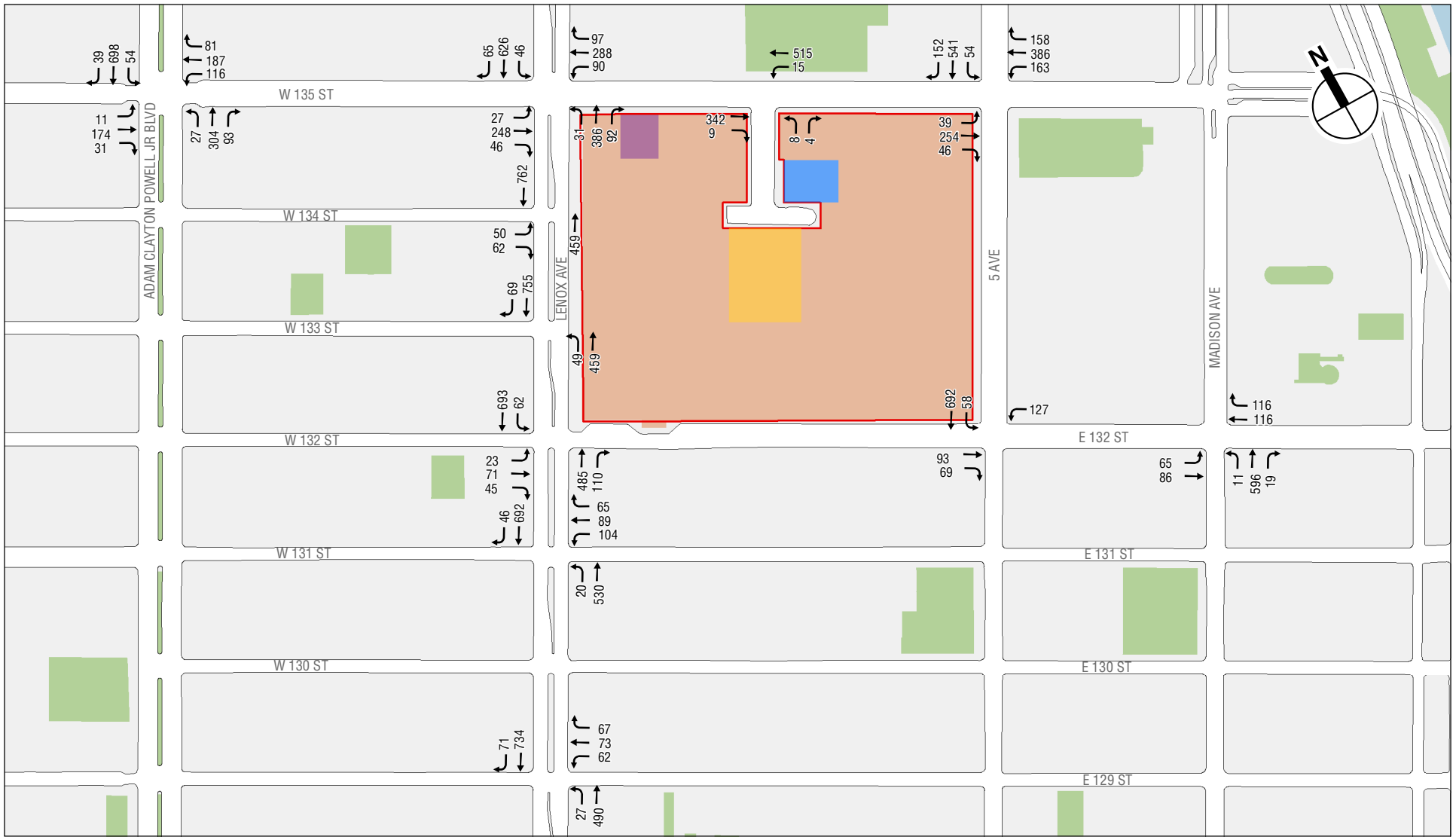
2022 Phase 1 Construction No Action Traffic Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-8

1.14.20



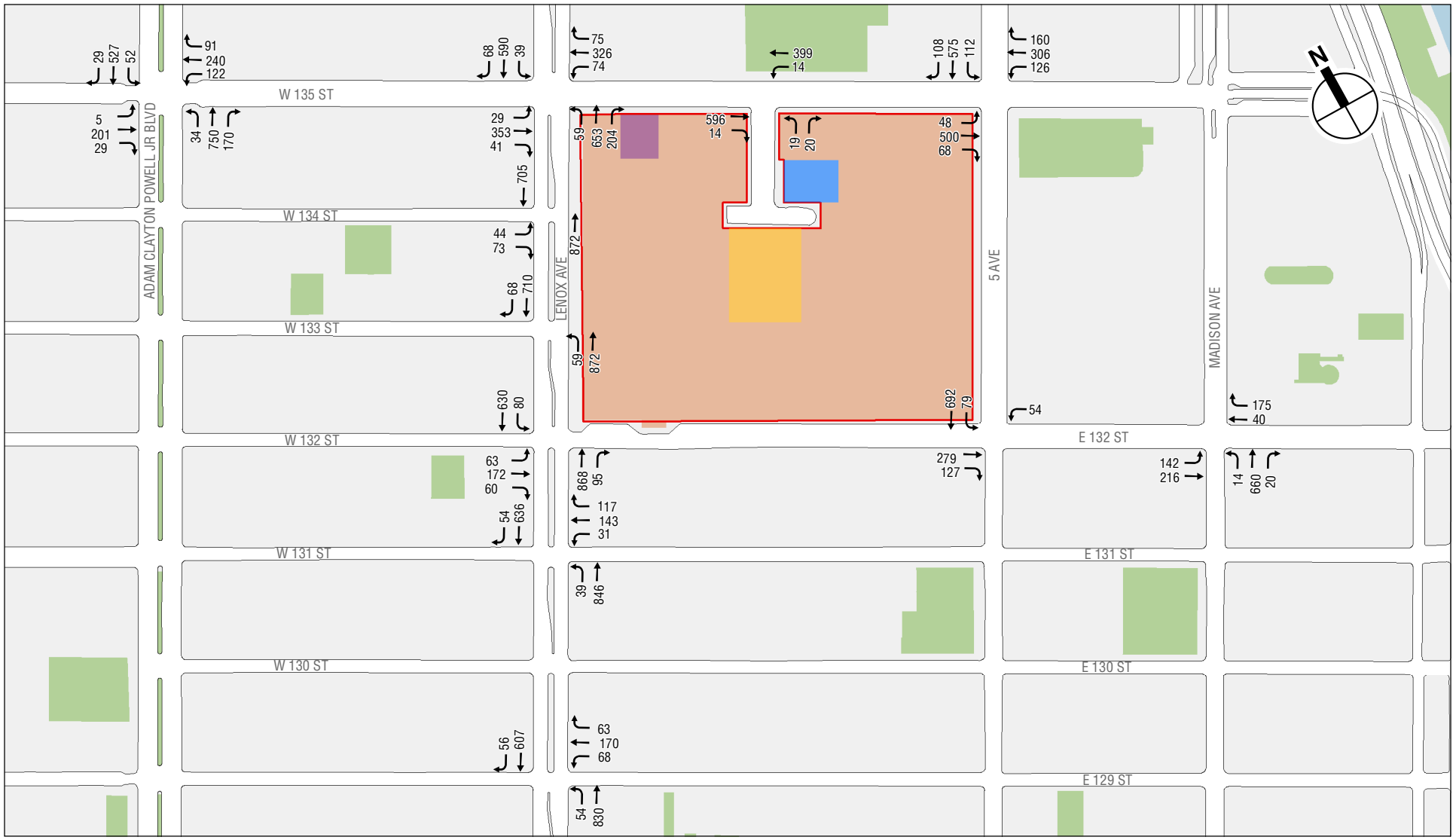
2022 Phase 1 Construction With Action Traffic Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-9

1.14.20



2022 Phase 1 Construction With Action Traffic Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-10

Technical Manual analysis thresholds requiring further detailed traffic analysis. Therefore, the construction-related vehicle trips from ~~these three quarters~~this quarter would not have the potential to result in construction-related traffic impacts and would not require mitigation. However, for the subsequent quarters prior to the peak construction quarter, the estimated construction peak hour vehicle trips would exceed the *CEQR Technical Manual* analysis thresholds, which may result in construction-related traffic impacts requiring mitigation.

Detailed traffic analysis results for the 2022 Phase 1 construction conditions in terms of LOS, v/c ratios, and average delays are presented in **Tables 19-12~~3~~A and 19-12~~3~~B**.

As discussed below, significant adverse traffic impacts were identified for each of the affected intersections by approach/lane group during the weekday AM and PM construction peak hours. Potential measures that could be implemented to mitigate these significant adverse traffic impacts are also described.

West ~~132nd Street and Lenox Avenue~~135th Street and Lenox Avenue

- ~~Eastbound~~ Westbound approach at this intersection would deteriorate from LOS D with a v/c ratio of 0.89 and 48.0 seconds per vehicle (spv) of delay to LOS E with a v/c ratio of 0.94 and 55.3 spv of delay in the weekday AM construction peak hour and within LOS D (from a v/c ratio of 0.71 and 35.1 spv of delay to a v/c ratio of 0.87 and 45.5 spv of delay) in the weekday PM construction peak hour, increases in delay of more than five seconds. These increases in delay constitute ~~a~~ significant adverse impacts.
- ~~within LOS E (from a v/c ratio of 0.90 and 57.4 spv of delay to a v/c ratio of 0.98 and 74.2 spv of delay) in the weekday PM construction peak hour, an increase in delay of more than four seconds. This increase in delay constitutes a significant adverse impact.~~
- The significant adverse impacts at the ~~eastbound~~ westbound approach of this intersection during the weekday AM and PM construction peak hours could be fully mitigated by implementing ~~the lane restriping proposed for the 2023 Phase 1 operational mitigation measures, which consists of a restriping of the eastbound approach from one 13.5-foot moving lane with 8-foot parking lanes on both sides to one 10-foot left-turn lane, one 11.5-foot moving lane, and one 8-foot parking lane (installing "No Standing Anytime" sign) on the north curbside of the eastbound bound approach for approximately 100 feet from the intersection (which would eliminate approximately four on-street parking spaces).~~a 1 second shift in green time from the northbound/southbound phase to the eastbound/westbound phase during both peak hours.

135th Street and Fifth Avenue

- Eastbound approach at this intersection would deteriorate from LOS D with a v/c ratio of 0.91 and 45.9 spv of delay to LOS E with a v/c ratio of 0.99 and 61.7 spv of delay in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.
- The significant adverse impact at the eastbound approach of this intersection during the weekday PM construction peak hour could be fully mitigated by implementing the lane restriping mitigation proposed for the 2023 Phase 1 operational- condition. Specifically, the eastbound approach was proposed to be restriped from one 10.5-foot moving lane, one 11-foot moving lane, and one 8-foot parking lane to two 10-foot moving lanes and one 10-foot right-turn lane (installing "No Standing Anytime" sign) on the south curbside of the eastbound approach for approximately 100 feet from the intersection (which would eliminate approximately four on-street parking spaces).

Table 19-10

Phase 1 and Phase 2 Construction Traffic Level 2 Screening Analysis Results—Selected Analysis Locations

Intersection	Phase 1 Construction Project Generated Vehicle Trips		Cumulative Phase 2 Construction and Phase 1 Operational Project Generated Vehicle Trips		Selected Analysis Locations	
	Weekday		Weekday		Phase 1 Construction	Phase 2 Construction
	AM	PM	AM	PM		
Adam Clayton Powell Jr Blvd and West 141st Street	18	7	13	18		
Adam Clayton Powell Jr Blvd and West 140th Street	18	7	13	18		
Adam Clayton Powell Jr Blvd and West 139th Street	20	7	14	18		
Adam Clayton Powell Jr Blvd and West 138th Street	20	7	14	18		
Adam Clayton Powell Jr Blvd and West 137th Street	20	7	14	20		
Adam Clayton Powell Jr Blvd and West 136th Street	20	7	14	18		
Adam Clayton Powell Jr Blvd and West 135th Street	27	7	20	39	✓	✓
Adam Clayton Powell Jr Blvd and West 134th Street	15	2	15	8		
Adam Clayton Powell Jr Blvd and West 133rd street	19	5	17	10		
Adam Clayton Powell Jr Blvd and West 132nd Street	31	2	25	13		
Lenox Avenue and West 138th Street	10	7	7	10		
Lenox Avenue and West 137th Street	10	7	7	12		
Lenox Avenue and West 135th Street	23	20	16	**56**	✓	✓
Lenox Avenue and West 134th Street	4	15	5	31		
Lenox Avenue and West 133rd Street	4	20	5	34		
Lenox Avenue and West 132nd Street	17	30	14	**53**	✓	✓
Lenox Avenue and West 131st Street	9	10	4	30		
Lenox Avenue and West 130th Street	9	10	4	28		
Lenox Avenue and West 129th Street	9	11	4	28		
Lenox Avenue and West 128th Street	9	4	4	15		
Lenox Avenue and West 127th Street	9	4	4	15		
Lenox Avenue and West 126th Street	9	4	4	15		
Lenox Avenue and West 125th Street	10	8	6	18		
Lenox Terrace Place and West 135th Street	16	14	5	31		
5th Avenue and 142nd Street	8	0	5	2		
5th Avenue and 141st Street	8	0	5	2		
5th Avenue and 139th Street	8	8	5	9		
5th Avenue and 138th Street	8	0	5	4		
5th Avenue and 135th Street	20	16	17	33	✓	✓
5th Avenue and 132nd Street	5	11	7	25		✓
5th Avenue and 129th Street	8	5	7	17		
Madison Avenue and East 135th Street	20	16	17	27		
Madison Avenue and East 132nd Street	7	10	8	21		✓
Madison Avenue and East 130th Street	15	4	11	7		
Madison Avenue and East 129th Street	22	4	15	14		
Madison Avenue and 128th Street	11	1	9	7		
Madison Avenue and 127th Street	11	1	9	7		
Madison Avenue and 126th Street	11	1	9	7		
Madison Avenue and 125th Street	20	6	14	14		
Park Avenue and East 132nd Street	4	9	4	15		
Park Avenue and East 130th Street	16	0	10	5		
Park Avenue and East 129th Street	11	16	6	19		
Park Avenue and 128th Street	6	13	3	16		
Park Avenue and 125th Street	23	7	15	16		
Lexington Avenue and 128th Street	0	11	0	8		
Lexington Avenue and 125th Street	22	11	15	12		
3rd Avenue and 125th Street	22	9	14	9		
2nd Avenue and 125th Street	8	11	5	10		

Note: ✓ denotes intersections selected for detailed construction traffic analysis.

Table 19-11~~2~~
2022 Phase 1 Construction With Action Condition—
Recommended Mitigation Measures~~: Weekday PM Construction Peak Hour~~

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Weekday AM Construction Peak Hour			
West 135th Street and Lenox Avenue	EB/WB: Green = 26 s LPI: Green = 7 s NB/SB: Green = 47 s	Shift 1 second of green time from the northbound/southbound phase to the eastbound/westbound phase	EB/WB: Green = 27 s LPI: Green = 7 s NB/SB: Green = 46 s
Weekday PM Construction Peak Hour			
West 135th Street and Lenox Avenue	EB/WB: Green = 26 s LPI: Green = 7 s NB/SB: Green = 47 s	Shift 1 second of green time from the northbound/southbound phase to the eastbound/westbound phase	EB/WB: Green = 27 s LPI: Green = 7 s NB/SB: Green = 46 s
West 135th Street and Fifth Avenue	EB/WB: Green = 30 s LPI: Green = 8 s SB: Green = 37 s	Implement lane restriping proposed as 2023 Phase 1 operational mitigation measures (restripe EB approach with two 10' shared left-through lanes and one 10' right turn lane)	No change from No Action
West 132nd Street and Fifth Avenue	EB/WB: Green = 28 s LPI: Green = 7 s SB: Green = 45 s	Shift 3 seconds of green time from the southbound phase to the eastbound/westbound phase	EB/WB: Green = 31 s LPI: Green = 7 s SB: Green = 42 s

Table 19-12~~3~~A
2022 Phase 1 Construction No Action, With Action, and Mitigation Condition
Level of Service Analysis
Weekday AM Construction Peak Hour

	Weekday AM Construction Peak Hour											
	2022 No Action				2022 With Action				2022 Mitigation			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 135th Street and Adam Clayton Powell Jr. Boulevard												
Eastbound	LTR	0.50	26.2	C	LTR	0.53	27.2	C				
Westbound	L	0.65	38.3	D	L	0.67	40.5	D				
	TR	0.68	33.0	C	TR	0.68	33.0	C				
Northbound	L	0.14	13.0	B	L	0.14	13.0	B				
	TR	0.35	12.8	B	TR	0.35	12.9	B				
Southbound	L	0.19	19.4	B	L	0.30	21.7	C				
	TR	0.77	28.8	C	TR	0.77	28.8	C				
West 135th Street and Lenox Avenue												
Eastbound	LTR	0.58	31.4	C	LTR	0.66	33.7	C	LTR	0.63	31.9	C
Westbound	LTR	0.89	48.0	D	LTR	0.94	55.3	E+	LTR	0.90	48.3	D
Northbound	L	0.19	13.4	B	L	0.19	13.4	B	L	0.19	14.1	B
	TR	0.42	14.2	B	TR	0.42	14.2	B	TR	0.43	14.9	B
Southbound	L	0.17	12.5	B	L	0.20	13.0	B	L	0.21	13.7	B
	TR	0.58	16.6	B	TR	0.58	16.6	B	TR	0.60	17.4	B

Table 19-12A (cont'd)
2022 Phase 1 Construction No Action, With Action, and Mitigation Condition
Level of Service Analysis
Weekday AM Construction Peak Hour

Intersection	Weekday AM Construction Peak Hour											
	2022 No Action				2022 With Action				2022 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 135th Street and Lenox Terrace Place												
Eastbound	TR	0.23	6.2	A	TR	0.24	6.3	A				
Westbound	LT	0.30	6.7	A	LT	0.33	7.0	A				
Northbound	LR	0.05	27.9	C	L	0.03	27.6	C				
135th Street and Fifth Avenue[1]												
Eastbound	LTR	0.60	29.0	C	LTR	0.60	29.2	C	LT R	0.47 0.23	26.0 23.8	C C
Westbound	LTR	0.72	22.1	C	LTR	0.75	23.4	C	LTR	0.73	22.6	C
Southbound	LTR	0.79	29.6	C	LTR	0.82	30.7	C	LTR	0.82	30.7	C
West 134th Street and Lenox Avenue												
Eastbound	LR	0.47	32.8	C	LR	0.47	32.8	C				
Northbound	T	0.37	12.4	B	T	0.37	12.4	B				
Southbound	T	0.58	15.3	B	T	0.58	15.3	B				
West 133th Street and Lenox Avenue												
Northbound	L	0.28	12.6	B	L	0.30	13.5	B				
	T	0.34	10.6	B	T	0.34	10.6	B				
Southbound	TR	0.57	13.5	B	TR	0.58	13.8	B				
West 132nd Street and Lenox Avenue [1]												
Eastbound	LTR	0.40	28.9	C	LTR	0.47	30.4	C				
Northbound	TR	0.46	14.7	B	TR	0.54	16.0	B				
Southbound	L	0.29	14.8	B	L	0.32	15.8	B				
	T	0.53	15.7	B	T	0.53	15.7	B				
West 131st Street and Lenox Avenue												
Westbound	LTR	0.78	43.1	D	LTR	0.78	43.1	D				
Northbound	LT	0.46	14.8	B	LT	0.51	15.6	B				
Southbound	TR	0.58	16.5	B	TR	0.58	16.5	B				
West 129th Street and Lenox Avenue												
Westbound	LTR	0.45	23.9	C	LTR	0.52	25.6	C				
Northbound	L	0.20	14.8	B	L	0.20	14.8	B				
	T	0.39	14.3	B	T	0.42	14.7	B				
Southbound	TR	0.69	19.5	B	TR	0.69	19.5	B				
West 132nd Street and Fifth Avenue												
Eastbound	TR	0.44	28.0	C	TR	0.44	28.0	C				
Westbound	L	0.69	43.2	D	L	0.69	43.2	D				
Southbound	L	0.13	12.5	B	L	0.13	12.5	B				
	T	0.57	17.4	B	T	0.57	17.4	B				

Table 19-12A (cont'd)
2022 Phase 1 Construction No Action, With Action, and Mitigation Condition
Level of Service Analysis
Weekday AM Construction Peak Hour

Intersection	Weekday AM Construction Peak Hour											
	2022 No Action				2022 With Action				2022 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 132nd Street and Madison Avenue												
Eastbound	L	0.38	27.9	C	L	0.38	27.9	C				
	T	0.24	22.3	C	T	0.24	22.3	C				
Westbound	TR	0.57	28.7	C	TR	0.57	28.7	C				
Northbound	LTR	0.46	13.6	B	LTR	0.47	13.6	B				

Notes:
L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact
(1) Intersection not impacted during the weekday AM construction peak hour; analysis presented to demonstrate the proposed mitigation measures would not result in additional significant adverse traffic impacts.

Table 19-123B
2022 Phase 1 Construction No Action, With Action, and Mitigation Condition
Level of Service Analysis
Weekday PM Construction Peak Hour

Intersection	Weekday PM Construction Peak Hour											
	2022 No Action				2022 With Action				2022 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 135th Street and Adam Clayton Powell Jr. Boulevard												
Eastbound	LTR	0.49	25.9	C	LTR	0.49	25.9	C				
Westbound	L	0.60	35.0	C	L	0.68	39.9	D				
	TR	0.75	35.8	D	TR	0.81	40.1	D				
Northbound	L	0.14	11.9	B	L	0.14	11.9	B				
	TR	0.75	20.3	C	TR	0.75	20.3	C				
Southbound	L	0.40	26.9	C	L	0.42	28.0	C				
	TR	0.54	22.5	C	TR	0.54	22.5	C				
West 135th Street and Lenox Avenue												
Eastbound	LTR	0.73	36.1	D	LTR	0.76	37.5	D	LTR	0.72	35.0	C
Westbound	LTR	0.71	35.1	D	LTR	0.87	45.5	D+	LTR	0.82	40.6	D
Northbound	L	0.31	16.0	B	L	0.31	16.0	B	L	0.32	16.9	B
	TR	0.78	21.9	C	TR	0.78	21.9	C	TR	0.79	23.3	C
Southbound	L	0.30	17.3	B	L	0.30	17.4	B	L	0.32	18.5	B
	TR	0.54	15.8	B	TR	0.54	15.8	B	TR	0.55	16.5	B
West 135th Street and Lenox Terrace Place												
Eastbound	TR	0.36	7.1	A	TR	0.37	7.2	A				
Westbound	LT	0.27	6.5	A	LT	0.27	6.5	A				
Northbound	LR	0.13	28.9	C	L	0.07	28.1	C				

Table 19-123B (cont'd)
2022 Phase 1 Construction No Action, With Action, and Mitigation Condition
Level of Service Analysis
Weekday PM Construction Peak Hour

Intersection	Weekday AM Construction Peak Hour											
	2022 No Action				2022 With Action				2022 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
135th Street and Fifth Avenue												
Eastbound	LTR	0.91	45.9	D	LTR	0.99	61.7	E+	LT	0.81	36.4	D
									R	0.31	25.5	C
Westbound	LTR	0.92	39.8	D	LTR	0.93	42.1	D	LTR	0.90	37.6	D
Southbound	LTR	0.78	28.2	C	LTR	0.78	28.3	C	LTR	0.78	28.3	C
West 134th Street and Lenox Avenue												
Eastbound	LR	0.47	32.8	C	LR	0.47	32.8	C				
Northbound	T	0.69	17.6	B	T	0.69	17.6	B				
Southbound	T	0.52	14.4	B	T	0.53	14.5	B				
West 133th Street and Lenox Avenue												
Northbound	L	0.33	13.8	B	L	0.38	15.7	B				
	T	0.65	15.0	B	T	0.65	15.0	B				
Southbound	TR	0.56	13.3	B	TR	0.59	13.9	B				
West 132nd Street and Lenox Avenue												
Eastbound	LTR	0.92	60.6	E	LTR	0.94	64.0	E				
Northbound	TR	0.84	24.9	C	TR	0.85	25.2	C				
Southbound	L	0.71	45.5	D	L	0.72	46.4	D				
	T	0.48	14.9	B	T	0.50	15.1	B				
West 131st Street and Lenox Avenue												
Westbound	LTR	0.81	45.7	D	LTR	0.81	45.7	D				
Northbound	LT	0.83	24.5	C	LT	0.83	24.7	C				
Southbound	TR	0.54	15.7	B	TR	0.55	15.9	B				
West 129th Street and Lenox Avenue												
Westbound	LTR	0.70	31.3	C	LTR	0.70	31.3	C				
Northbound	L	0.31	16.6	B	L	0.70	16.8	B				
	T	0.69	19.5	B	T	0.32	19.5	B				
Southbound	TR	0.52	16.0	B	TR	0.69	16.2	B				
West 132nd Street and Fifth Avenue												
Eastbound	TR	0.86	46.9	D	TR	1.01	76.4	E+	TR	0.91	51.2	D
Westbound	L	0.54	41.1	D	L	0.71	63.1	E+	L	0.52	37.4	D
Southbound	L	0.16	12.9	B	L	0.16	12.9	B	L	0.18	14.7	B
	T	0.51	16.4	B	T	0.51	16.4	B	T	0.54	18.8	B
West 132nd Street and Madison Avenue												
Eastbound	L	0.77	48.3	D	L	0.77	48.8	D				
	T	0.44	25.9	C	T	0.55	28.5	C				
Westbound	TR	0.51	27.3	C	TR	0.51	27.3	C				
Northbound	LTR	0.52	14.4	B	LTR	0.52	14.4	B				

Notes:
L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact

132nd Street and Fifth Avenue

- Eastbound approach at this intersection would deteriorate from LOS D with a v/c ratio of 0.86 and 46.9 spv of delay to LOS E with a v/c ratio of 1.01 and 76.4 spv of delay in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.
- Westbound approach at this intersection would deteriorate from LOS D with a v/c ratio of 0.54 and 41.1 spv of delay to LOS E with a v/c ratio of 0.71 and 63.1 spv of delay in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.
- The significant adverse impacts at the eastbound and westbound approaches of this intersection during the weekday PM construction peak hour could be fully mitigated by implementing a 3 second shift in green time from the southbound phase to the eastbound/westbound phase.

Phase 2 Construction

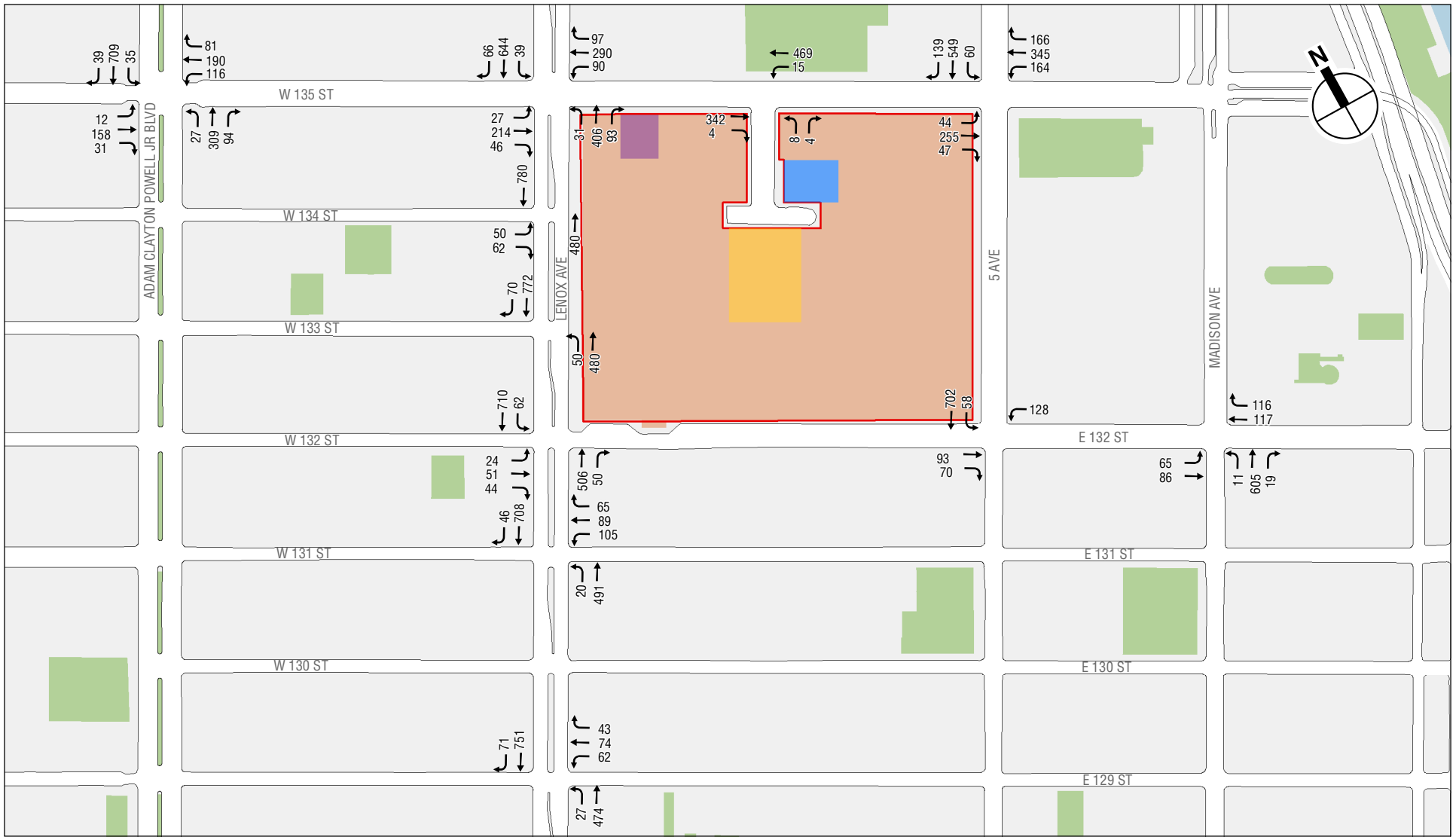
The 2024 Phase 2 construction No Action traffic volumes were developed based on the same methodologies described above for the 2022 Phase 1 construction No Action traffic volumes. The 2024 Phase 2 construction No Action traffic volumes are shown in **Figures 19-11 and 19-12** for the weekday construction peak hours. The 2024 Phase 2 construction With Action traffic volumes are shown in **Figures 19-13 and 19-14** for the weekday construction peak hours, by adding the cumulative Phase 1 operational and Phase 2 construction project generated vehicle trips presented in **Figures 19-4 and 19-5** to the No Action traffic volumes. Although peak Phase 2 construction would occur approximately two years prior to project completion, a reduction in background growth was conservatively not applied for purposes of the construction traffic analyses.

Table 19-134
2024 Phase 2 Construction With Action Condition—
Summary of Significant Adverse Traffic Impacts

Intersection		Weekday AM Construction Peak Hour	Weekday PM Construction Peak Hour
EB/WB Street	**NB/SB Street**		
West 135th Street	Lenox Avenue	WB-LTR	WB-LTR
135th Street	Fifth Avenue	No Significant Impact	EB-LTR WB-LTR
West 132nd Street	Lenox Avenue	No Significant Impact	EB-LTR SB-L~~TR~~
132nd Street	Fifth Avenue	No Significant Impact	EB-TR WB-L
Total Impacted Intersections/Lane Groups		~~**0/0**~~**1/1**	~~**3/5**~~**4/7**
Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left Turn; T = Through; R = Right Turn.			

The results of the traffic analysis summarized in **Table 19-134** show that one intersection would be significantly impacted during the weekday 6 AM to 7 AM construction peak hour and ~~three~~four intersections would be significantly impacted during the weekday 3 PM to 4 PM construction peak hour under the 2024 Phase 2 construction With Action condition. **Table 19-145** summarizes the mitigation measures recommended to address the identified impacts under the 2024 Phase 2 construction With Action condition. With the implementation of these mitigation measures, the significant adverse traffic impacts identified during the weekday AM and PM construction peak hours could be fully mitigated at the impacted intersections.

1.14.20



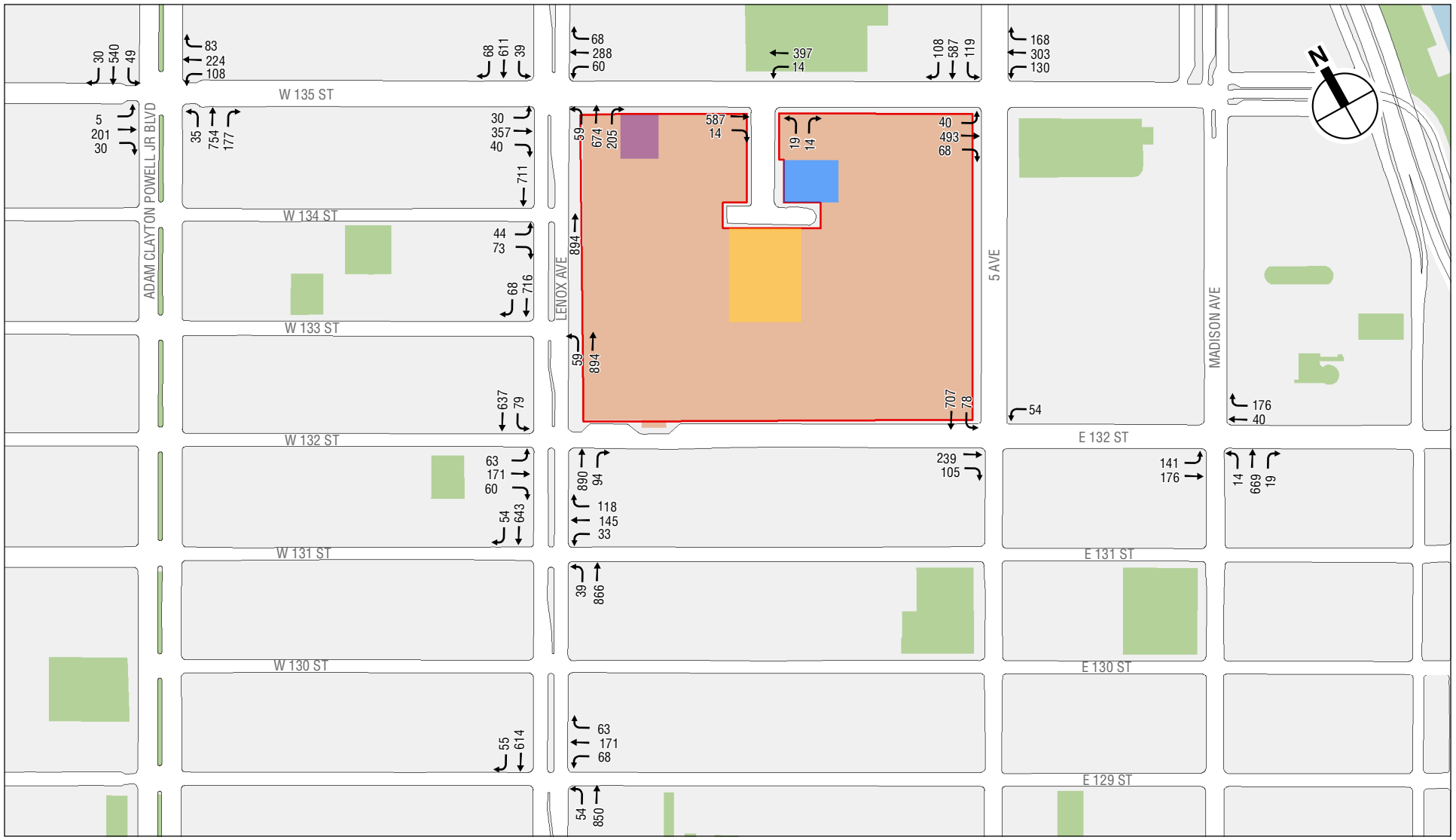
2024 Phase 2 Construction No Action Traffic Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-11

1.14.20



Rezoning Area

Proposed Development Site

Projected Future Development Site

Potential Development Site

City-Owned Site

0 400 FEET

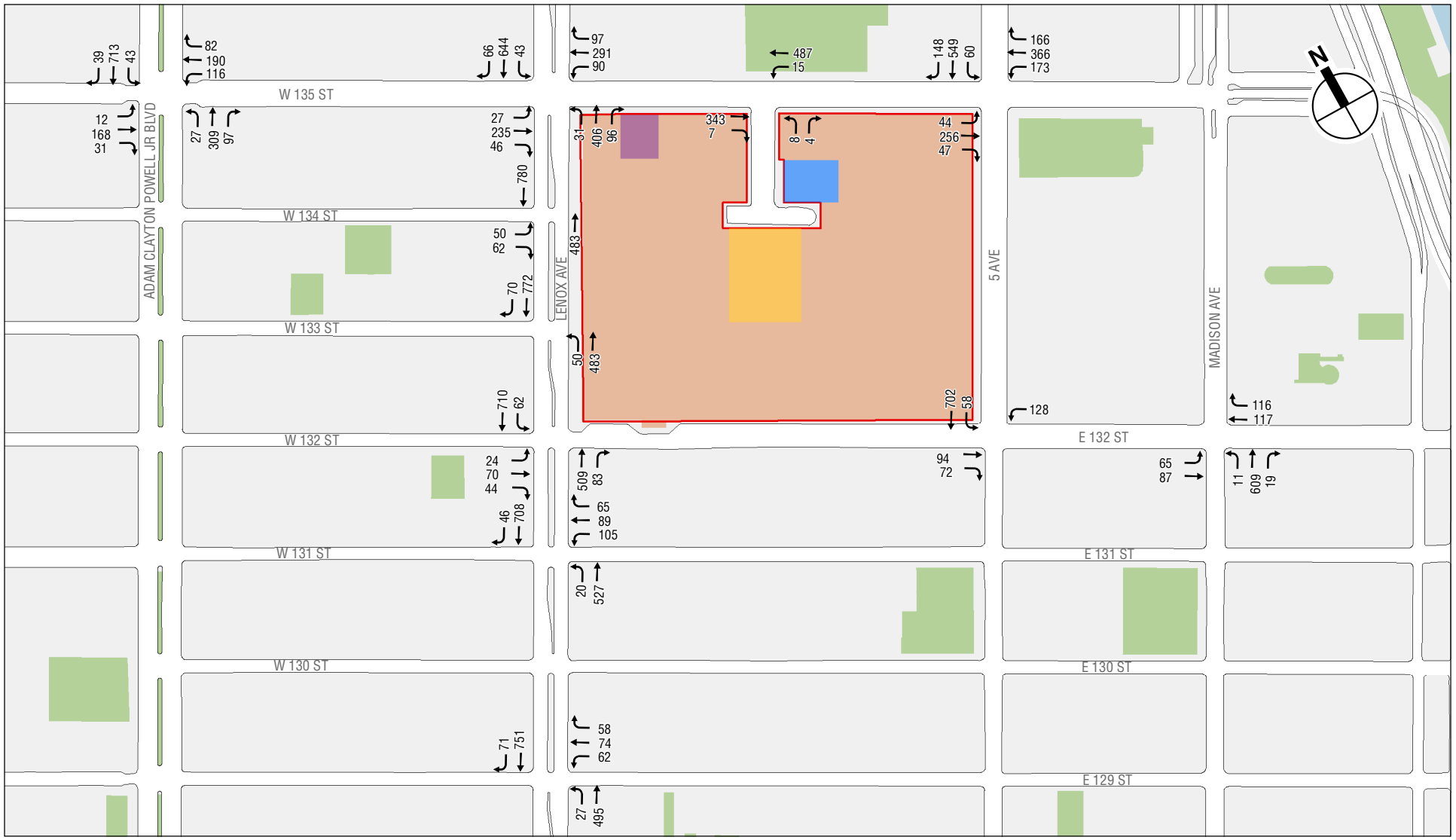
2024 Phase 2 Construction No Action Traffic Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-12

1.14.20



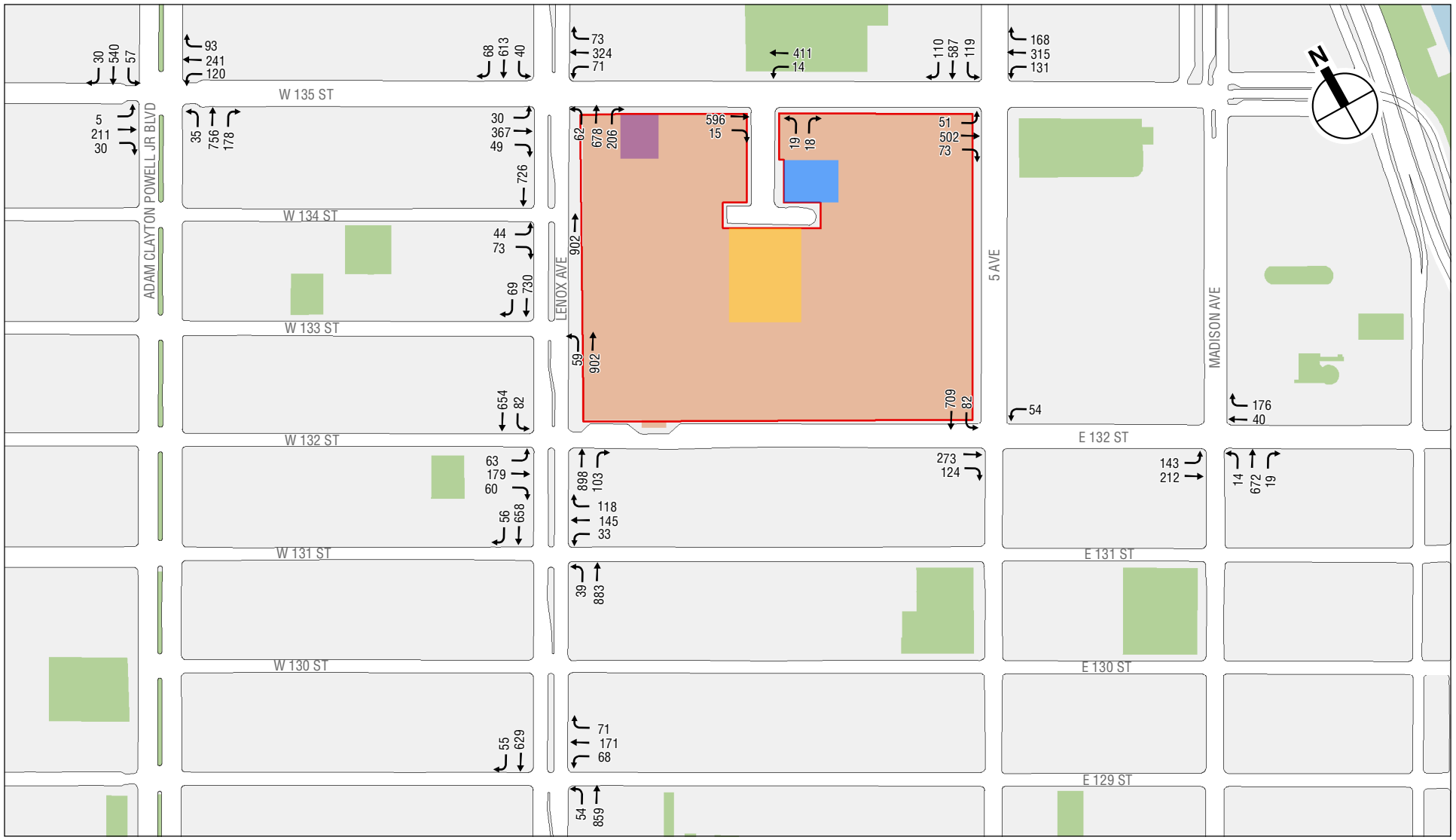
2024 Phase 2 Construction With Action Traffic Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-13

1.14.20



Rezoning Area

Proposed Development Site

Projected Future Development Site

Potential Development Site

City-Owned Site

0 400 FEET

2024 Phase 2 Construction With Action Traffic Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-14

Table 19-14~~5~~
2024 Phase 2 Construction With Action Condition—
Recommended Mitigation Measures: Weekday PM Construction Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Weekday AM Construction Peak Hour			
West 135th Street and Lenox Avenue	EB/WB: Green = 26 s LPI: Green = 7 s NB/SB: Green = 47 s	Shift 1 second of green time from the northbound/southbound phase to the eastbound/westbound phase	EB/WB: Green = 27 s LPI: Green = 7 s NB/SB: Green = 46 s
Weekday PM Construction Peak Hour			
West 135th Street and Lenox Avenue	EB/WB: Green = 26 s LPI: Green = 7 s NB/SB: Green = 47 s	Shift 1 second of green time from the northbound/southbound phase to the eastbound/westbound phase	EB/WB: Green = 27 s LPI: Green = 7 s NB/SB: Green = 46 s
135th Street and Fifth Avenue	WB: Green = 8 s EB/WB: Green = 30 s SB: Green = 37 s	Implement 2023 Phase 1 operational mitigation measures: (1) Restripe the EB approach from one 10.5-foot moving lane, one 11-foot moving lane, and one 8-foot parking lane to two 10-foot moving lanes and one 10-foot right-turn lane (2) Install "No Standing Anytime" for 100-feet at the EB approach to create an additional right-turn lane.	No change from No Action
West 132nd Street and Lenox Avenue	EB: Green = 26 s LPI: Green = 7 s NB/SB: Green = 47 s	Implement lane restriping proposed as 2023 Phase 1 operational mitigation measures (restripe EB approach with one 10' left-turn lane, one 11.5-foot through/right-turn lane, and one 8' parking lane) and shift 1 second of green time from EB phase to NB/SB phase	EB: Green = 25 s LPI: Green = 7 s NB/SB: Green = 48 s
132nd Street and Fifth Avenue	EB/WB-L: Green = 28 s LPI: Green = 7 s SB: Green = 45 s	Shift 3~~1~~ seconds of green time from the SB phase to the EB/WB-L phase	EB/WB-L: Green = 31~~29~~ s LPI: Green = 7 s SB: Green = 4~~2~~4 s

Based on the 2024 Phase 2 construction With Action condition traffic analysis results, it is anticipated that construction-related mitigation measures would likely be needed prior to the peak construction quarter. A review of the average number of daily workers and trucks by quarter presented in **Table 19-4**, the Phase 2 peak construction vehicle trip projections presented in **Table 19-6,** and the Phase 2 construction traffic assignments ~~Level 2 screening analysis results~~ presented in **Figures 19-4 and 19-5~~Table 19-10~~** indicates that the first ~~two~~ quarter~~s~~ of Phase 2 construction (4th quarter of Year 4~~ and 1st quarter of Year 5~~) would result in construction peak hour vehicle trips below the *CEQR Technical Manual* analysis thresholds requiring further detailed traffic analysis. Therefore, the construction-related vehicle trips from ~~these two~~this quarter~~s~~ would not have the potential to result in construction-related traffic impacts and would not require mitigation. However, for the subsequent quarters prior to the peak construction quarter, the anticipated construction peak hour vehicle trips would exceed the *CEQR Technical Manual* analysis thresholds which may result in construction-related traffic impacts requiring mitigation.

Detailed traffic analysis results for the 2024 Phase 2 construction conditions in terms of LOS, v/c ratios, and average delays are presented in **Tables 19-15~~6~~A to 19-15~~6~~B**. As discussed below, significant adverse traffic impacts were identified for each of the affected intersections by approach/lane group during the weekday AM and PM construction peak hours. Potential measures that could be implemented to mitigate these significant adverse traffic impacts are also discussed below.

Table 19-156A
2024 Phase 2 Construction No Action, With Action, and Mitigation Conditions
Level of Service Analysis
Weekday AM Construction Peak Hour

Intersection	Weekday AM Construction Peak Hour											
	2024 No Action				2024 With Action				2024 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 135th Street and Adam Clayton Powell Jr. Boulevard												
Eastbound	LTR	0.50	26.4	C	LTR	0.52	26.9	C				
Westbound	L	0.65	38.5	D	L	0.67	39.6	D				
	TR	0.69	33.2	C	TR	0.69	33.4	C				
Northbound	L	0.15	13.0	B	L	0.15	13.1	B				
	TR	0.36	12.9	B	TR	0.36	13.0	B				
Southbound	L	0.19	19.4	B	L	0.24	20.4	C				
	TR	0.78	29.2	C	TR	0.78	29.4	C				
West 135th Street and Lenox Avenue												
Eastbound	LTR	0.59	31.9	C	LTR	0.65	33.6	C	LTR	0.62	31.8	C
Westbound	LTR	0.93	53.3	D	LTR	0.97	61.7	E+	LTR	0.92	52.5	D
Northbound	L	0.20	13.8	B	L	0.20	13.8	B	L	0.21	14.6	B
	TR	0.46	14.8	B	TR	0.47	14.8	B	TR	0.48	15.6	B
Southbound	L	0.20	13.2	B	L	0.22	13.7	B	L	0.23	14.4	B
	TR	0.61	17.0	B	TR	0.61	17.0	B	TR	0.62	17.9	B
West 135th Street and Lenox Terrace Place												
Eastbound	TR	0.23	6.2	A	TR	0.24	6.3	A				
Westbound	LT	0.30	6.7	A	LT	0.31	6.8	A				
Northbound	LR	0.05	27.9	C	L	0.03	27.6	C				
135th Street and Fifth Avenue [1]												
Eastbound	LTR	0.63	29.9	C	LTR	0.63	30.1	C	LT	0.50	26.5	C
									R	0.24	24.0	C
Westbound	LTR	0.73	22.9	C	LTR	0.77	24.2	C	LTR	0.75	23.3	C
Southbound	LTR	0.81	30.5	C	LTR	0.83	31.4	C	LTR	0.83	31.4	C
West 134th Street and Lenox Avenue												
Eastbound	LR	0.47	32.8	C	LR	0.47	32.8	C				
Northbound	T	0.38	12.6	B	T	0.39	12.6	B				
Southbound	T	0.59	15.6	B	T	0.59	15.6	B				
West 133rd Street and Lenox Terrace Place												
Northbound	L	0.29	13.1	B	L	0.32	14.0	B				
	T	0.36	10.8	B	T	0.36	10.8	B				
Southbound	TR	0.58	13.7	B	TR	0.60	14.0	B				
West 132nd Street and Lenox Avenue [1]												
Eastbound	LTR	0.41	29.1	C	LTR	0.47	30.5	C	L	0.11	24.2	C
									TR	0.39	28.8	C
Northbound	TR	0.48	15.0	B	TR	0.53	15.7	B	TR	0.53	15.7	B
Southbound	L	0.30	15.3	B	L	0.32	15.8	B	L	0.32	15.8	B
	T	0.55	15.9	B	T	0.55	15.9	B	T	0.55	15.9	B

Table 19-156A (cont'd)
2024 Phase 2 Construction No Action, With Action, and Mitigation Conditions
Level of Service Analysis
Weekday AM Construction Peak Hour

Intersection	Weekday AM Construction Peak Hour											
	2024 No Action				2024 With Action				2024 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 131st Street and Lenox Avenue												
Westbound	LTR	0.79	43.6	D	LTR	0.79	43.6	D				
Northbound	LT	0.48	15.0	B	LT	0.51	15.5	B				
Southbound	TR	0.60	16.8	B	TR	0.60	16.8	B				
West 129h Street and Lenox Avenue												
Westbound	LTR	0.45	24.0	C	LTR	0.49	25.0	C				
Northbound	L	0.21	15.0	B	L	0.21	15.0	B				
	T	0.41	14.5	B	T	0.43	14.8	B				
Southbound	TR	0.70	19.9	B	TR	0.70	19.9	B				
132nd Street and Fifth Avenue												
Eastbound	TR	0.45	28.0	C	TR	0.46	28.3	C				
Westbound	L	0.70	43.8	D	L	0.71	44.4	D				
Southbound	L	0.13	12.5	B	L	0.13	12.5	B				
	T	0.57	17.6	B	T	0.57	17.6	B				
East 132nd Street and Madison Avenue												
Eastbound	L	0.38	28.0	C	L	0.38	28.0	C				
	T	0.24	22.3	C	T	0.24	22.4	C				
Westbound	TR	0.57	28.7	C	TR	0.57	28.7	C				
Northbound	LTR	0.47	13.7	B	LTR	0.48	13.8	B				

Notes:
L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact
(1) Intersection not impacted during the weekday AM peak hour; analysis presented to demonstrate the proposed mitigation measures would not result in additional significant adverse traffic impacts.

Table 19-156B
2024 Phase 2 Construction No Action, With Action, and Mitigation Conditions
Level of Service Analysis
Weekday PM Construction Peak Hour

Intersection	Weekday PM Construction Peak Hour											
	2024 No Action				2024 With Action				2024 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 135th Street and Adam Clayton Powell Jr. Boulevard												
Eastbound	LTR	0.50	26.0	C	LTR	0.51	26.4	C				
Westbound	L	0.60	35.1	D	L	0.68	40.4	D				
	TR	0.75	35.8	D	TR	0.82	41.0	D				
Northbound	L	0.15	12.0	B	L	0.15	12.0	B				
	TR	0.76	20.7	C	TR	0.77	20.8	C				
Southbound	L	0.41	27.4	C	L	0.48	30.7	C				
	TR	0.55	22.8	C	TR	0.55	22.8	C				
West 135th Street and Lenox Avenue												
Eastbound	LTR	0.75	36.7	D	LTR	0.81	40.7	D	LTR	0.77	37.4	D
Westbound	LTR	0.73	36.0	D	LTR	0.88	47.3	D+	LTR	0.84	41.8	D
Northbound	L	0.32	16.5	B	L	0.34	16.9	B	L	0.35	17.9	B
	TR	0.83	24.5	C	TR	0.83	24.9	C	TR	0.85	26.9	C
Southbound	L	0.33	18.6	B	L	0.34	19.1	B	L	0.36	20.5	C
	TR	0.56	16.1	B	TR	0.56	16.1	B	TR	0.57	16.9	B
West 135th Street and Lenox Terrace Place												
Eastbound	TR	0.36	7.2	A	TR	0.37	7.2	A				
Westbound	LT	0.27	6.5	A	LT	0.28	6.5	A				
Northbound	LR	0.13	28.8	C	L	0.07	28.1	C				
135th Street and Fifth Avenue												
Eastbound	LTR	0.94	51.2	D	LTR	1.03	72.0	E+	LT R LTR	0.83 0.33 0.95	38.3 26.1 44.5	D C D
Westbound	LTR	0.95	45.1	D	LTR	0.98	51.0	D+				
Southbound	LTR	0.80	29.2	C	LTR	0.80	29.3	C	LTR	0.80	29.3	C
West 134th Street and Lenox Avenue												
Eastbound	LR	0.47	32.8	C	LR	0.47	32.8	C				
Northbound	T	0.71	18.0	B	T	0.71	18.2	B				
Southbound	T	0.54	14.6	B	T	0.55	14.8	B				
West 133rd Street and Lenox Avenue												
Northbound	L	0.34	14.2	B	L	0.39	16.3	B				
	T	0.67	15.3	B	T	0.67	15.4	B				
Southbound	TR	0.57	13.5	B	TR	0.61	14.2	B				
West 132nd Street and Lenox Avenue												
Eastbound	LTR	0.94	65.1	E	LTR	0.97	71.5	E+	L TR	0.31 0.78	29.0 44.9	C D
Northbound	TR	0.86	26.3	C	TR	0.88	27.8	C	TR	0.86	25.7	C
Southbound	L	0.74	50.2	D	L	0.80	60.2	E+	L	0.75	50.9	D
	T	0.50	15.1	B	T	0.51	15.3	B	T	0.50	14.6	B
West 131st Street and Lenox Avenue												
Westbound	LTR	0.83	47.3	D	LTR	0.83	47.3	D				
Northbound	LT	0.85	25.8	C	LT	0.87	27.0	C				
Southbound	TR	0.55	16.0	B	TR	0.57	16.2	B				

Table 19-15~~6~~B (cont'd)
2024 Phase 2 Construction No Action, With Action, and Mitigation Conditions
Level of Service Analysis
Weekday PM Construction Peak Hour

Intersection	Weekday PM Construction Peak Hour											
	2024 No Action				2024 With Action				2024 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
West 129th Street and Lenox Avenue												
Westbound	LTR	0.70	31.5	C	LTR	0.73	32.6	C				
Northbound	L	0.32	16.9	B	L	0.73	17.1	B				
	T	0.71	20.0	B	T	0.33	20.2	C				
Southbound	TR	0.53	16.3	B	TR	0.72	16.5	B				
132nd Street and Fifth Avenue												
Eastbound	TR	0.86	47.1	D	TR	0.99	70.4	E+	TR	0.89	48.2	D
Westbound	L	0.54	41.5	D	L	0.68	58.4	E+	L	0.50	36.1	D
Southbound	L	0.16	12.9	B	L	0.17	12.9	B	L	0.18	14.8	B
	T	0.52	16.6	B	T	0.52	16.6	B	T	0.56	19.0	B
East 132nd Street and Madison Avenue												
Eastbound	L	0.77	48.7	D	L	0.79	50.2	D				
	T	0.45	26.0	C	T	0.54	28.3	C				
Westbound	TR	0.51	27.3	C	TR	0.51	27.3	C				
Northbound	LTR	0.53	14.5	B	LTR	0.53	14.5	B				

Notes:
L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact
(1) Intersection not impacted during the weekday AM peak hour; analysis presented to demonstrate the proposed mitigation measures would not result in additional significant adverse traffic impacts.

West 135th Avenue and Lenox Avenue

- Westbound approach at this intersection would deteriorate from LOS D with a v/c ratio of 0.93 and 53.3 seconds per vehicle (spv) of delay to LOS E with a v/c ratio of 0.97 and 61.7 spv of delay in the weekday AM construction peak hour and within LOS D (from a v/c ratio of 0.73 and 36.0 spv of delay to a v/c ratio of 0.88 and 47.3 spv of delay) in the weekday PM construction peak hour, increases in delay of more than five seconds. These increases in delay constitute significant adverse impacts.
- The significant adverse impacts at the westbound approach of this intersection during the weekday AM and PM construction peak hours could be fully mitigated by implementing a 1 second shift in green time from the northbound/southbound phase to the eastbound/westbound phase during both peak hours.

West 135th Avenue and Fifth Avenue

- The eastbound approach at this intersection would deteriorate from LOS D with a v/c ratio of 0.94 and 51.2 spv of delay to LOS E with a v/c ratio of ~~0.97~~1.03 and 72.0~~57.9~~ spv of delay in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.
- The westbound approach at this intersection would deteriorate within LOS D (from a v/c ratio of 0.95 and ~~44.3~~45.1 spv of delay to a v/c ratio of 0.~~97~~ 98 and ~~49.4~~51.0 spv of delay) in the

weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

- The significant adverse impacts at this intersection during the weekday PM construction peak hour could be fully mitigated by implementing the lane restriping mitigation proposed for the 2023 Phase 1 operational condition. Specifically, ~~mitigation measures, which consists of restriping~~ the eastbound approach was proposed to be restriped from one 10.5-foot moving lane, one 11-foot moving lane, and one 8-foot parking lane to two 10-foot moving lanes and one 10-foot right-turn lane (installing "No Standing Anytime" sign) on the south curbside of the eastbound approach for approximately 100 feet from the intersection (which would eliminate approximately four on-street parking spaces).

West 132nd Street and Lenox Avenue

- Eastbound approach at this intersection would deteriorate within LOS E (from a v/c ratio of 0.~~92~~ 94 and ~~60~~65.1~~5~~ spv of delay to a v/c ratio of 0.9~~79~~ and 71.5~~7.1~~ spv of delay) in the weekday PM construction peak hour, an increase in delay of more than four seconds. This increase in delay constitutes a significant adverse impact.
- Southbound left turn at this intersection would deteriorate from LOS D with a v/c ratio of 0.74 and 50~~49~~.2 spv of delay to LOS E with a v/c ratio of 0.80 and a 60.2 spv of delay in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.

The significant adverse impacts at this intersection during the weekday PM construction peak hour could be fully mitigated by implementing the lane restriping mitigation proposed for the 2023 Phase 1 operational condition. Specifically, ~~mitigation measures, which consists of a restriping of~~ the eastbound approach was proposed to be restriped from one 13.5-foot moving lane with 8-foot parking lanes on both sides to one 10-foot left-turn lane, one 11.5-foot moving lane, and one 8-foot parking lane (installing "No Standing Anytime" sign) on the north curbside of the eastbound bound approach for approximately 100 feet from the intersection (which would eliminate approximately four on-street parking spaces), and by shifting 1 second of green time from the eastbound phase to the northbound/southbound phase.

West 132nd Street and Fifth Avenue

- The eastbound approach at this intersection would deteriorate ~~within~~ from LOS D (~~from~~with a v/c ratio of 0.8~~65~~ and 47.1~~6.2~~ spv of delay ~~to a v/c ratio of 0.90 and 53.1 spv of delay~~) to LOS E with a v/c ratio of 0.99 and 70.4 spv of delay in the weekday PM construction peak hour, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.
- The westbound approach at this intersection would deteriorate from LOS D with a v/c ratio of 0.54 and 41.5 spv of delay to LOS E with a v/c ratio of 0.68 and 58.4 spv of delay, an increase in delay of more than five seconds. This increase in delay constitutes a significant adverse impact.
- The significant adverse impacts at this intersection during the weekday PM construction peak hour could be fully mitigated by shifting ~~1~~ 3 seconds of green time from the southbound phase to the eastbound/westbound left-turn phase.

TRANSIT

Based on the updated construction worker modal splits ~~developed in consultation with DOT from the *East Harlem Rezoning FEIS* (2017)~~, it is anticipated that approximately 6~~7~~8 percent of

construction workers would commute to the proposed development site via transit. The proposed development site is located in the vicinity of multiple transit options, including two NYCT subway stations—135th Street (B and C trains) and 135th Street (No. 2 and 3 trains)—as well as the Bx33, M1, M7, and M102 bus routes.

During the peak construction worker period for Phase 1 construction (a maximum of 863 daily construction workers in the 7:00 AM to 3:30 PM shift), an estimated 57887 workers would travel by transit. With 80 percent of these workers arriving or departing during the construction peak hours, the estimated number of peak-hour transit trips would be 4629. However, these trips would be fewer than those expected to be generated by the proposed project in the 2026 Full Build condition. Considering that there were no potential significant adverse subway impacts identified in Chapter 13, "Transportation," Phase 1 construction of the proposed project would similarly not have the potential to yield significant adverse transit impacts.

Cumulative Operational and Construction Transit Effects of the Proposed Actions

Phase 1 components of the proposed project are expected to be completed and operational by 2023, while the remaining buildings (Proposed Buildings N and SE), as well as the projected future development site, would be under construction (until 2026). As shown in **Table 19-167**, the cumulative operational and construction period transit increments would be less than those projected for the full operation of the proposed actions (i.e., 2026 Full Build condition). Therefore, as with the full build-out of the proposed actions in Chapter 13, "Transportation," Phase 2 construction of the proposed project is not expected to result in any significant transit impacts.

Table 19-167
Operational (2023) and Construction Cumulative Peak Period Transit Trips

Time	Phase 2 Peak Construction Transit Trips			2023 Operational Transit Trips			Total Construction and Operational Transit Trips			Full Build-Out Operational Transit Trips		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
AM Peak Period (6:00 AM to 9:00 AM)												
6-7 AM	2938	0	2938	20	20	40	3138	20	3338	32	32	64
7-8 AM	734	0	734	28	240	268	1012	240	3412	43	375	418
8-9 AM	0	0	0	139	582	721	139	582	721	234	905	1,139
PM Peak Period (3:00 PM to 6:00 PM)												
3-4 PM	0	2938	2938	244	222	466	244	51520	75964	376	344	720
4-5 PM	0	556	556	346	249	595	346	3045	6501	537	390	927
5-6 PM	0	0	0	547	295	842	547	295	842	848	458	1,306

Note: Based on the study area Automatic Traffic Recorder (ATR) counts, general traffic levels for the 6:00 to 7:00 AM and 7:00 to 8:00 AM hours are approximately 76 percent of and approximately the same as the 8:00 to 9:00 AM hour, respectively. Correspondingly, general traffic levels for the 3:00 to 4:00 PM and 4:00 to 5:00 PM hours are approximately the same as the 5:00 to 6:00 PM hour.

PEDESTRIANS

As summarized above, up to 863 average daily construction workers are projected in the 7:00 AM to 3:30 PM shift during Phase 1 construction under the proposed actions. With 80 percent of these workers arriving or departing during the construction peak hours (6:00 AM to 7:00 AM and 3:00 PM to 4:00 PM), the corresponding numbers of peak-hour pedestrian trips traversing the area's sidewalks, corners, and crosswalks would be approximately 690. Projected pedestrian levels generated during Phase 1 construction and those upon full build-out under the proposed actions are compared in **Table 19-178**.

Table 19-1~~7~~8
Comparison of Incremental Construction and Operational Peak Period Pedestrian Trips

Time	Peak Incremental Construction Pedestrian Trips			Peak Incremental Operational Pedestrian Trips			Difference
	In	Out	Total	In	Out	Total	
AM Peak Period (6:00 AM to 9:00AM)							
AM Peak Hour[1]	690	0	690	327	1,184	1,511	(828)
PM Peak Period (3:00 PM to 6:00PM)							
PM Peak Hour[2]	0	690	690	1,088	579	1,667	(984)

Notes:
[1] The AM peak hour is 6:00 to 7:00 AM for construction and 8:00 to 9:00 AM for operational.
[2] The PM peak hour is 3:00 to 4:00 PM for construction and 5:00 to 6:00 PM for operational.

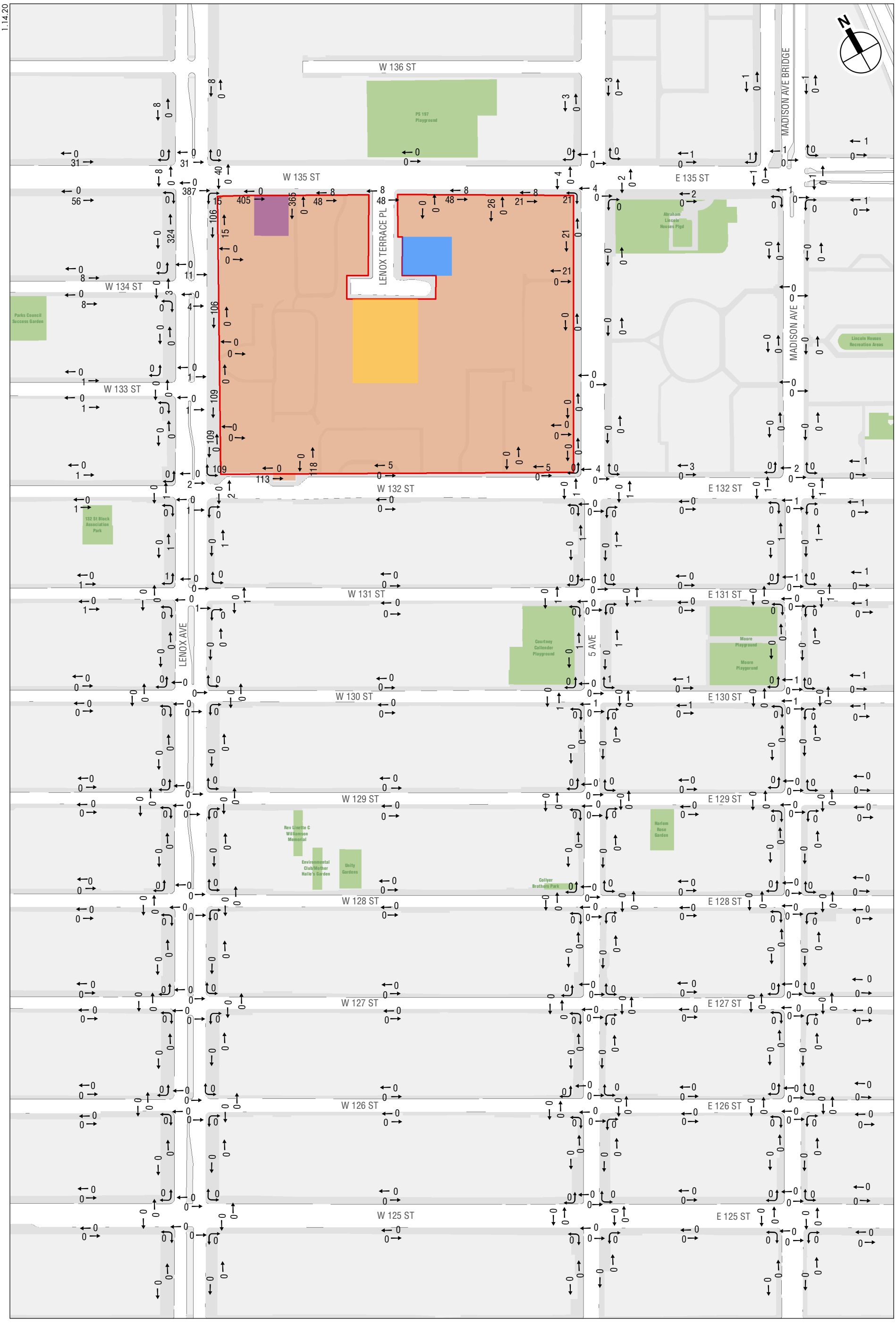
Level 2 pedestrian trip assignments were individually developed for Phase 1 construction, as shown in **Figures 19-15 and 19-16**. Based on the detailed assignment of pedestrian trips, during Phase 1 construction, incremental construction pedestrian trips would exceed the CEQR analysis threshold of 200 pedestrians during the construction AM and PM peak hours at 2 sidewalks, 2 corners, and 1 crosswalk, as summarized in **Table 19-1~~8~~9**. These locations were all included in the operational analysis presented in Chapter 13, "Transportation." Additionally, incremental Phase 1 construction pedestrian trips would not exceed the 2026 Full Build pedestrian trips at any pedestrian locations during the construction peak hours. However, the south crosswalk at West 135th Street and Lenox Avenue was analyzed to determine if the operational impacts projected for this location would also occur during Phase 1 construction.

Cumulative Operational and Construction Pedestrian Effects of the Proposed Actions

As summarized above, up to 547 average daily construction workers are projected in the 7:00 AM to 3:30 PM shift during Phase 2 construction under the proposed actions. With 80 percent of these workers arriving or departing during the construction peak hours (6:00 AM to 7:00 AM and 3:00 PM to 4:00 PM), the corresponding numbers of peak-hour pedestrian trips traversing the area's sidewalks, corners, and crosswalks would be approximately 438.

Table 19-1~~9~~20 compares pedestrian increments from the full build-out of the proposed actions with the cumulative operational and construction periods pedestrian increments.

1.14.20



Rezoning Area

Proposed Development Site

Projected Future Development Sites

Potential Development Site

City-Owned Site

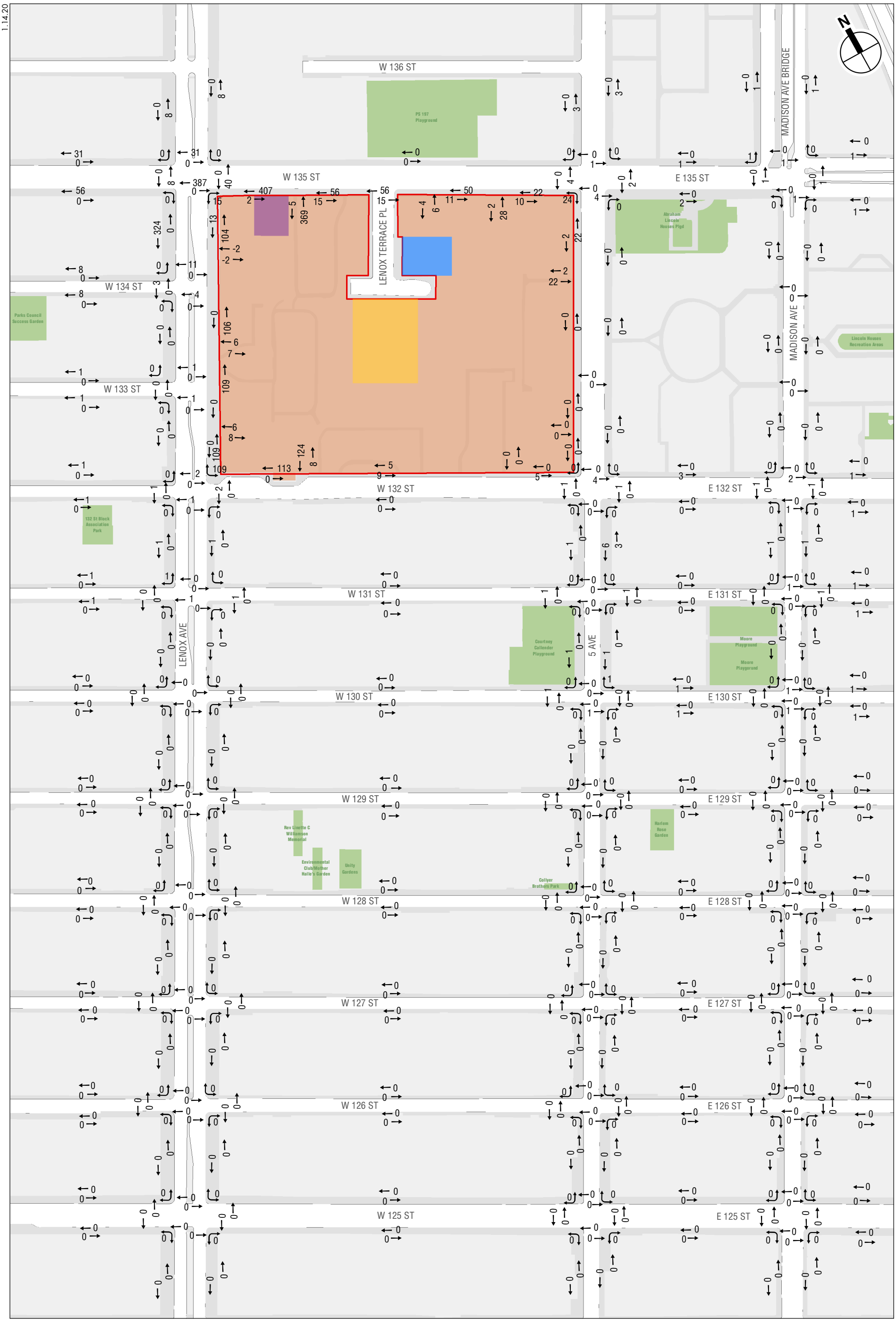
Phase 1 Construction Pedestrian Trips
Weekday AM Construction Peak Hour

Figure 19-15

LENOX TERRACE

This figure has been updated for the FEIS

1.14.20



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site

0 400 FEET

Phase 1 Construction Pedestrian Trips
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-16

Table 19-189

2022 Phase 1 Construction Pedestrian Level 2 Screening Analysis Results

Pedestrian Elements	Incremental Pedestrian Trips		Locations with Increments Exceeding CEQR Threshold
	AM	PM	
135th Street and Fifth Avenue			
North Crosswalk	12	12	
East Crosswalk	23	23	
South Crosswalk	46	46	
West Crosswalk	429	429	
Northeast Corner	35	35	
Southeast Corner	69	69	
Southwest Corner	2958	3258	
Northwest Corner	531	531	
East Sidewalk along Fifth Avenue between 135th Street and 136th Street	34	34	
East Sidewalk along Fifth Avenue between 135th Street and 134th Street	0	0	
West Sidewalk along Fifth Avenue between 135th Street and 134th Street	2123	2423	
South Sidewalk along 135th Street between Fifth Avenue and Lenox Terrace Place–Eastern Segment	2958	3258	
South Sidewalk along 135th Street between Fifth Avenue and Lenox Terrace Place–Western Segment	5681	6181	
West Sidewalk along Fifth Avenue between 135th Street and 136th Street	327	327	
North Sidewalk along 135th Street between Fifth Avenue and Lenox Avenue	0	0	
134th Street and Fifth Avenue			
East Sidewalk along Fifth Avenue between 134th Street and 133rd Street	0	0	
West Sidewalk along Fifth Avenue between 134th Street and 133rd Street	05	05	
133rd Street and Fifth Avenue			
North Crosswalk	0	0	
East Sidewalk along Fifth Avenue between 133rd Street and 132nd Street	0	0	
West Sidewalk along Fifth Avenue between 133rd Street and 132nd Street	05	05	
132nd Street and Fifth Avenue			
North Crosswalk	418	418	
East Crosswalk	17	17	
South Crosswalk	06	06	
West Crosswalk	122	122	
Northeast Corner	525	525	
Southeast Corner	113	113	
Southwest Corner	128	128	
Northwest Corner	540	540	
East Sidewalk along Fifth Avenue between 132nd Street and 131st Street	18	98	
West Sidewalk along Fifth Avenue between 132nd Street and 131st Street	116	116	
South Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue	0	0	
North Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue–Eastern Segment	535	535	
North Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue–Middle Segment	535	1435	
North Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue–Western Segment	113179	113179	
131st Street and Fifth Avenue			
North Crosswalk	07	07	
East Crosswalk	18	18	
South Crosswalk	06	06	
West Crosswalk	19	19	
Northeast Corner	120	120	
Southeast Corner	114	114	
Southwest Corner	115	115	
Northwest Corner	116	116	
East Sidewalk along Fifth Avenue between 131st Street and 130th Street	16	16	
West Sidewalk along Fifth Avenue between 131st Street and 130th Street	13	13	
South Sidewalk along 131st Street between Fifth Avenue and Lenox Avenue	0	0	
North Sidewalk along 131st Street between Fifth Avenue and Lenox Avenue	0	0	
West 135th Street and Lenox Terrace Place			
South Crosswalk	5681	7181	
Southeast Corner	5681	7181	
Southwest Corner	5681	7181	
South Sidewalk along 135th Street between Lenox Terrace Place and Lenox Avenue–Eastern Segment	5681	7181	
South Sidewalk along 135th Street between Lenox Terrace Place and Lenox Avenue–Western Segment	405434	409434	*

Table 19-189 (cont'd)
2022 Phase 1 Construction Pedestrian Level 2 Screening Analysis Results

Pedestrian Elements	Incremental Pedestrian Trips AM	Incremental Pedestrian Trips PM	Locations with Increments Exceeding CEQR Threshold
West 135th Street and Lenox Avenue			
North Crosswalk	3135	3135	
East Crosswalk	4048	4048	
South Crosswalk	387401	387401	✓
West Crosswalk	811	811	
Northeast Corner	7183	7183	
Southeast Corner	442472	442472	*
Southwest Corner	395412	395412	*
Northwest Corner	3946	3946	
East Sidewalk along Lenox Avenue between West 135th Street and West 136th Street	812	812	
East Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	121131	117131	
West Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	324328	324328	*
South Sidewalk along West 135th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	5661	5661	
West Sidewalk along Lenox Avenue between West 135th Street and West 136th Street	811	811	
North Sidewalk along West 135th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	3135	3135	
West 134th Street and Lenox Avenue			
North Crosswalk	1117	1117	
South Crosswalk	46	46	
West Crosswalk	35	35	
Southwest Corner	711	711	
Northwest Corner	1422	1422	
East Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	1061038	1061038	
West Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	0	0	
South Sidewalk along West 134th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	811	811	
North Sidewalk along West 134th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	811	811	
West 133rd Street and Lenox Avenue			
North Crosswalk	12	12	
South Crosswalk	12	12	
West Crosswalk	0	0	
Southwest Corner	12	12	
Northwest Corner	12	12	
East Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street	1091112	1091112	
West Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street	0	0	
South Sidewalk along West 133rd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	12	12	
North Sidewalk along West 133rd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	12	12	
West 132nd Street and Lenox Avenue			
North Crosswalk	244	244	
East Crosswalk	223	223	
South Crosswalk	12	12	
West Crosswalk	11	11	
Northeast Corner	11317 9	11317 9	
Southeast Corner	325	325	
Southwest Corner	23	23	
Northwest Corner	345	345	
East Sidewalk along Lenox Avenue between West 132nd Street and West 131st Street	121	121	
West Sidewalk along Lenox Avenue between West 132nd Street and West 131st Street	1	1	
South Sidewalk along West 132nd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	12	12	
North Sidewalk along West 132nd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	143	143	

Notes:
✓ denotes pedestrian elements selected for detailed analysis in Phase 1 Construction.
* denotes pedestrian elements whose incremental construction trips exceed the CEQR threshold of 200 but were below incremental Phase 2 operational trips, and were locations where no pedestrian impacts were identified in the Phase 2 operational analysis; therefore, these elements were not selected for detailed analysis.

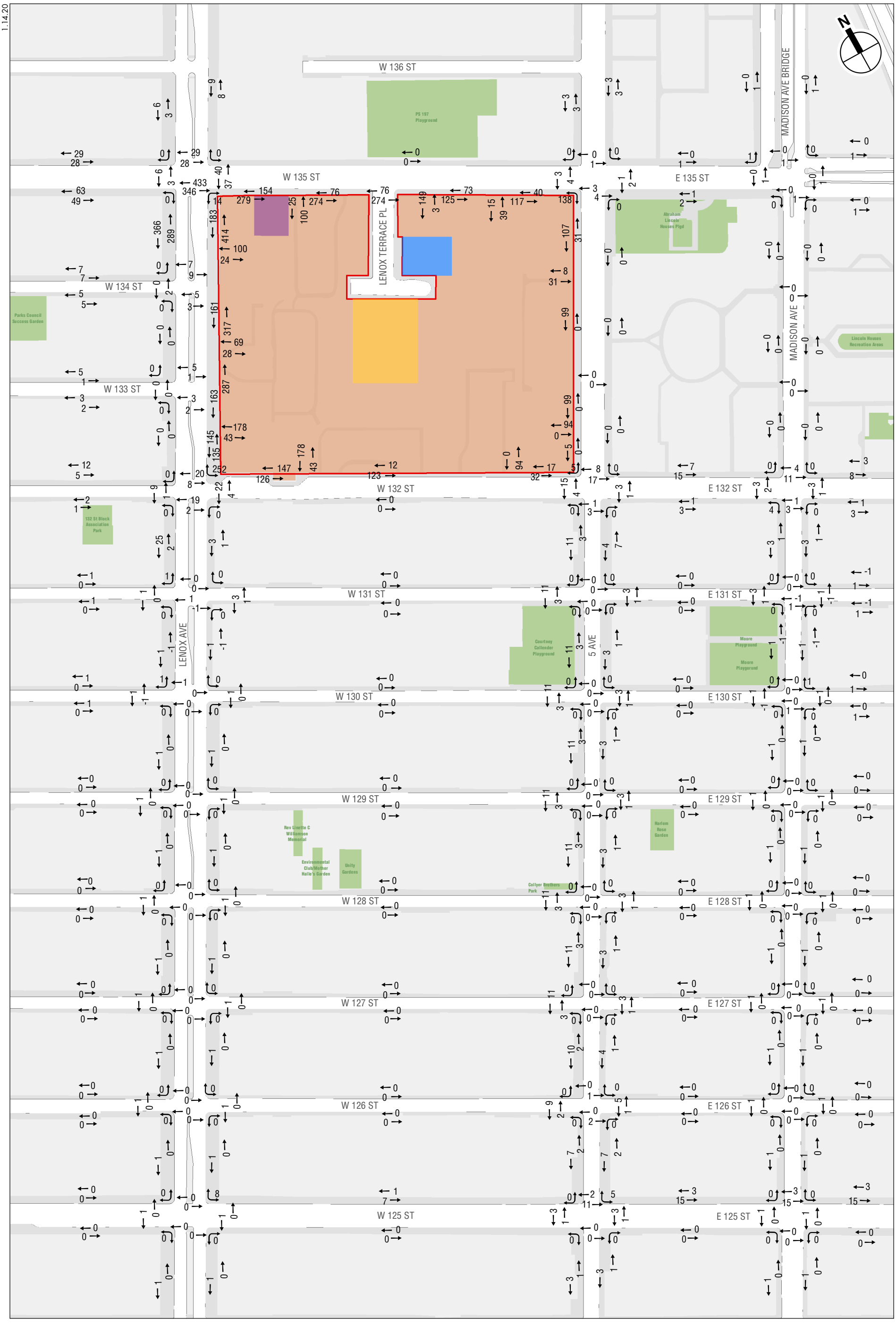
Table 19-1920
Operational (2023) and Construction
Cumulative Peak Period Pedestrian Trips in PCEs

Time	Phase 2 Peak Construction Pedestrian Trips			2023 Operational Pedestrian Trips			Total Construction and Operational Pedestrian Trips			Full Build-Out Operational Pedestrian Trips		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
AM Peak Period (6:00 AM to 9:00 AM)												
6-7 AM	438	0	438	27	27	54	465	27	492	41	41	82
7-8 AM	109	0	109	34	320	354	143	320	463	54	500	554
8-9 AM	0	0	0	195	770	960	195	770	960	327	1,184	1,511
PM Peak Period (3:00 PM to 6:00 PM)												
3-4 PM	0	438	438	346	304	650	346	742	1,088	502	445	947
4-5 PM	0	109	109	471	352	823	471	461	932	703	526	1,229
5-6 PM	0	0	0	724	396	1,120	724	396	1,120	1,088	579	1,667

Note:
Based on the study area Automatic Traffic Recorder (ATR) counts, general traffic levels for the 6:00 to 7:00 AM and 7:00 to 8:00 AM hours are approximately 76 percent of and approximately the same as the 8:00 to 9:00 AM hour, respectively. Correspondingly, general traffic levels for the 3:00 to 4:00 PM and 4:00 to 5:00 PM hours are approximately the same as the 5:00 to 6:00 PM hour.

Based on the detailed assignment of pedestrian trips, during the Phase 2 construction peak hours with the 2023 Phase 1 construction peak hour operational trips overlaid (see **Figures 19-17 and 19-18**), incremental construction and Phase 1 operational pedestrian trips would exceed the CEQR analysis threshold of 200 pedestrians at 8 sidewalks, 5 corners, and 2 crosswalks during the construction AM and PM peak hours, as summarized in **Table 19-201**. These locations, as shown in **Figure 19-19**, were all included in the operational analysis presented in the Chapter 13, "Transportation." Additionally, incremental Phase 2 construction pedestrian trips with the 2023 Phase 1 operational trips overlaid would not exceed the 2026 Full Build pedestrian trips at any pedestrian locations during the construction peak hours, except at the north sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue–western segment, the east sidewalk along Lenox Avenue between West 135th Street and West 134th Street, the east sidewalk along Lenox Avenue between West 134th Street and West 133rd Street,~~the east sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street,~~ and the northeast corner of West 132nd Street and Lenox Avenue. These locations were included for analysis of potential pedestrian impacts during Phase 2 construction. In addition, the south crosswalk at West 135th Street and Lenox Avenue was analyzed to determine if the operational impacts projected for this location would also occur during Phase 2 construction.

1.14.20



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site

0 400 FEET

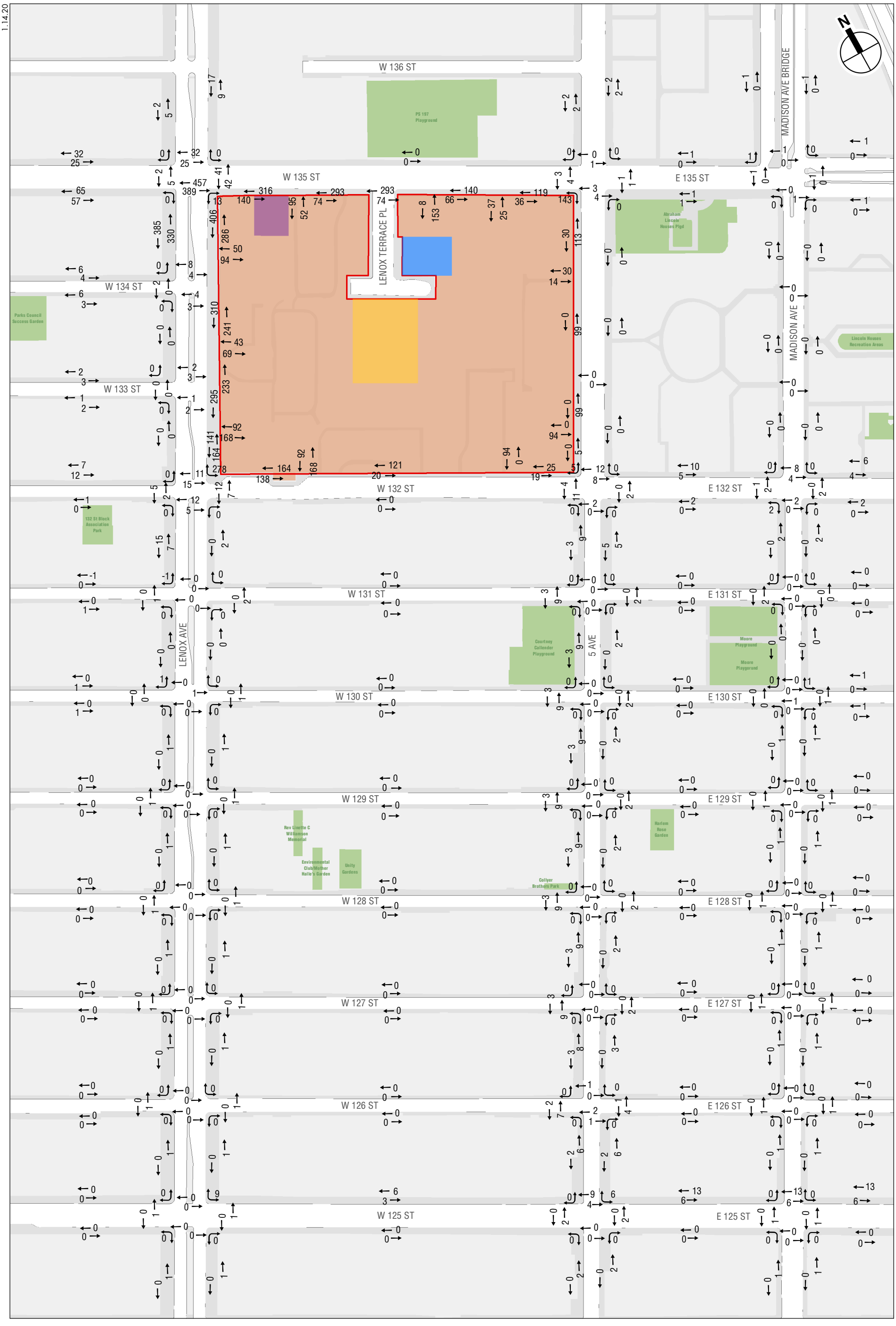
Cumulative Phase 2 Construction and Phase 1 Operational Pedestrian Trips
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-17

1.14.20



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site

0 400 FEET

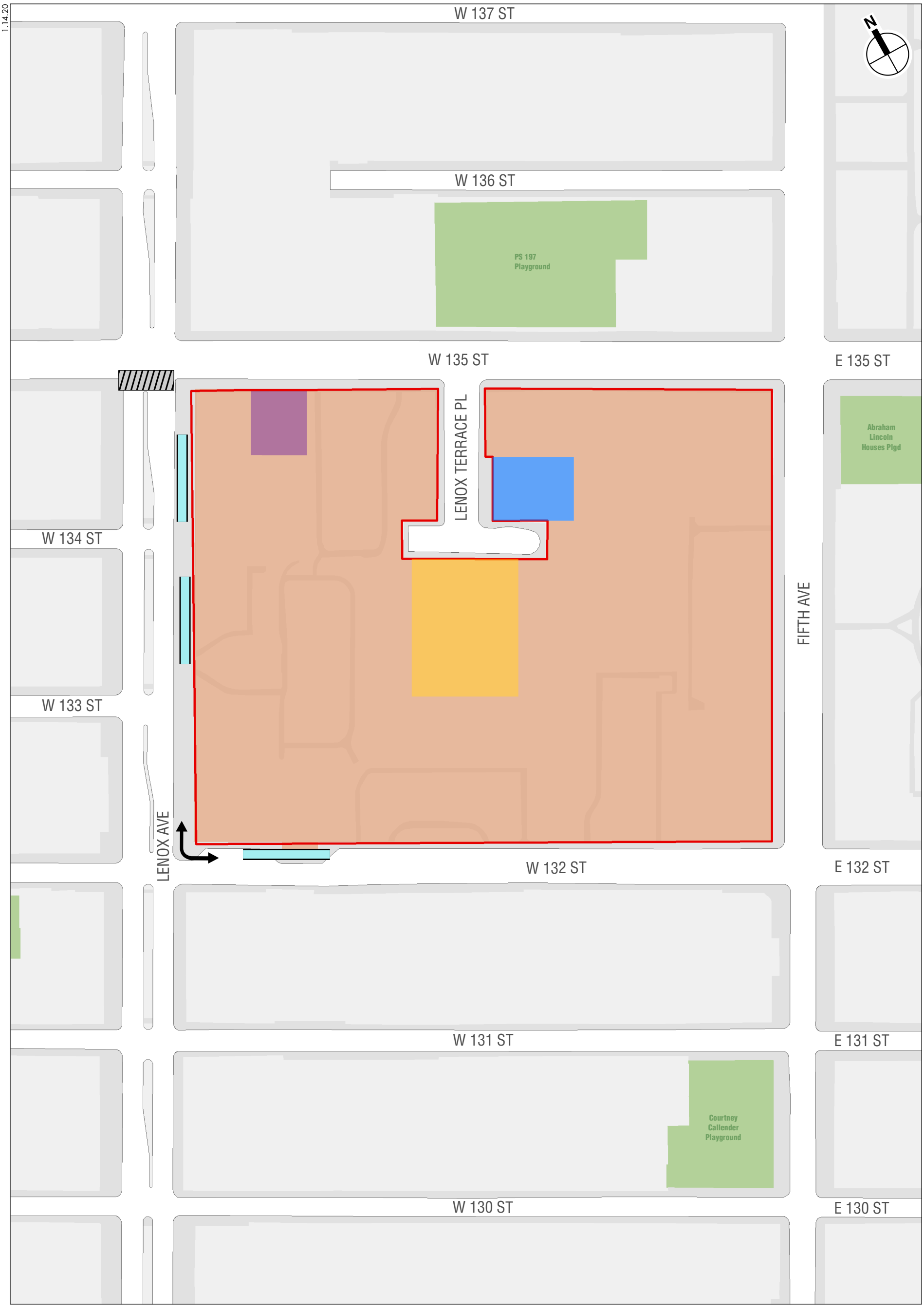
Cumulative Phase 2 Construction and Phase 1 Operational Pedestrian Trips
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-18

1.14.20



Pedestrian Analysis Locations

Corner - Phase 2 Only

Crosswalk - Phase 1 and Phase 2

Sidewalk - Phase 2 Only

Proposed Development Site

Projected Future Development Sites

Potential Development Site

City-Owned Site

Rezoning Area

0 300 FEET

Phase 1 and Phase 2 Construction - Pedestrian Analysis Locations

Figure 19-19

LENOX TERRACE

This figure has been updated for the FEIS

Table 19-2~~01~~
2024 Phase 2 Construction with Phase 1 Operational Pedestrian Level 2 Screening Analysis Results

Pedestrian Elements	Incremental Pedestrian Trips AM	Incremental Pedestrian Trips PM	Selected Analysis Locations – Phase 2 Construction
135th Street and Fifth Avenue			
North Crosswalk	1	1	
East Crosswalk	3~~4~~	2~~3~~	
South Crosswalk	7~~8~~	7~~8~~	
West Crosswalk	7~~23~~	7~~23~~	
Northeast Corner	4~~5~~	3~~4~~	
Southeast Corner	10~~12~~	9~~11~~	
Southwest Corner	152~~18~~ ~~2~~	157~~18~~ ~~7~~	
Northwest Corner	8~~24~~	8~~24~~	
East Sidewalk along Fifth Avenue between 135th Street and 136th Street	6~~7~~	4~~5~~	
East Sidewalk along Fifth Avenue between 135th Street and 134th Street	0	0	
West Sidewalk along Fifth Avenue between 135th Street and 134th Street	1381~~5~~ ~~1~~	1431~~5~~ ~~6~~	
South Sidewalk along 135th Street between Fifth Avenue and Lenox Terrace Place–Eastern Segment	157~~18~~ ~~8~~	155~~18~~ ~~6~~	
South Sidewalk along 135th Street between Fifth Avenue and Lenox Terrace Place–Western Segment	1982~~0~~ ~~8~~	2062~~1~~ ~~6~~	* =
West Sidewalk along Fifth Avenue between 135th Street and 136th Street	6~~22~~	4~~20~~	
North Sidewalk along 135th Street between Fifth Avenue and Lenox Avenue	0	0	
134th Street and Fifth Avenue			
East Sidewalk along Fifth Avenue between 134th Street and 133rd Street	0	0	
West Sidewalk along Fifth Avenue between 134th Street and 133rd Street	99~~112~~	99~~112~~	
133rd Street and Fifth Avenue			
North Crosswalk	0	0	
East Sidewalk along Fifth Avenue between 133rd Street and 132nd Street	0	0	
West Sidewalk along Fifth Avenue between 133rd Street and 132nd Street	99~~112~~	99~~112~~	
132nd Street and Fifth Avenue			
North Crosswalk	25~~33~~	20~~28~~	
East Crosswalk	4~~9~~	2~~7~~	
South Crosswalk	4~~8~~	2~~6~~	
West Crosswalk	19~~35~~	15~~31~~	
Northeast Corner	29~~42~~	22~~35~~	
Southeast Corner	8~~17~~	4~~13~~	
Southwest Corner	23~~43~~	17~~37~~	
Northwest Corner	49~~87~~	40~~78~~	
East Sidewalk along Fifth Avenue between 132nd Street and 131st Street	11~~16~~	10~~15~~	
West Sidewalk along Fifth Avenue between 132nd Street and 131st Street	14~~26~~	12~~24~~	
South Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue	0	0	
North Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue – Eastern Segment	49~~75~~	44~~70~~	
North Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue – Middle Segment	135~~16~~ ~~1~~	141~~16~~ ~~7~~	
North Sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue – Western Segment	273~~29~~ ~~9~~	302~~32~~ ~~8~~	✓
131st Street and Fifth Avenue			
North Crosswalk	0~~4~~	0~~4~~	
East Crosswalk	4~~9~~	2~~7~~	
South Crosswalk	0~~4~~	0~~4~~	
West Crosswalk	14~~22~~	12~~20~~	
Northeast Corner	4~~16~~	2~~14~~	
Southeast Corner	4~~13~~	2~~11~~	
Southwest Corner	14~~26~~	12~~24~~	
Northwest Corner	14~~26~~	12~~24~~	
East Sidewalk along Fifth Avenue between 131st Street and 130th Street	4~~8~~	2~~6~~	
West Sidewalk along Fifth Avenue between 131st Street and 130th Street	14~~18~~	12~~16~~	
South Sidewalk along 131st Street between Fifth Avenue and Lenox Avenue	0	0	
North Sidewalk along 131st Street between Fifth Avenue and Lenox Avenue	0	0	

Table 19-2~~01~~ (cont'd)
2024 Phase 2 Construction with Phase 1 Operational Pedestrian Level 2 Screening Analysis Results

Pedestrian Elements	Incremental Pedestrian Trips		Selected Analysis Locations – Phase 2 Construction
	AM	PM	
West 135th Street and Lenox Terrace Place			
South Crosswalk	35~~038~~4	36740~~1~~	*
Southeast Corner	35~~038~~4	36740~~1~~	*
Southwest Corner	35~~038~~4	36740~~1~~	*
South Sidewalk along 135th Street between Lenox Terrace Place and Lenox Avenue–Eastern Segment	35~~038~~4	36740~~1~~	*
South Sidewalk along 135th Street between Lenox Terrace Place and Lenox Avenue–Western Segment	43346~~7~~	45649~~0~~	*
West 135th Street and Lenox Avenue			
North Crosswalk	57~~60~~	57~~60~~	
East Crosswalk	77~~82~~	83~~88~~	
South Crosswalk	779778~~8~~	846~~85~~5	✓
West Crosswalk	9~~11~~	7~~9~~	
Northeast Corner	13414~~2~~	14014~~8~~	
Southeast Corner	870~~90~~3	94297~~5~~	*
Southwest Corner	788~~79~~9	853~~86~~4	*
Northwest Corner	66~~71~~	64~~69~~	
East Sidewalk along Lenox Avenue between West 135th Street and West 136th Street	17~~20~~	26~~29~~	
East Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	597~~61~~7	678~~69~~8	✓
West Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	655~~65~~8	715~~71~~8	*
South Sidewalk along West 135th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	112~~11~~6	122~~12~~6	
West Sidewalk along Lenox Avenue between West 135th Street and West 136th Street	9~~11~~	7~~9~~	
North Sidewalk along West 135th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	57~~60~~	57~~60~~	
West 134th Street and Lenox Avenue			
North Crosswalk	16~~20~~	12~~16~~	
South Crosswalk	8~~9~~	7~~8~~	
West Crosswalk	2~~3~~	2~~3~~	
Southwest Corner	10~~12~~	9~~11~~	
Northwest Corner	18~~23~~	14~~19~~	
East Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	478~~49~~4	541~~55~~7	✓
West Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	0~~0~~	0~~0~~	
South Sidewalk along West 134th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	10~~12~~	9~~11~~	
North Sidewalk along West 134th Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	14~~16~~	10~~12~~	
West 133rd Street and Lenox Avenue			
North Crosswalk	6	5	
South Crosswalk	5	3	
West Crosswalk	0	0	
Southwest Corner	5	3	
Northwest Corner	6	5	
East Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street	450~~46~~7	532~~54~~9	✓
West Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street	0	0	
South Sidewalk along West 133rd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	5~~5~~	3~~3~~	
North Sidewalk along West 133rd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	6~~6~~	5~~5~~	

Table 19-20~~1~~ (cont'd)
2024 Phase 2 Construction with Phase 1 Operational Pedestrian Level 2 Screening Analysis Results

Pedestrian Elements	Incremental Pedestrian Trips AM	Incremental Pedestrian Trips PM	Selected Analysis Locations – Phase 2 Construction
West 132nd Street and Lenox Avenue			
North Crosswalk	28~~55~~	26~~53~~	
East Crosswalk	26~~38~~	19~~31~~	
South Crosswalk	21~~21~~	17~~17~~	
West Crosswalk	10~~11~~	7~~8~~	
Northeast Corner	30~~63~~ 4~~7~~	32~~33~~~~6~~ 4	✓
Southeast Corner	47~~59~~	36~~48~~	
Southwest Corner	31~~32~~	24~~25~~	
Northwest Corner	38~~66~~	33~~61~~	
East Sidewalk along Lenox Avenue between West 132nd Street and West 131st Street	4~~16~~	2~~14~~	
West Sidewalk along Lenox Avenue between West 132nd Street and West 131st Street	27~~28~~	22~~23~~	
South Sidewalk along West 132nd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	3	1	
North Sidewalk along West 132nd Street between Lenox Avenue and Adam Clayton Powell, Jr. Boulevard	17~~43~~	19~~45~~	

Notes:
✓ denotes pedestrian elements selected for detailed analysis in Phase 2 Construction.
* denotes pedestrian elements whose incremental construction trips exceed the CEQR threshold of 200 but were below incremental Phase 2 operational trips, and were locations where no pedestrian impacts were identified in the Phase 2 operational analysis; therefore, these elements were not selected for detailed analysis.

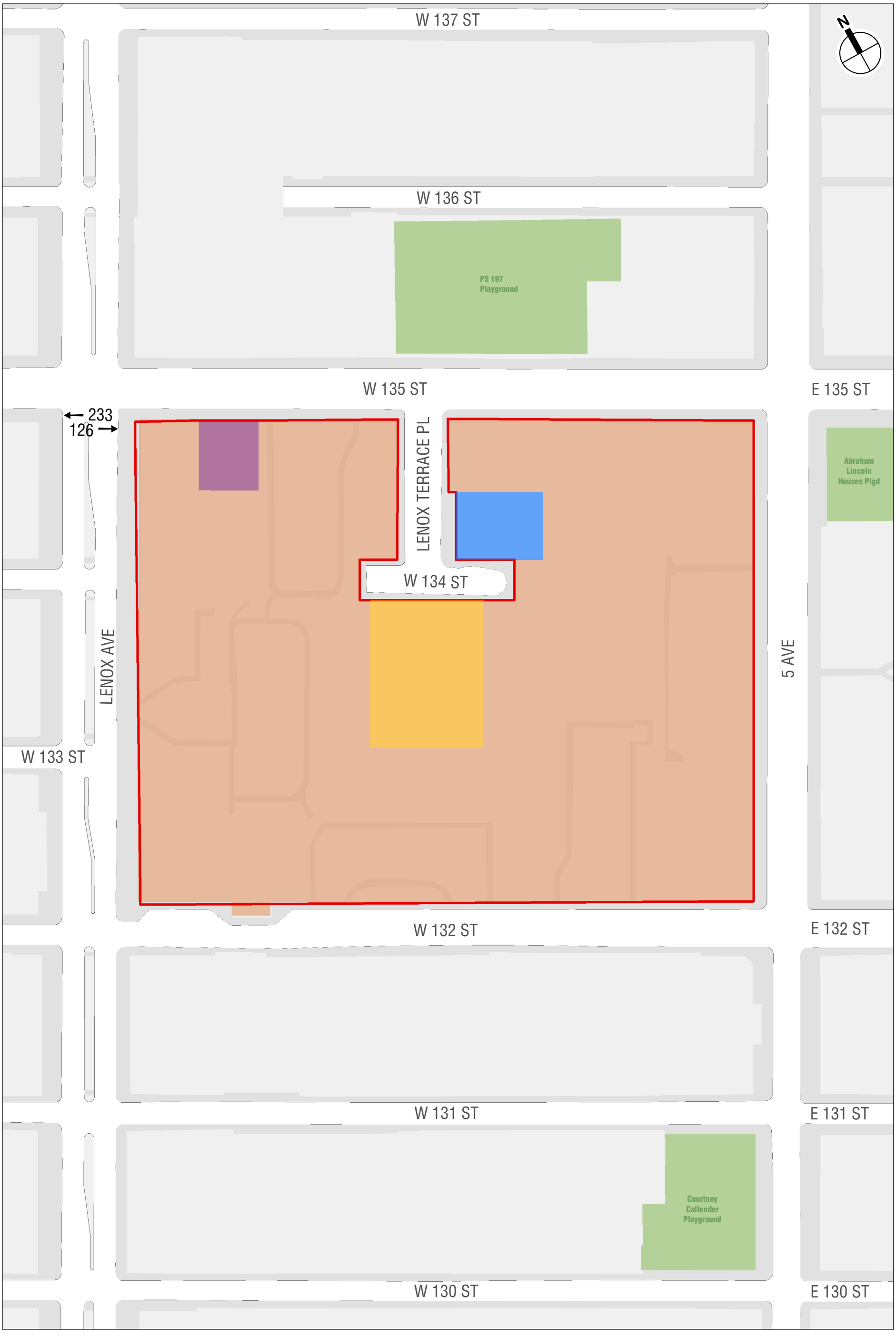
Construction Pedestrian Analysis

As discussed above, one crosswalk (the south crosswalk at West 135th Street and Lenox Avenue) was selected for detailed construction pedestrian analysis for the Phase 1 Construction Condition, since impacts were identified at that location in the 2023 With Action (Phase 1 Completion) and the 2026 With Action (Full Build) operational pedestrian analyses. For the Phase 2 Construction Condition, cumulative incremental construction and Phase 1 operational pedestrian volumes would exceed total 2026 With Action (Full Build) operational incremental volumes at ~~four~~ three sidewalks and one ~~crosswalk~~corner: the north sidewalk along 132nd Street between Fifth Avenue and Lenox Avenue–western segment, the east sidewalk along Lenox Avenue between West 135th Street and West 134th Street, the east sidewalk along Lenox Avenue between West 134th Street and West 133rd Street, ~~the east sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street,~~ and the northeast corner of West 132nd Street and Lenox Avenue. In addition to these ~~four~~ three sidewalks and one corner, one crosswalk element (the south crosswalk at West 135th Street and Lenox Avenue) was selected for detailed pedestrian analysis, since impacts were identified at that location in the 2023 With Action (Phase 1 Completion) and the 2026 With Action (Full Build) operational pedestrian analyses.

2022 Phase 1 Construction

The 2022 Phase 1 construction No Action pedestrian volumes are shown in **Figure 19-20** and **Figure 19-21** for the weekday AM and PM construction peak hours. The development of the 2022 Phase 1 construction No Action pedestrian volumes were developed similarly to how traffic volumes were determined for the Phase 1 construction analyses. The 2022 Phase 1 construction No Action Condition crosswalk analysis results are shown in **Table 19-21~~2~~**.

4.18.19

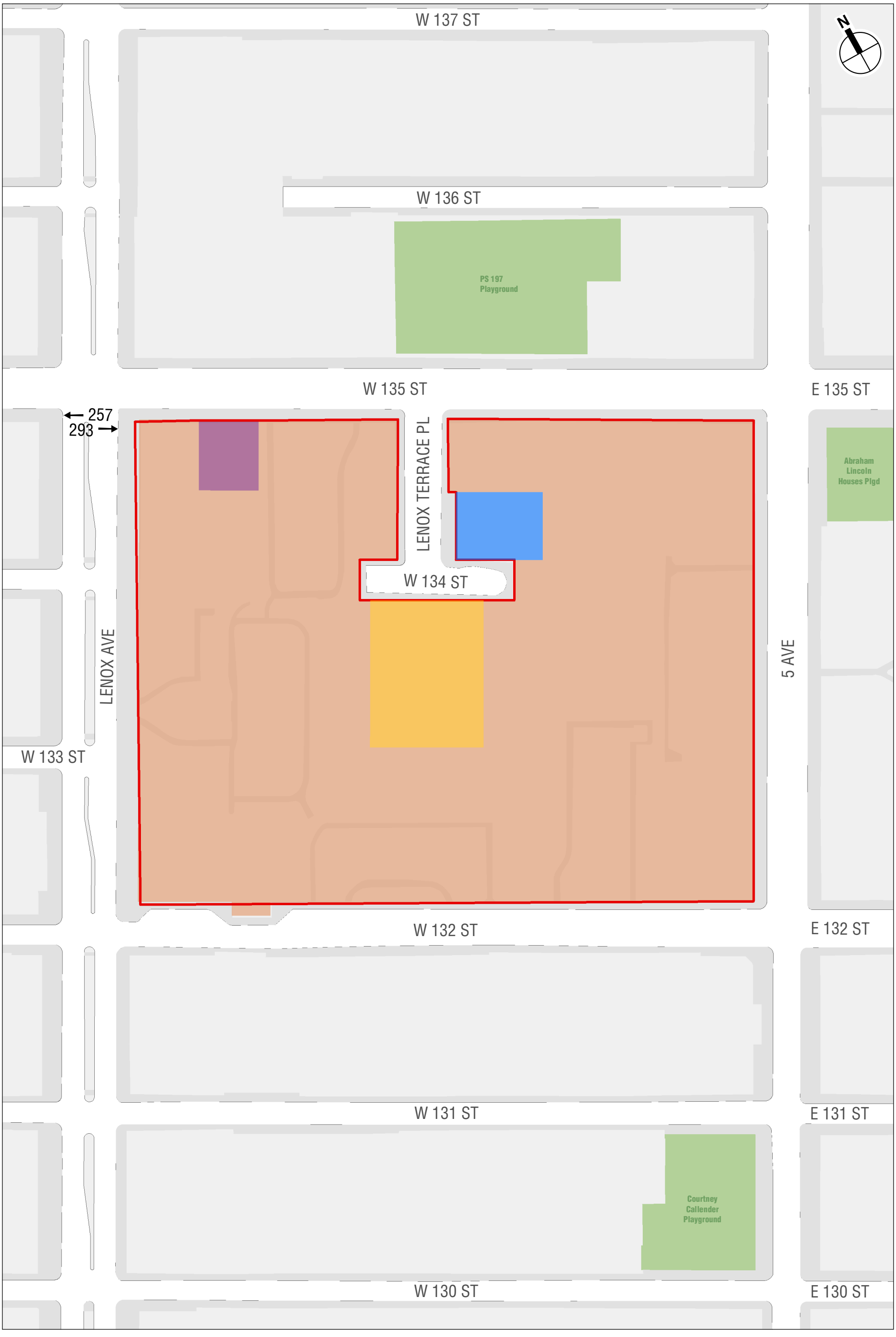


2022 Phase 1 Construction No Action Pedestrian Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

Figure 19-20

4.18.19



Rezoning Area

Proposed Development Site

Projected Future Development Sites

Potential Development Site

City-Owned Site

0 200 FEET

2022 Phase 1 Construction No Action Pedestrian Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

Figure 19-21

Table 19-21~~2~~
2022 Construction No Action Condition: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	2-way Peak Hour Volume	SFP	LOS
Weekday AM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	359	39.09	C
Weekday PM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	550	25.92	C

The 2022 Phase 1 construction With Action pedestrian volumes, shown in **Figures 19-22 and 19-23** for the weekday construction peak hours, were developed by adding the Phase 1 construction pedestrian trips presented in **Figures 19-15 and 19-16** to the 2022 Phase 1 No Action pedestrian volumes.

As shown in **Table 19-22~~3~~**, the south crosswalk of Lenox Avenue and West 135th Street would deteriorate from LOS C with 39.09 SFP to LOS D with 17.~~11~~ 48 SFP, and from LOS C with 25.92 SFP to LOS E with 14.~~06~~ 30 SFP during the weekday AM and PM construction peak hours, respectively.

Table 19-22~~3~~
2022 Phase 1 Construction Condition: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	2-way Peak Hour Volume	SFP	LOS
Weekday AM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	~~760~~746	17.~~11~~4 8	D
Weekday PM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	~~951~~937	14.~~06~~3 0	E

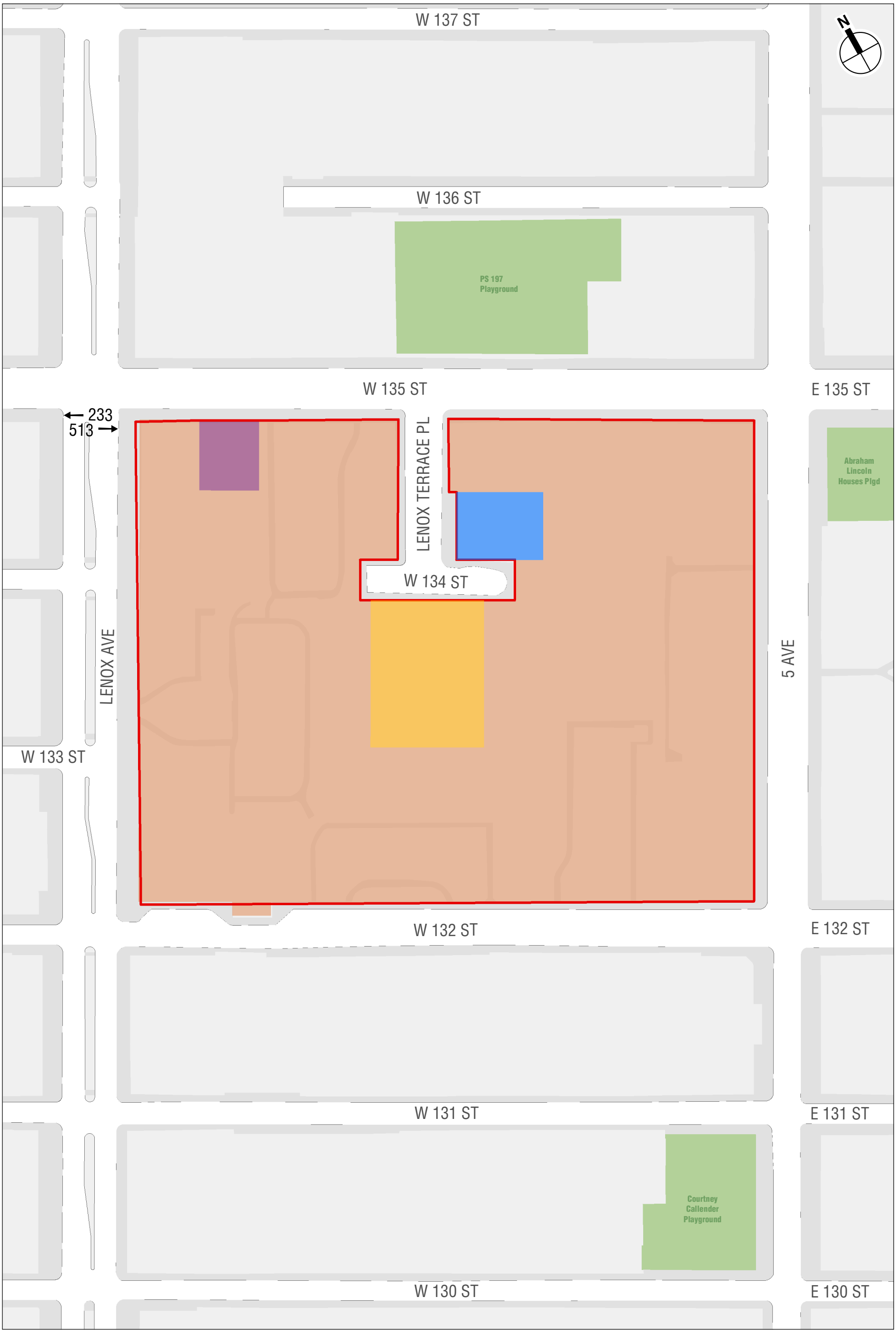
2024 Phase 2 Construction

The 2024 Phase 2 construction No Action pedestrian volumes are shown in **Figures 19-24 and 19-25** for the weekday AM and PM construction peak hours. The 2024 Phase 2 construction No Action Condition sidewalk, corner, and crosswalk analysis results are shown in **Tables 19-23~~4~~ through 19-25~~6~~**.

The 2024 Phase 2 construction With Action pedestrian volumes, shown in **Figures 19-26 and 19-27** for the weekday construction peak hours, were developed by adding the cumulative Phase 2 construction and Phase 1 operational pedestrian trips presented in **Figures 19-17 and 19-18** to the 2024 Phase 2 No Action pedestrian volumes.

As shown in **Tables 19-26~~7~~ through 19-28~~9~~**, all sidewalk and corners would continue to operate at favorable LOS B or C in the Phase 2 Construction Condition, except the south crosswalk of Lenox Avenue and West 135th Street, which would deteriorate from LOS C with 33.52 SFP to LOS E with 10.~~63~~ 72 SFP, and from LOS D with 22.70 SFP to LOS E with 8.~~62~~ 68 SFP during the weekday AM and PM peak hours, respectively.

1.14.20



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site

0 200 FEET

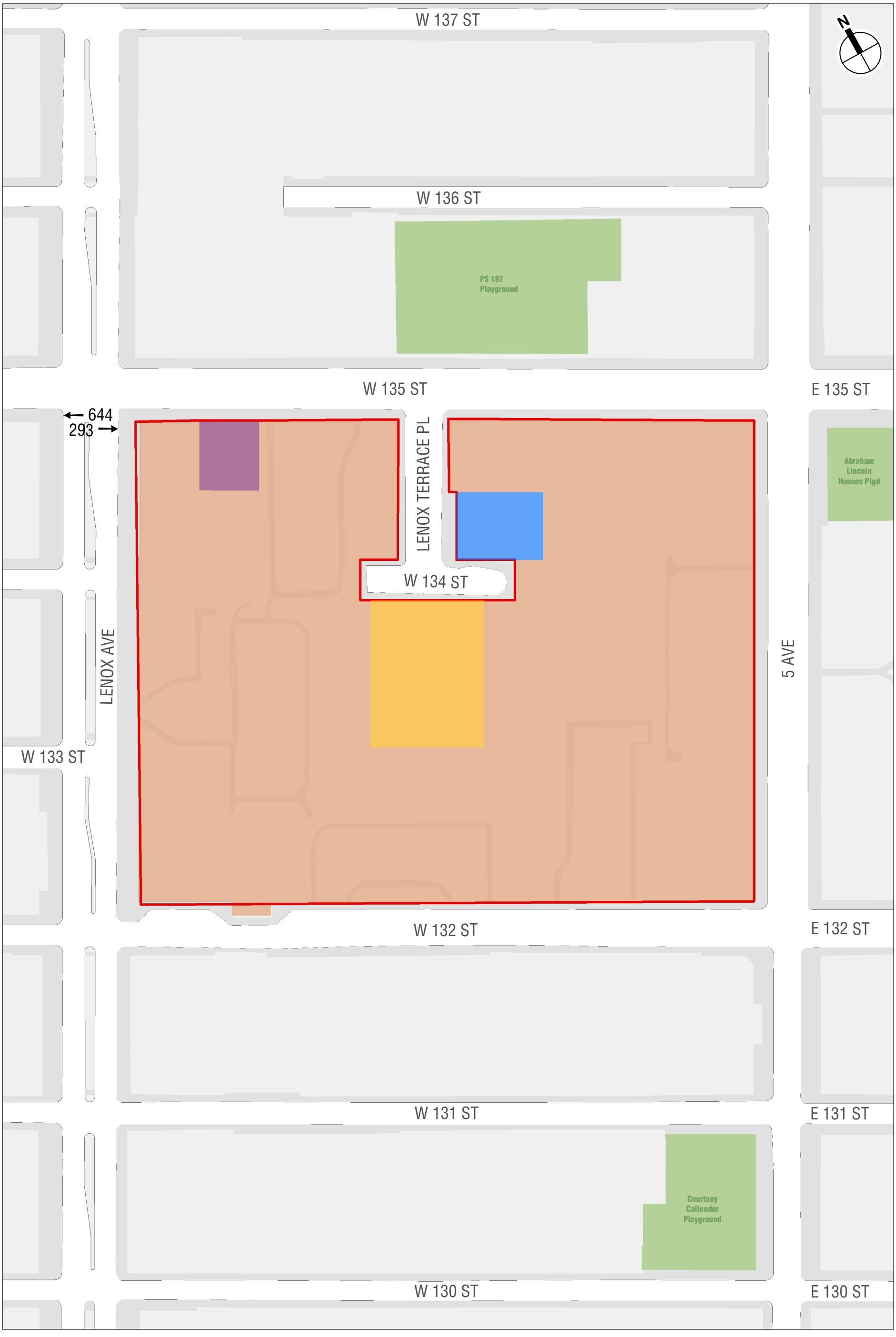
2022 Phase 1 Construction With Action Pedestrian Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-22

1.14.20



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site

0 200 FEET

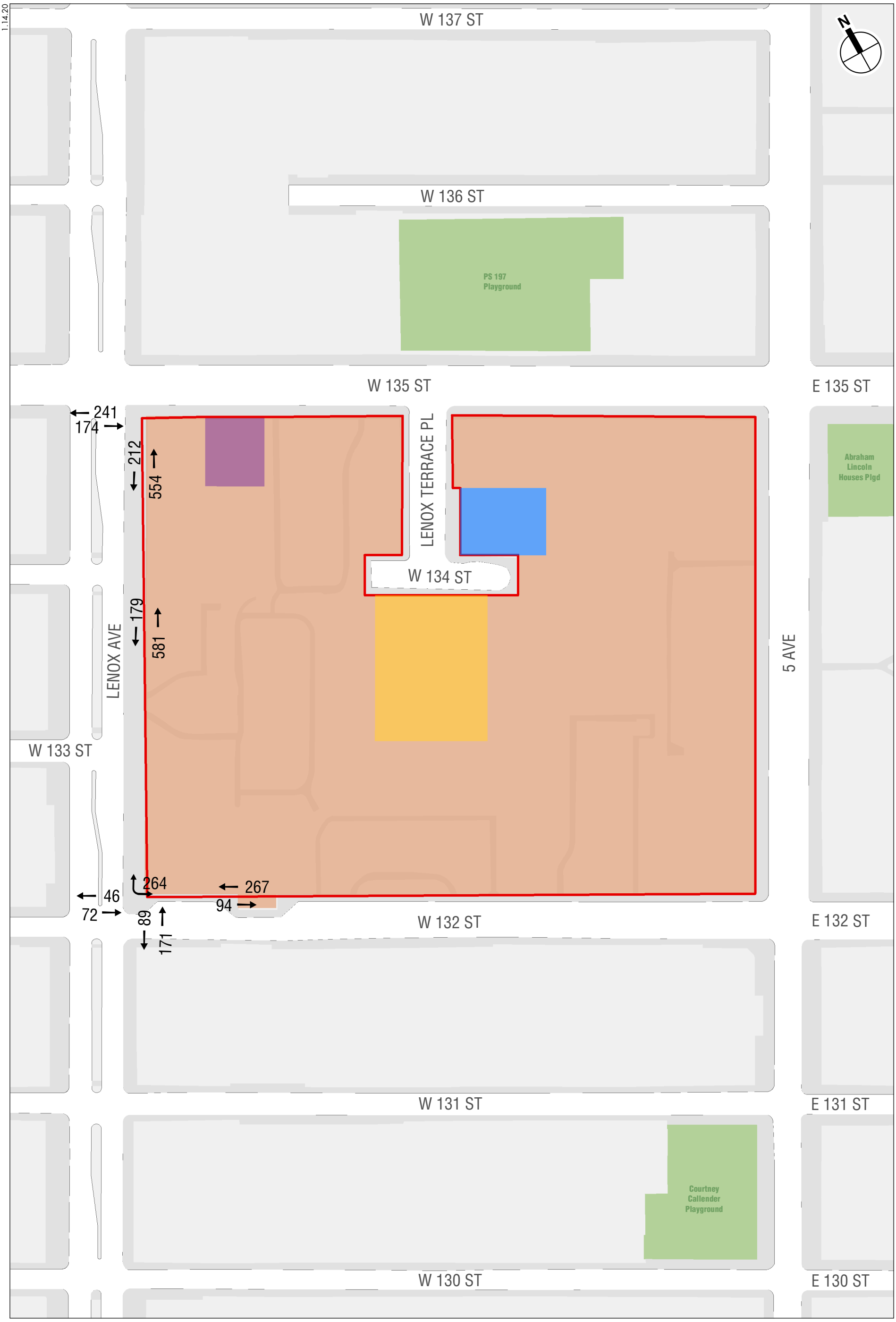
2022 Phase 1 Construction With Action Pedestrian Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-23

1.14.20



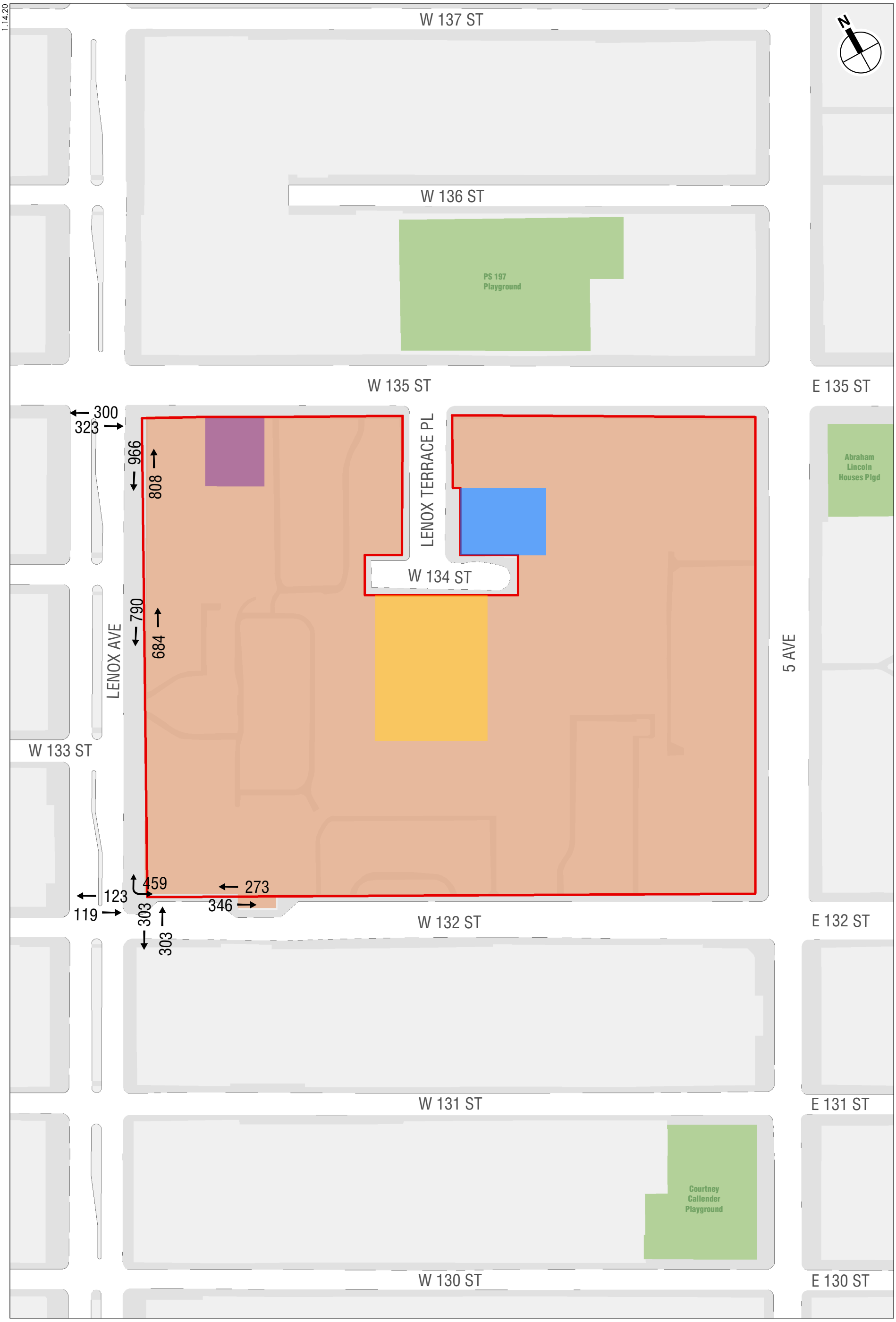
2024 Phase 2 Construction No Action Pedestrian Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-24

1.14.20



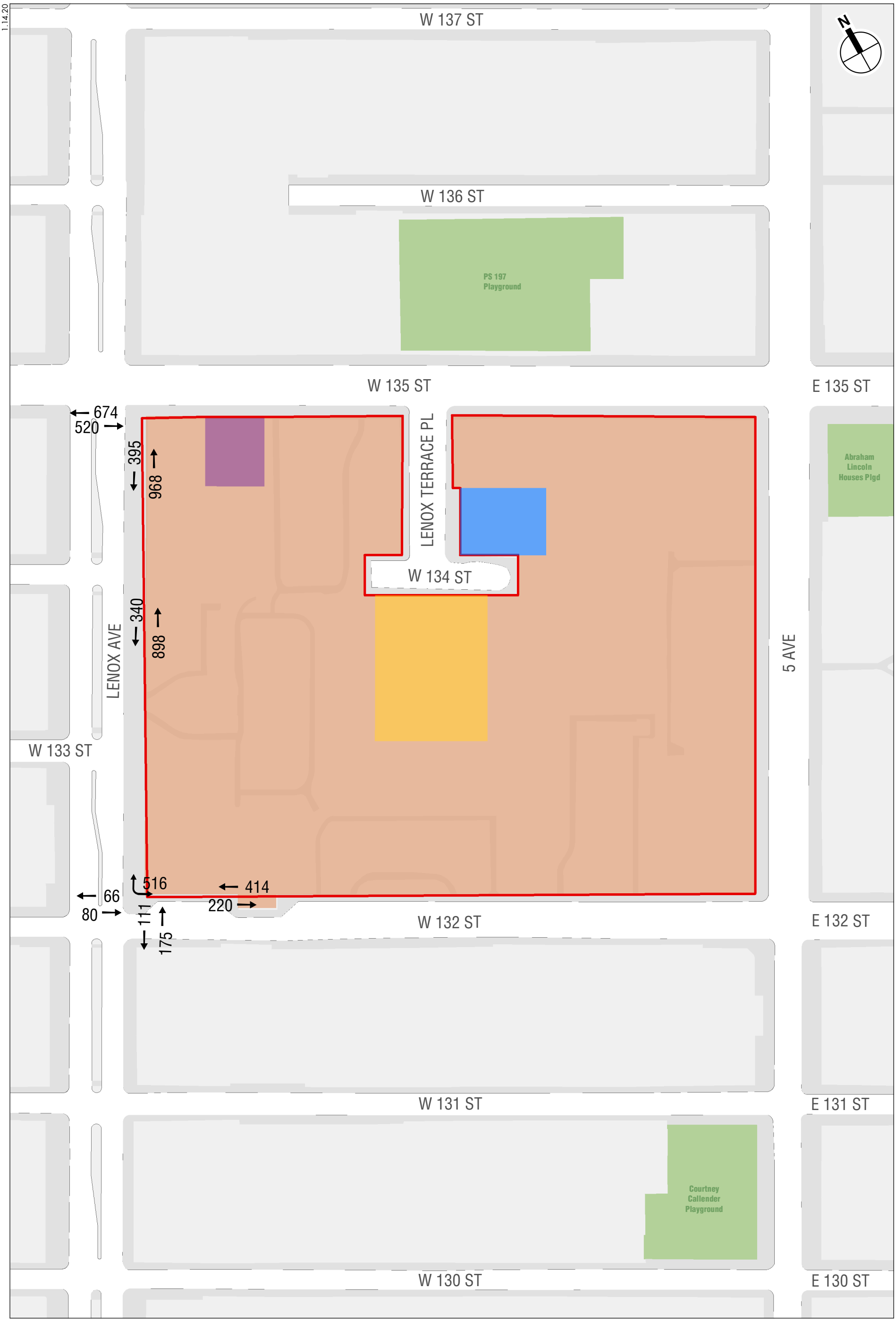
2024 Phase 2 Construction No Action Pedestrian Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-25

1.14.20



Rezoning Area
Proposed Development Site
Projected Future Development Sites
Potential Development Site
City-Owned Site

0 200 FEET

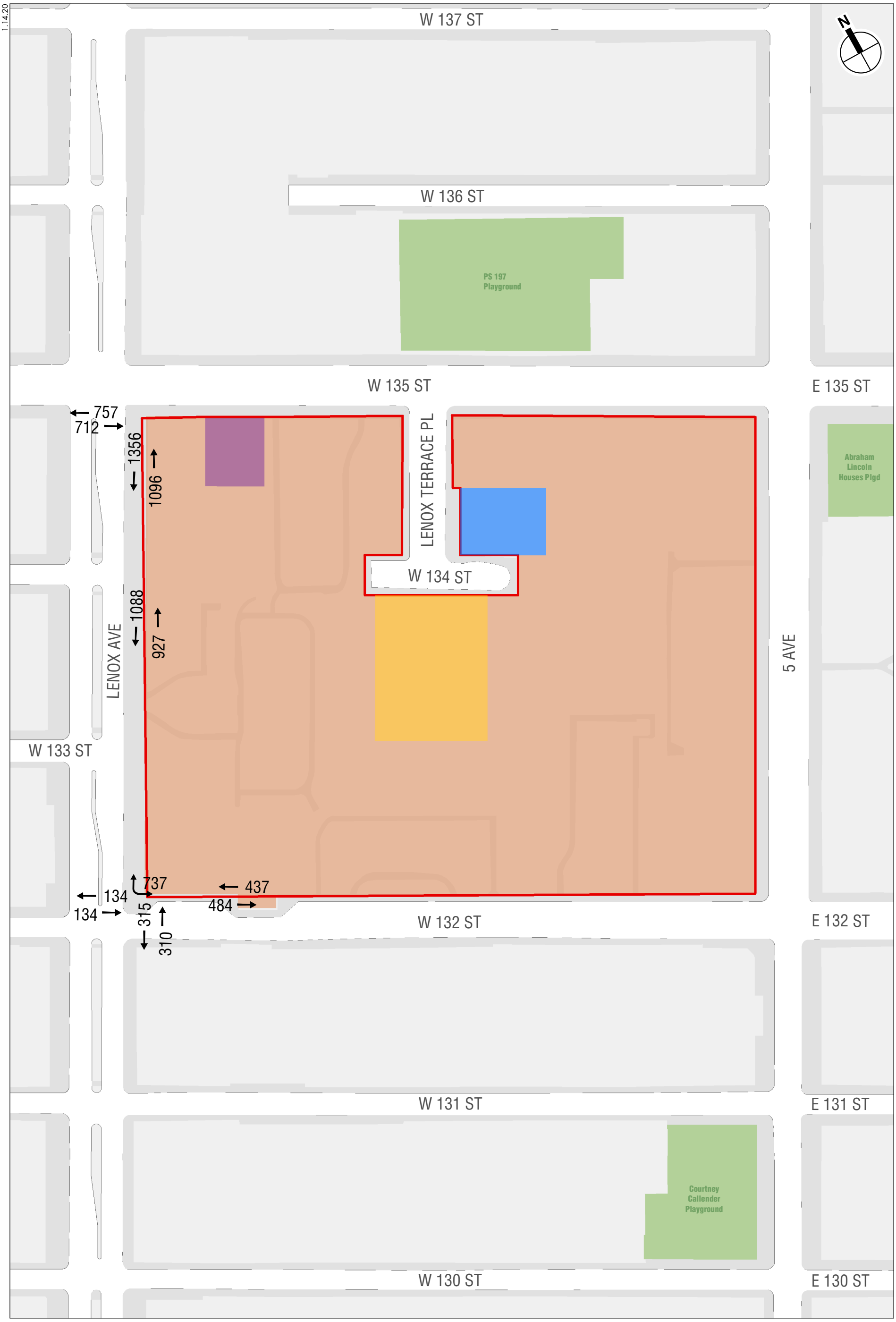
2024 Phase 2 Construction With Action Pedestrian Volumes
Weekday AM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-26

1.14.20



2024 Phase 2 Construction With Action Pedestrian Volumes
Weekday PM Construction Peak Hour

LENOX TERRACE

This figure has been updated for the FEIS

Figure 19-27

Table 19-2~~3~~4
2024 Construction No Action Condition: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Construction Peak Hour						
East Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	East	23.5	766	0.82	398.97	B
East Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	East	24.5	760	0.84	430.92	B
~~East Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street~~	~~East~~	~~24.5~~	~~735~~	~~0.81~~	~~426.31~~	~~B~~
North Sidewalk along West 132nd Street between Lenox Avenue and Fifth Avenue (western segment)	North	3.0	361	0.82	107.34	B
Weekday PM Construction Peak Hour						
East Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	East	23.5	1,774	0.82	171.67	B
East Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	East	24.5	1,474	0.83	219.57	B
~~East Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street~~	~~East~~	~~24.5~~	~~1,329~~	~~0.86~~	~~249.63~~	~~B~~
North Sidewalk along West 132nd Street between Lenox Avenue and Fifth Avenue (western segment)	North	3.0	619	0.84	63.28	C

Table 19-2~~4~~5
2024 Construction No Action Condition: Corner Analysis

Location	Corner	Weekday AM Construction Peak Hour		Weekday PM Construction Peak Hour	
		SFP	LOS	SFP	LOS
Lenox Avenue and West 132nd Street	Northeast	1,177.30	A	623.81	A

Table 19-2~~5~~6
2024 Construction No Action Condition: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	2-way Peak Hour Volume	SFP	LOS
Weekday AM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	415	33.52	C
Weekday PM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	623	22.70	D

Table 19-2~~6~~7
2024 Phase 2 Construction Condition: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Construction Peak Hour						
East Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	East	23.5	1,~~383~~363	0.82	~~219.17~~ 22.39	B
East Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	East	24.5	1,~~254~~238	0.83	~~257.71~~ 61.04	B
~~East Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street~~	~~East~~	~~24.5~~	~~1,202~~	~~0.81~~	~~260.26~~	~~B~~
North Sidewalk along West 132nd Street between Lenox Avenue and Fifth Avenue (western segment)	North	3.0	~~660~~634	0.81	~~57.716~~ 0.15	C
Weekday PM Construction Peak Hour						
East Sidewalk along Lenox Avenue between West 135th Street and West 134th Street	East	23.5	2,~~472~~452	0.82	~~122~~12 3.46~~47~~	B
East Sidewalk along Lenox Avenue between West 134th Street and West 133rd Street	East	24.5	2,~~031~~015	0.83	~~157~~15 9.99~~25~~	B
~~East Sidewalk along Lenox Avenue between West 133rd Street and West 132nd Street~~	~~East~~	~~24.5~~	~~1,878~~	~~0.85~~	~~175.46~~	~~B~~
North Sidewalk along West 132nd Street between Lenox Avenue and Fifth Avenue (western segment)	North	3.0	~~947~~921	0.83	~~40.214~~ 1.41	C

Table 19-2~~7~~8
2024 Phase 2 Construction Condition: Corner Analysis

Location	Corner	Weekday AM Construction Peak Hour		Weekday PM Construction Peak Hour	
		SFP	LOS	SFP	LOS
Lenox Avenue and West 132nd Street	Northeast	7~~63.51~~94.12	A	4~~80.41~~92.86	A

Table 19-2~~8~~9
2024 Phase 2 Construction Condition: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	2-way Peak Hour Volume	SFP	LOS
Weekday AM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	1,~~203~~194	10.~~63~~72	E
Weekday PM Construction Peak Hour						
Lenox Avenue and West 135th Street	South	77.5	13.0	1,~~478~~469	8.~~626~~8	E

Similar to the significant adverse operational pedestrian impacts shown for the south crosswalk at Lenox Avenue and West 135th Street presented in Chapter 13, "Transportation," the above construction pedestrian impacts cannot be mitigated with any DOT-approved mitigation measures, and would, therefore, be considered unmitigatable construction related impacts.

PARKING

As described above, the peak number of construction workers in Phase 1 and Phase 2 would be 863 and 547 per day, respectively. It is anticipated that 23~~17~~ percent of construction workers would commute to the project site by private autos at an average occupancy of approximately 1.17~~2.20~~ persons per vehicle. The anticipated construction activities are therefore projected to generate a maximum parking demand of 170~~67~~ parking spaces. Based on the parking analysis presented in Chapter 13, "Transportation," this construction parking demand is expected to be accommodated by the available off-street parking supply within a ~~¼~~½~~-~~-mile radius of the project site. Therefore, construction for the proposed project would not result in a parking shortfall or the potential for any significant adverse parking impacts.

AIR QUALITY

INTRODUCTION

The construction under the proposed actions would require the use of both non-road construction equipment and on-road vehicles. Non-road construction equipment includes equipment operating on-site such as cranes, loaders, and excavators. On-road vehicles include construction delivery trucks, dump trucks, and construction worker vehicles arriving to and departing from the proposed development site as well as operating on-site.

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

A quantitative analysis was performed to determine the potential for significant adverse impacts from these sources of air emissions during construction under the proposed actions. The *CEQR Technical Manual* procedures were used for the analysis.

CRITERIA POLLUTANTS

As required by the Clean Air Act, primary and secondary NAAQS have been established for six major criteria air pollutants: CO, NO_2, ozone, respirable particulate matter (PM) [both $PM_{2.5}$ and PM_{10}], sulfur dioxide (SO_2), and lead. The NAAQS and associated averaging times are presented in Table 14-1, in Chapter 14, "Air Quality." In general, much of the heavy equipment used in construction is powered by diesel engines that have the potential to produce relatively high levels of nitrogen oxides (NO_x) and PM emissions. Dust generated by construction activities is also a source of PM emissions, and gasoline engines produce relatively high levels of CO. Since EPA mandates the use of ULSD[1] fuel for all highway and non-road diesel engines, sulfur oxides (SO_x) emitted from the proposed actions' construction activities would be negligible. Therefore, the pollutants analyzed for the construction period were NO_2, the component of NO_x that is a regulated pollutant, along with PM_{10}, $PM_{2.5}$, and CO.

CONSTRUCTION ACTIVITY ASSESSMENT

Analysis Period

Overall, construction under the proposed actions is anticipated to occur from 2020 to 2026 over 2 phases. Because the level of construction activities would vary among the proposed buildings and the stages of construction, a determination of the reasonable worst-case analysis period for the construction air quality analysis was selected based on the estimated monthly construction work schedule, equipment to be employed and their usage factors, and equipment emission rates. The periods of highest emissions nearest to sensitive receptor locations are expected to be the periods of greatest impacts. Construction-related emissions were calculated for each calendar year throughout the duration of construction on a rolling annual and peak day basis for $PM_{2.5}$. $PM_{2.5}$ is selected for determining the worst-case periods for all pollutants analyzed because the ratio of predicted $PM_{2.5}$ incremental concentrations to impact criteria is anticipated to be higher than for other pollutants, based on previous analyses of construction air emissions. Therefore, estimates of $PM_{2.5}$ emissions throughout the construction years were used for determining the worst-case periods for analysis of all pollutants. Generally, emission patterns of $PM1_0$ and NO_2 would follow $PM_{2.5}$ emissions, since they are related to diesel engines by horsepower (hp). CO emissions may have a somewhat different pattern but would also be anticipated to be highest during periods when the most activity would occur.

Based on the construction emission profiles and the proximity of construction activities to receptors, July 2021 and the 12-month period between July 2021 and June 2022 were identified as the worst-case short-term and annual periods, respectively, since the highest project-wide emissions were predicted in these periods when construction activities at the Proposed Buildings NW, SW, and NE~~, and the midrise central podium~~ would take place simultaneously in proximity to the existing residences within the Lenox Terrace property.

[1] As of 2015, the diesel fuel produced by all large refiners, small refiners, and importers must be ULSD fuel, with sulfur levels in non-road diesel fuel limited to a maximum of 15 parts per million (ppm).

Unlike construction associated with the proposed project, construction activities at the projected future development site may not implement additional measures beyond code requirements to further reduce air pollutant emissions. However due to the small size of the projected future development site as well as the shorter 15-month construction duration, the worst-case short-term and annual analysis periods would not change when considering the emissions associated with construction of the projected future development site simultaneously with the proposed buildings (see **Table 19-2**). ~~Between the DEIS and FEIS~~Following publication of the DEIS, a detailed modeling analysis of the project future development site ~~will be~~was performed to confirm that there would be no potential for significant adverse air quality impacts at receptor locations ~~the~~ that would experience construction of both the proposed buildings and the projected development site.

The dispersion modeling analysis was performed for the reasonable worst-case annual and short-term (i.e., 24-hour, 8-hour, and 1-hour) averaging periods. The potential for significant adverse impacts was determined by comparing modeled NO_2, CO, and PM_{10} concentrations to the NAAQS, and modeled $PM_{2.5}$ and CO to applicable *de minimis* thresholds. Details on the relevant air quality regulations, standards, and guidance thresholds are presented in Chapter 14, "Air Quality."

Other less intensive construction phases are discussed qualitatively, based on the reasonable worst-case analysis period results.

Construction Emission Sources

Construction emissions sources include non-road construction equipment, on-road vehicles, and dust-generating construction activities. This information was used to calculate the estimated emissions generated from the likely construction activities during the reasonable worst-case analysis period.

Non-road Construction Equipment

Non-road construction equipment includes equipment operating on-site, such as cranes, loaders, excavators, and dozers. Emission rates for NO_x, CO, PM_{10}, and $PM_{2.5}$ from non-road construction equipment engines were developed using the EPA's NONROAD2008 emission model (NONROAD).[2]

On-Road Vehicles

On-road vehicles include construction worker vehicles and construction trucks arriving to and from the proposed development site, as well as operating on-site. Since emissions from non-road construction equipment and on-road vehicles may contribute to concentration increments concurrently, both non-road construction equipment and on-road vehicles were modeled together to address all local project-related construction emissions.

Vehicular engine emission factors were computed using the EPA Motor Vehicle Emission Simulator (MOVES2014a) emission model.[3]

[2] NONROAD Model (Nonroad Engines, Equipment, and Vehicles) User Guide, EPA420-R-05-013, December 2005.

[3] EPA, Motor Vehicle Emission Simulator (MOVES), User Guide for MOVES2014a, EPA-420-B-15-095, November 2015.

Dust Generating Activities

In addition to engine emissions, dust emissions are generated from operations (e.g., transferring excavated materials into dump trucks), vehicle travel on-site, and excavated soil stockpiles. Dust emissions from operations were calculated using EPA procedures provided in AP-42 Table 13.2.3-1.[4] Road dust emissions from vehicle travel on-site were calculated using equations from EPA's AP-42, Section 13.2.1 for paved roads, and dust emissions from stockpiles were calculated using equations from EPA's AP-42, Section 13.2.4.

As discussed below under "Emissions Reduction Measures," the construction under the proposed actions would be required to follow the DEP Construction Dust Rules regarding construction-related dust emissions.[5] Therefore, a 50 percent reduction in particulate emissions from dust was conservatively assumed in the calculations to account for required dust control measures that would be employed at the proposed development site, such as wet suppression.

EMISSIONS REDUCTION MEASURES

Measures would be taken to reduce pollutant emissions during construction under the proposed actions in accordance with all applicable laws, regulations, and building codes. These include the following dust suppression measures, idling restrictions, clean fuel, and diesel equipment reduction:

- *Dust Control.* All measures required by the DEP's *Construction Dust Rules*[6] regulating construction-related dust emissions would be implemented. The rules require implementation of a dust control plan including a robust watering program. For example, all trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the proposed development site. Water sprays would be used for all demolition, excavation, and transfer of soils to ensure that materials would be dampened as necessary to avoid the suspension of dust into the air. Loose materials would be watered, stabilized with a chemical suppressing agent, or covered.
- *Idling Restriction.* In accordance with Title 24, Chapter 1, Subchapter 7, Section 24-163 of the New York City Administrative Code, the local law restricting unnecessary idling on roadways, vehicle idle time would be restricted to 3 minutes except for vehicles using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks).
- *Clean Fuel.* In accordance with diesel fuel standards established by EPA (40 Codes of Federal Regulations 80, Subpart I), ULSD[7] fuel would be used exclusively for all diesel on-road and non-road engines.
- *Diesel Equipment Reduction.* In accordance with the *New York City Noise Control Code* as discussed below in "Noise," electrically powered equipment would be preferred over diesel-powered and gasoline-powered versions of that equipment to the extent practicable.

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[4] EPA Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Chapter 13: Miscellaneous Sources.

[5] http://www.nyc.gov/html/dep/html/air/construction_dust_debris.shtml

[6] http://www.nyc.gov/html/dep/html/air/construction_dust_debris.shtml

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

Equipment that would use the grid power in lieu of diesel engines includes, but may not be limited to, hoists, the tower cranes that would be employed during construction, and small equipment such as welders.

In addition, construction activities for the proposed project are anticipated to implement the following measures, which would be memorialized in an enforceable legal mechanism, to further reduce air pollutant emissions during construction:

- *Best Available Tailpipe Reduction Technologies*. Non-road diesel engines with a power rating of 50 hp or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the project) including but not limited to concrete mixing and pumping trucks would utilize BAT technology for reducing DPM emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts would specify that all diesel non-road engines rated at 50 hp or greater would utilize DPFs, either installed by the original equipment manufacturer or retrofitted. Retrofitted DPFs must be verified by EPA or the California Air Resources Board. Active DPFs or other technologies proven to achieve an equivalent reduction may also be used.
- *Utilization of Newer Equipment.* EPA's Tier 1 through 4 standards for non-road diesel engines regulate the emission of criteria pollutants from new engines, including PM, CO, NOx, and hydrocarbons. To the extent practicable, all diesel-powered non-road construction equipment with a power rating of 50 hp or greater would meet at least the Tier 3[8] emissions standard. All diesel-powered engines in the project rated less than 50 hp would meet at least the Tier 2 emissions standard.

The analysis took into account the emissions reduction measures listed above that would be implemented during construction under the proposed actions.

Dispersion Model

Potential impacts from the proposed actions' non-road construction equipment, on-road vehicles, and dust-generating activities were evaluated using the EPA/AMS AERMOD model, a refined dispersion model. AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain and includes updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and handling of terrain interactions.

Source Simulation

For short-term model scenarios (predicting concentration averages for periods of 24 hours or less), non-road construction sources, such as idling trucks, which would likely remain at a single

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

location on a given day, were simulated as point sources in the model. Other non-road construction sources, such as excavators or loaders, which would move around a site on any given day, as well as on-road vehicles, were simulated as area sources in the model. For the annual analysis, with the exception of the tower crane which was modeled as a point source, all other sources are anticipated to move around each construction site throughout the year and therefore these sources were simulated as area sources in the model.

Meteorological Data

The meteorological data set consists of 5 consecutive years of meteorological data: surface data collected at LaGuardia Airport (2013–2017), and concurrent upper air data collected at Brookhaven, New York. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and temperature inversion elevation over the 5-year period. These data sets were processed using the EPA AERMET program to develop data in a format which can be readily processed by the AERMOD model. The land uses around the site where meteorological surface data is available was classified using categories defined in digital United States Geological Survey (USGS) maps to determine surface parameters used by the AERMET program.

Receptor Locations

Receptors were placed at publicly accessible locations, at residential, community facilities, and other sensitive uses at both ground-level and elevated locations (e.g., residential windows and balconies), at adjacent sidewalk locations, and at publicly accessible open spaces including the Hansborough Recreation Center.

In addition, a ground-level receptor grid extending 1 kilometer from the proposed development site was placed to enable extrapolation of concentrations at locations more distant from construction activities.

Background Concentrations

To estimate the maximum expected total pollutant concentrations, the modeled impacts from the emission sources were added to an ambient background value that accounts for existing pollutant concentrations from other sources. The background levels were based on concentrations monitored at the nearest DEC ambient air monitoring stations, consistent with the background concentrations used for the operational stationary source air quality analysis (see Chapter 14, "Air Quality").

PROBABLE IMPACTS OF THE PROPOSED ACTIONS

Maximum predicted concentrations during the representative worst-case construction periods are presented in **Tables 19-2930 and 19-301**, respectively. To estimate the maximum total pollutant NO_2, CO, and PM_{10} concentrations, the modeled concentrations from the proposed actions were added to background values that account for existing pollutant concentrations from other nearby sources.

Table 19-2930
Maximum Pollutant Concentrations
Proposed Buildings NW, SW, and NE ~~and Midrise Central Podium~~

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration(1)	Total Concentration	Criterion
NO_2	Annual	µg/m³	35.6	39	74.6	100 (2)
CO	1-hour	µg/m³	13,049	2,634	15,683	40,000 (2)
	8-hour	µg/m³	3,203	1,718	4,921	10,000 (2)
PM_{10} ~~PM_{10}~~	24-hour	µg/m³	10.46	39	49.46	150 (2)
$PM_{2.5}$ ~~$PM_{2.5}$~~	24-hour	µg/m³	2.29	-	-	7.8 (3)
	Annual—Local	µg/m³	0.28	-	-	0.3 (4)
	Annual—Neighborhood	µg/m³	0.02	-	-	0.1 (4)

Notes:
N/A—Not Applicable
1 The background levels are based on the most representative concentrations monitored at DEC ambient air monitoring stations (see Table 14-3 in Chapter 14, "Air Quality").
2 NAAQS.
3 $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m³.
4 $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).

Table 19-301
Maximum Pollutant Concentrations
Projected Future Development Site

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration(1)	Total Concentration	Criterion
NO_2	Annual	µg/m³	1.2	39	40.2	100 (2)
CO	1-hour	µg/m³	182	2,634	2,816	40,000 (2)
	8-hour	µg/m³	25	1,718	1,743	10,000 (2)
PM_{10}	24-hour	µg/m³	9	39	48	150 (2)
$PM_{2.5}$	24-hour	µg/m³	2.23	-	-	7.8 (3)
	Annual—Local	µg/m³	0.11	-	-	0.3 (4)
	Annual—Neighborhood	µg/m³	<0.01	-	-	0.1 (4)

Notes: N/A—Not Applicable
1 The background levels are based on the most representative concentrations monitored at DEC ambient air monitoring stations (see Table 14-3 in Chapter 14, "Air Quality").
2 NAAQS.
3 $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m³.
4 $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).

As shown in **Table 19-2930**, the maximum predicted concentrations of NO_2, CO, PM_{10}, and $PM_{2.5}$ during construction of the proposed project are below the applicable NAAQS or *de minimis* thresholds. Emissions from the other less intensive construction phases would be less than the emissions during the peak construction phases; therefore, the resulting concentrations from those periods are expected to be less than the concentrations presented for the construction peak periods above. As discussed above, following publication of the DEIS, an air quality analysis was performed for the construction activities at the projected future development site, which have not been assumed to implement additional measures to further reduce air pollutant emissions above code requirements. The maximum predicted concentrations of NO_2, CO, PM_{10}, and $PM_{2.5}$ during construction of the projected future development site would also fall below the applicable NAAQS or *de minimis* thresholds (see **Table 19-30**).

CONSTRUCTION AIR QUALITY ANALYSIS CONCLUSION

Construction of the proposed project would not result in any predicted air pollutant concentrations above the NAAQS or the *de minimis* thresholds from non-road and on-road sources. ~~As discussed above, a detailed modeling analysis of the project future development site will be performed between the DEIS and FEIS to confirm that there would be no potential for significant adverse air quality impacts at receptor locations the would experience construction of both the proposed buildings and the projected development site.~~Furthermore, construction activities at the projected future development site, which has not been assumed to implement additional measures to further reduce air pollutant emissions above code requirements, would not result in any predicted exceedances of the NAAQS or the *de minimis* thresholds. Therefore, the proposed project would not result in a significant adverse air quality impacts during construction.

NOISE

INTRODUCTION

Potential impacts on community noise levels during construction could result from construction equipment operation and construction vehicles and delivery vehicles traveling to and from the proposed development 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 would vary widely, depending on the stage of construction and the location of the construction relative to receptor locations. The most significant construction noise sources are expected to be impact equipment such as pile drivers and excavators with hydraulic break rams, as well as the tower crane and movements of trucks.

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

SOUND LEVEL DESCRIPTORS

Chapter 16, "Noise," defines the sound level descriptors. The $L_{eq(1)}$ is the noise descriptor recommended for use in the *CEQR Technical Manual* for vehicular traffic and construction noise impact evaluation, and is used to provide an indication of highest expected sound levels. The 1-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines. The maximum 1-hour equivalent sound level ($L_{eq(1)}$) was selected as the noise descriptor used in the construction noise impact evaluation.

CONSTRUCTION NOISE IMPACT CRITERIA

Chapter 22, Section 100 of the *CEQR Technical Manual* breaks construction duration into "short-term" and "long-term" and states that construction noise is not likely to require analysis unless it "affects a sensitive receptor over a long period of time." Consequently, the construction noise analysis considers both the potential for construction of a project to create high noise levels (the "intensity"), whether construction noise would occur for an extended period of time (the "duration"), and the locations where construction has the potential to produce noise ("receptors") in evaluating potential construction noise effects.

The noise impact criteria described in Chapter 19, Section 410 of the *CEQR Technical Manual* serve as a screening-level threshold for potential construction noise impacts. If construction of a proposed project would not result in any exceedances of these criteria at a given receptor, then that receptor would not have the potential to experience a construction noise impact. However, as is the case with Lenox Terrace, if construction would result in exceedances of these noise impact criteria, then further consideration of the intensity and duration of construction noise is warranted at that receptor. The screening level noise impact criteria for mobile and on-site construction activities are as follows:

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

In addition to the CEQR construction criteria above, determination of significant adverse construction noise impact would be considered based on the intensity and duration (i.e. noise level increment of 15 dBA or more for prolonged period of 12 months or more or noise level increment of 20 dBA or more for prolonged period of 3 months or more).

NOISE ANALYSIS FUNDAMENTALS

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

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

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

- The distance between the piece of equipment and the receptor;
- Topography and ground effects; and
- Shielding.

Noise levels due to construction-related traffic are a function of the following:

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

CONSTRUCTION NOISE MODELING

Noise effects from construction activities were evaluated using the CadnaA model, a computerized model developed by DataKustik for noise prediction and assessment. The model can be used for the analysis of a wide variety of noise sources, including stationary sources (e.g., construction equipment, industrial equipment, power generation equipment) and transportation sources (e.g., roads, highways, railroad lines, busways, waterways, airports). The model takes into account the reference sound pressure levels of the noise sources at 50 feet, attenuation with distance, ground contours, reflections from barriers and structures, attenuation due to shielding, etc. The CadnaA model is based on the acoustic propagation standards promulgated in International Standard ISO 9613-2. The CadnaA model is a state-of-the-art tool for noise analysis and is approved for construction noise level prediction by the *CEQR Technical Manual*.

Geographic input data to be used with the CadnaA model includes CAD drawings defining planned site work areas, adjacent building footprints and heights, locations of streets, and locations of sensitive receptors. For each analysis period, the geographic location and operational characteristics of each piece of construction equipment were input to the model. Reflections and shielding by barriers and project elements erected on the construction site and shielding from adjacent buildings were also accounted for in the model. The model produces A-weighted Leq(1) noise levels at each receptor location for each analysis period, as well as the contribution from each noise source.

NOISE ANALYSIS METHODOLOGY

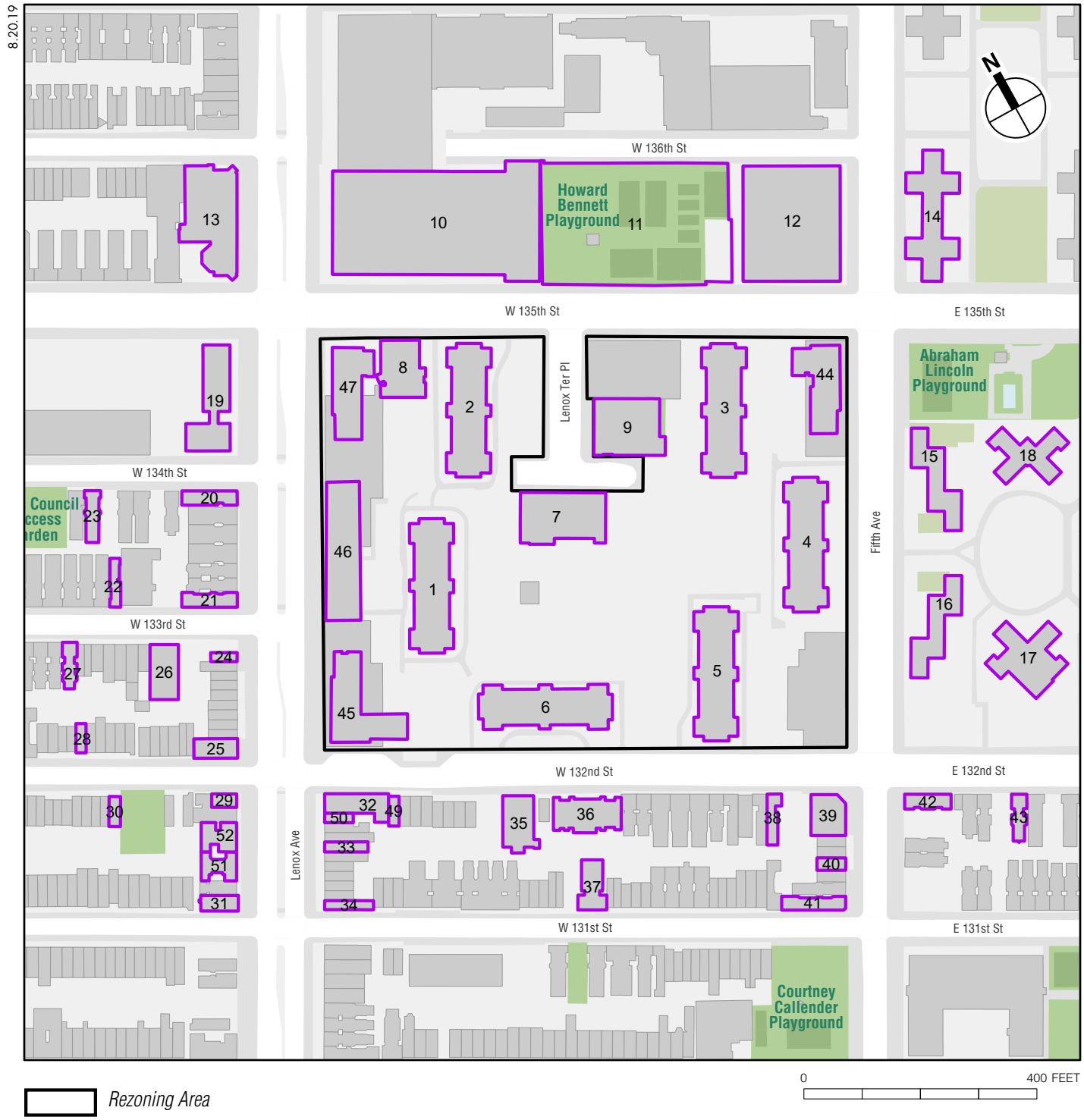
The construction noise methodology involved the following process:

1. Select analysis hours for cumulative on-site equipment and construction truck noise analysis. The 7 AM hour was selected as the analysis hour because this would be the hour when the highest number of truck trips to and from the construction site would overlap with on-site equipment operation.
2. Select receptor locations for cumulative on-site equipment and construction truck noise analysis. Selected receptors were representative of open space, residential, or other noise-sensitive uses potentially affected by the construction associated with the proposed actions during operation of on-site construction equipment and/or along routes taken to and from the development site by construction trucks.

3. Establish existing noise levels at selected receptors. Noise levels were measured at several at-grade locations, and calculated for the other noise receptor locations included in the analysis. **Figure 19-28** shows the construction noise measurement locations. Existing noise levels at noise receptors other than the selected noise measurement locations were established using the CadnaA model along with existing condition traffic information.
4. Establish worst-case noise analysis periods under the anticipated construction schedule. The worst-case noise analysis periods are the periods during the construction schedule that are expected to have the greatest potential to result in construction noise effect. The selected time periods are described below in the "Analysis Periods" section.
5. Calculate construction noise levels for each analysis period at each receptor location. Given the on-site equipment and construction truck trips expected during each of the analysis periods, and the location of the equipment, which was based on construction logistics diagrams and construction truck and worker vehicle trip assignments, a CadnaA model file for each analysis period was created. All model files included each of the construction noise sources during the analysis period and hour, calculation points representing multiple locations on various façades and floors of the associated receptors previously identified, as well as the noise control measures that would be used on the site, as described below.
6. Determine total noise levels and noise level increments during construction. For each analysis period and each noise receptor, the calculated level of construction noise was logarithmically added to the existing noise level to determine the cumulative total noise level. The existing noise level at each receptor was then arithmetically subtracted from the cumulative noise level in each analysis period to determine the noise level increments.
7. Establish construction noise duration. For each receptor, the noise level increments in each analysis period were examined to determine the duration during construction that the receptor would experience substantially elevated noise levels.
8. Compare noise level increments with operational impact criteria as set forth in Chapter 19, Sections 410 and 421 of the *CEQR Technical Manual*. At each receptor where exceedances of this screening threshold were predicted, based on the intensity and duration of predicted noise level increases due to construction, a determination of whether the proposed actions would have the potential to result in significant adverse construction noise effects was made.

NOISE ANALYSIS PERIODS

The detailed construction noise analysis estimated construction noise levels based on projected activity and equipment usage as well as the level of construction traffic for various phases of construction on the proposed development site. Seven time periods during construction were selected for detailed analysis. These selected to capture each major construction stage (e.g., excavation/foundation work, superstructure work, interior fit-out work) at the buildings to be constructed under the proposed actions, including major overlaps of construction stages between individual sites. These are the time periods with the potential to result in the maximum incremental construction noise at nearby receptors (i.e., time periods when multiple buildings would be under construction using noisy equipment) as well as resulting in the maximum levels of construction noise at the proposed buildings that would be completed and occupied during subsequent construction associated with the proposed actions. Each analysis time period conservatively represents 3 to 12 months of time based on the duration of activities that would be underway during the time period.



Construction Noise Receptor Locations

LENOX TERRACE

Figure 19-28

NOISE REDUCTION MEASURES

Construction under the proposed actions would be required to follow the requirements of the *New York City Noise Control Code* (also known as Chapter 24 of the *Administrative Code of the City of New York*, or Local Law 113) for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the *New York City Noise Control Code*. These measures could include a variety of source and path controls.

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

- Equipment that meets the sound level standards specified in Subchapter 5 of the *New York City Noise Control Code* would be utilized from the start of construction. **Table 19-31** shows the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction of the proposed project, including those equipment that would be restricted to noise emission levels lower than mandated by Code in order to mitigate project construction noise.
- ~~Where feasible and practicable, c~~Construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than 3 minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the New York City Administrative Code.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

Table 19-31
Typical Construction Equipment Noise Emission Levels (dBA)

Equipment List	NYCDEP L_{max} Noise Level Limit at 50 feet[1]	Project-Specific L_{max} Noise Level Limit at 50 feet
Backhoe / Loader	80	
Chipping Gun / Rivet Buster	85	
Compactor	80	
Compressor	80	58
Concrete Pump	82	
Concrete Truck	85	
Cranes (Mobile)	85	75
Cranes (Tower)	85	75
Delivery Truck	84	
Dump Truck	84	
Excavator	85	
Generator	82	72
Hoist	N/A	65
Hydraulic Break Ram	90	
Impact Wrench	85	
Impact Pile Driver	95	
Jack Hammer	85	
Pump	77	
Rock Drill	85	
Welding Machine	73	

Source: [1] *Rules for Citywide Construction Noise Mitigation*, Chapter 28, DEP, 2007.

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

- ~~Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations.~~
- Noise barriers constructed from plywood or other materials would be utilized to provide shielding (e.g., the construction sites would have a minimum 12-foot tall barrier including a 3-foot cantilever towards the construction work area;
- ~~Where logistics allow, truck deliveries would take place behind the noise barriers once building foundations are completed;~~
- A structure enclosed on three sides and with a roof would be constructed to house the concrete pump and two concrete mixer trucks as they access the pump; and
- A structure enclosed on three sides and with a roof would be constructed to house concrete mixer trucks as they are washed out before leaving the site~~;~~. ~~and~~
- ~~Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents) for certain dominant noise equipment to the extent feasible and practical based on the results of the construction noise calculations. The details to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's *Rules for Citywide Construction Noise Mitigation*;~~[9]
- ~~As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practicable. Where electrical equipment cannot be used, diesel or gas-powered generators and pumps would be located within buildings to the extent feasible and practicable; and~~

NOISE RECEPTOR SITES

Within the study area, 52 receptor locations close to the proposed development site were selected for the construction noise analysis to represent buildings or noise-sensitive open space locations that have the potential to experience elevated noise as a result of construction. These receptors were either located adjacent to planned areas of activity or streets where construction trucks would pass. At some buildings, multiple façades were analyzed as receptors. At high-rise buildings, noise receptors were selected at multiple elevations. At open space locations, receptors were selected at street level. The receptor sites selected for detailed analysis are representative locations where maximum project effects due to construction noise would be expected.

The measured at-grade noise levels at 11 locations in and adjacent to the rezoning area as presented in Chapter 16, "Noise," were also used to determine existing noise levels in the study area.

Figure 19-28 shows the locations of the 52 noise receptor sites, and **Table 19-32** lists the 11 noise measurement sites (i.e., sites M1 to M11) as well as the 52 noise receptor sites (i.e., sites 1 to 52) and the associated land use at these sites.

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

Table 19-32
Noise Receptors by Location and Land Use

Receptor	Location	Land Use
M1	West 135th Street near intersection of West 135th Street and Lenox Avenue	Residential
M2	West 135th Street between Lenox and Fifth Avenues	Residential
M3	West 135th Street near intersection of West 135th Street and Fifth Avenue	Residential
M4	Fifth Avenue near intersection of Fifth Avenue and West 135th Street	Residential
M5	Parking Lot behind 2186 Fifth Avenue	Residential
M6	Fifth Avenue near intersection of Fifth Avenue and West 132nd Street	Residential
M7	West 132nd Street near intersection of West 132nd Street and Fifth Avenue	Residential
M8	West 132nd Street near intersection of West 132nd Street and Lenox Avenue	Residential
M9	Lenox Avenue near intersection of Lenox Avenue and West 133nd Street	Residential
M10	Parking Lot behind 470 Lenox Avenue	Residential
M11	Lenox Avenue near intersection of Lenox Avenue and West 134th Street	Residential
1	470 Lenox Avenue	Residential (Lenox Terrace)
2	40 W 135th Street	Residential (Lenox Terrace)
3	10 W 135th Street	Residential (Lenox Terrace)
4	2186 Fifth Avenue	Residential (Lenox Terrace)
5	25 W 132nd Street	Residential (Lenox Terrace)
6	45 W 132nd Street	Residential (Lenox Terrace)
7	34 W 134th Street	Community Facility (cultural) / Lt. Joseph P. Kennedy Community Center
8	58 W 135th Street	Community Facility (religious) / Metropolitan AME Church
9	35 W 135th Street	Community Facility (recreation center) / Hansborough Recreation Center
10	506 Lenox Avenue	Community Facility (hospital) / Harlem Hospital Center
11	32 W 135th Street	Open Space / Howard Bennett Playground and P.S. 197 Play Yard
12	2230 Fifth Avenue	Community Facility (school) / P.S. 197
13	503 Lenox Avenue	Community Facility (cultural) / Schomburg Center for Research in Black Culture
14	2235 Fifth Avenue	Residential
15	2199 Fifth Avenue	Residential
16	2177 Fifth Avenue	Residential
17	2120 Madison Avenue	Residential
18	2140 Madison Avenue	Residential
19	485 Lenox Avenue	Residential
20	477 Lenox Avenue	Residential
21	465 Lenox Avenue	Residential
22	119 W 133rd Street	Residential
23	112 W 134th Street	Residential
24	461 Lenox Avenue	Residential
25	441 Lenox Avenue	Residential/Community Facility (shelter)
26	102 W 133rd Street	Residential
27	134 W 133rd Street	Residential
28	125 W 132nd Street	Residential
29	437 Lenox Avenue	Residential
30	116 W 132nd Street	Residential
31	421 Lenox Avenue	Residential
32	440 Lenox Avenue	Community Facility (religious)
33	436 Lenox Ave	Residential
34	420 Lenox Avenue	Residential
35	60 W 132nd Street	Community Facility (religious) / Bethel AME Church
36	50 W 132nd Street	Residential
37	35 W 131st Street	Residential
38	6 W 132nd Street	Residential
39	2152 Fifth Avenue	Community Facility (religious)

Table 19-32 (cont'd)
Noise Receptors by Location and Land Use

Receptor	Location	Land Use
40	2146 Fifth Avenue	Residential
41	2140 Fifth Avenue	Residential
42	2159 Fifth Avenue	Residential
43	10E E 132nd Street	Residential
44	NE Tower	Proposed Project, Residential
45	SW Tower	Proposed Project, Residential
~~46~~	~~Central Podium~~	~~Proposed Project, Residential~~
47	NW Tower	Proposed Project, Residential
48	58 W 135th Street	Projected Future Development, Residential
49	78 W 132nd Street	Residential
50	438 Lenox Avenue	Residential
51	433 Lenox Avenue	Residential
52	429 Lenox Avenue	Residential

NOISE MEASUREMENT RESULTS

Equipment Used During Noise Survey

Measurements were performed using Brüel & Kjær Sound Level Meters (SLM) Type 2270, 2260, and Type 2250, Brüel & Kjær ½-inch microphones Type 4189, and a Brüel & Kjær Sound Level Calibrator Type 4231. The Brüel & Kjær SLMs are Type 1 instruments according to ANSI Standard S1.4-1983 (R2006). The SLMs have laboratory calibration dates within one year of the date of the measurements, as is standard practice. The microphones were mounted at a height of approximately 5 to 6 feet above the ground, away from any large reflecting surfaces that could affect the sound level measurements. The SLMs were calibrated before and after readings with a Brüel & Kjær Type 4231 Sound Level Calibrator using the appropriate adaptor. Measurements at the location were made on the A-scale (dBA). The data were digitally recorded by the SLM and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

Noise Survey Results

The baseline noise levels at each of the noise survey locations are shown in **Table 19-33**. Full noise survey results are shown in **Appendix C**. At all noise measurement locations, the dominant existing noise source was vehicular traffic on the adjacent roadways.

In terms of CEQR noise exposure guidelines (shown in Table 16-2 in Chapter 16, "Noise"), during the morning analysis hour, existing noise levels at sites M5 and M10 are in the "acceptable" category, existing noise levels at sites M4, M6, M7, and M8 are in the "acceptable" category, and existing noise levels at sites M1, M2, M3, M9 and M11 are in the "marginally unacceptable" category.

CONSTRUCTION NOISE ANALYSIS RESULTS

Using the methodology described and considering the noise abatement measures specified above, cumulative noise analyses were performed to determine maximum 1-hour equivalent ($L_{eq(1)}$) noise levels that would be expected at each of the 43 noise receptor locations during each of the eight selected construction periods. This resulted in a predicted range of peak hourly construction noise levels throughout the construction period. The results of the detailed construction noise analysis are summarized in **Table 19-34**.

Table 19-33
Noise Survey Results in dBA

Site	Measurement Location	L_{EQ}	L_{10}
M1	West 135th Street near intersection of West 135th Street and Lenox Avenue	69.5	72.1
M2	West 135th Street between Lenox Avenue and Fifth Avenue	67.9	70.6
M3	West 135th Street near intersection of West 135th Street and Fifth Avenue	70.5	73.8
M4	Fifth Avenue near intersection of Fifth Avenue and West 135th Street	67.3	69.9
M5	Parking Lot behind 2186 Fifth Avenue	58.2	60.8
M6	Fifth Avenue near intersection of Fifth Avenue and West 132nd Street	65.7	69.3
M7	West 132nd Street near intersection of West 132nd Street and Fifth Avenue	67.7	69.1
M8	West 132nd Street near intersection of West 132nd Street and Lenox Avenue	63.8	66.5
M9	Lenox Avenue near intersection of Lenox Avenue and West 133nd Street	67.3	70.4
M10	Parking Lot behind 470 Lenox Avenue	58.2	60.7
M11	Lenox Avenue near intersection of Lenox Avenue and West 134th Street	67.7	70.2

Table 19-34
Construction Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
1	470 Lenox Avenue	59.6	64.8	59.7	81.7	0.0	21.5
2	40 W 135th Street	59.6	68.1	59.8	82.8	0.1	20.7
3	10 W 135th Street	59.6	67.2	59.8	82.9	0.1	22.2
4	2186 Fifth Avenue	59.6	64.0	59.7	82.3	0.2	22.8
5	25 W 132nd Street	59.6	60.6	59.7	82.1	0.2	22.6
6	45 W 132nd Street	59.6	60.0	59.7	79.9	0.2	20.4
7	34 W 134th Street	59.6	61.5	60.0	68.4	0.2	8.8
8	58 W 135th Street	59.6	68.7	59.6	86.2	0.0	22.7
9	35 W 135th Street	59.6	59.6	60.1	75.6	0.5	16.1
10	506 Lenox Avenue	59.6	67.7	59.6	78.7	0.0	16.2
11	32 W 135th Street	66.9	67.4	67.3	71.3	0.2	3.9
12	2230 Fifth Avenue	59.6	67.5	59.8	77.5	0.1	10.0
13	503 Lenox Avenue	59.6	65.8	59.6	74.5	0.0	9.6
14	2235 Fifth Avenue	59.6	68.5	59.6	77.7	0.0	13.0
15	2199 Fifth Avenue	59.6	65.9	59.6	80.1	0.1	16.7
16	2177 Fifth Avenue	59.6	65.1	59.6	77.3	0.1	16.1
17	2120 Madison Avenue	59.6	59.6	59.6	73.9	0.1	14.3
18	2140 Madison Avenue	59.6	60.8	59.6	75.7	0.1	15.2
19	485 Lenox Avenue	59.6	65.9	59.7	77.9	0.1	15.0
20	477 Lenox Avenue	62.8	65.9	63.1	77.5	0.2	12.6
21	465 Lenox Avenue	62.9	66.1	63.0	77.4	0.1	12.0
22	119 W 133rd Street	59.6	61.4	59.6	70.0	0.0	10.5
23	112 W 134th Street	59.6	60.9	59.6	64.0	0.0	3.7
24	461 Lenox Avenue	62.5	66.1	62.7	77.0	0.1	11.0
25	441 Lenox Avenue	63.4	66.2	64.0	77.6	0.2	11.8
26	102 W 133rd Street	59.6	61.3	59.6	67.7	0.0	6.4
27	134 W 133rd Street	59.6	61.1	59.6	65.4	0.0	5.9
28	125 W 132nd Street	59.6	60.2	59.6	62.9	0.1	2.7
29	437 Lenox Avenue	63.9	65.9	64.4	76.7	0.1	11.7
30	116 W 132nd Street	59.6	60.7	59.6	67.7	0.0	8.2
31	421 Lenox Avenue	61.9	65.2	62.0	72.5	0.0	8.1
32	440 Lenox Avenue	59.6	65.6	59.6	77.7	0.0	13.9
33	436 Lenox Ave	59.6	65.4	59.6	74.5	0.1	15.0
34	420 Lenox Avenue	64.2	65.5	64.3	68.9	0.0	4.2
35	60 W 132nd Street	59.6	61.9	59.6	75.7	0.1	16.1

Table 19-34 (cont'd)
Construction Noise Analysis Results in dBA

Receptor	Location	Existing L_{EQ}		Total L_{EQ}		Change in L_{EQ}	
		Min	Max	Min	Max	Min	Max
36	50 W 132nd Street	59.6	61.5	59.6	73.4	0.1	13.8
37	35 W 131st Street	59.6	64.8	59.6	66.7	0.0	7.2
38	6 W 132nd Street	59.6	65.8	59.6	81.4	0.1	16.1
39	2152 Fifth Avenue	59.6	71.0	59.8	75.3	0.0	12.5
40	2146 Fifth Avenue	59.6	70.8	59.7	70.9	0.0	10.4
41	2140 Fifth Avenue	59.6	70.2	59.7	70.8	0.0	11.3
42	2159 Fifth Avenue	61.1	71.4	61.1	76.3	0.0	10.0
43	10E E 132nd Street	59.6	67.7	59.6	73.4	0.0	7.8
48	58 W 135th Street	59.6	59.6	59.6	63.5	0.0	3.9
49	78 W 132nd Street	59.6	62.5	59.6	81.4	0.1	18.9
50	438 Lenox Avenue	59.6	65.6	59.6	78.9	0.0	19.3
51	433 Lenox Avenue	64.2	65.6	64.3	75.6	0.0	10.7
52	429 Lenox Avenue	64.0	65.4	64.1	74.7	0.0	9.9

The noise levels shown in **Table 19-34** are maximum 1-hour equivalent noise levels, which is the metric recommended by the *CEQR Technical Manual* for construction noise analysis. However, noise levels resulting from construction typically fluctuate throughout the day and from day to day during each construction phase, and would not be sustained at these maximum values.

Additionally, noise levels expected to result from the construction of the proposed project would be comparable to those from typical construction sites in New York City involving new building or buildings with concrete slab floors and foundation. Similarly, potential disruptions to adjacent residences and other receptors from elevated noise levels generated by construction would be expected to be comparable to those that would occur immediately adjacent to a typical New York City construction site during the portions of the construction period when the loudest activities would occur.

470 Lenox Avenue / Lenox Terrace

At the residences of 470 Lenox Avenue on the Lenox Terrace site, represented by Receptor 1, the existing noise levels range from the low to mid 60s dBA depending on line of sight to surrounding roadways and height above-grade (i.e., floor of the building).

At the north façade of this building (i.e., Receptor 1A), construction is predicted to produce noise levels in the mid-50s to high 70s dBA, resulting in noise level increases of up to approximately 19 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NW~~ and central podium~~), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 10 months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 24 non-consecutive months. During this time, total noise levels at these receptors would be in the high 60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range. Based on the predicted intensity and duration of the noise, construction associated with the proposed actions at the north façade of 470 Lenox Avenue would not rise to the level of a significant adverse noise impact.

At the south façade of this building (i.e., Receptor 1B), construction is predicted to produce noise levels in the high 40s to low 80s dBA, resulting in noise level increases of up to approximately 22 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 9 months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately two years. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

At the west façade of this building (i.e., Receptors 1D, 1L, and 1H), construction is predicted to produce noise levels in the low 40s to low 80s dBA, resulting in noise level increases of up to approximately 21 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Buildings NW and SW ~~and central podium~~), which would have a duration of approximately six non-consecutive months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 18 non-consecutive months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately three years. During this time, total noise levels at these receptors would be in the high 60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 470 Lenox Avenue have insulated glass windows and an alternative means of ventilation. Most units have either through-wall air conditioning units or Package Terminal Air Conditioner (PTAC) units; the building façade at these units would be expected to provide approximately 30 dBA or greater window/wall attenuation. Some units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels at residences in this building during worst-case construction would be in the mid-40s to high-50s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 10 dBA higher at the units with through-wall ACs or PTACs and up to approximately 15 dBA higher at the residence with through-window ACs. Additionally, this building has outdoor balconies, which would not experience the attenuation provided by the windows alternate means of ventilation for the interior of the buildings. Consequently, balconies on various floors would experience significant noise impacts due to construction for limited portions of the construction period. However, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

Based on the prediction of construction noise levels up to the mid-80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 19 to 22 dBA and CEQR screening threshold exceedances occurring over the course of approximately two to three years, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at residences along the south and west façades of 470 Lenox Avenue. These receptors are discussed further in Chapter 21, "Mitigation."

At the east façade of this building (i.e., Receptors 1C, 1K, and 1G), construction is predicted to produce noise levels in the low 50s to low 70s dBA, resulting in noise level increases of up to approximately 11 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building N), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. The maximum total duration of exceedance of the CEQR construction noise screening criteria would be approximately 18 non-consecutive months. During this time, total noise levels at these receptors would be in the low 60s to mid-70s dBA, which is comparable to existing noise levels along West 135th Street. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the east façade of this residence, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 18 non-consecutive months with maximum increments up to approximately 11 dBA for approximately three months, increments up to 8 dBA range for an additional three months, and increments less than 7 dBA for the remainder of that time. The maximum predicted total construction noise levels would be up to the low 70s dBA. Consequently, construction noise associated with the proposed actions at the east façade of 470 Lenox Avenue would not rise to the level of a significant adverse impact.

40 West 135th Street / Lenox Terrace

At the residences of 40 West 135th Street on the Lenox Terrace site, represented by Receptor 2, the existing noise levels range from the low to high 60s dBA depending on line of sight to surrounding roadways and height above-grade (i.e., floor of the building).

At the north façade of this building (i.e., Receptor 2A), construction is predicted to produce noise levels in the high 50s to mid-70s dBA, resulting in noise level increases of up to approximately 12 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building N), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 33 non-consecutive months. During this time, total noise levels at these receptors would be in the low 70s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the west façade of this building (i.e., Receptors 2D, 2L, and 2H), construction is predicted to produce noise levels in the high 40s to low 80s dBA, resulting in noise level increases of up to approximately 21 dBA during the most noise-intensive stages of construction (i.e. excavation and foundation and superstructure construction on the projected future development site and pile installation at the proposed Building N), which would have a duration of approximately 7 months. The predicted noise level increases at these residences during the most intensive work would be

noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 24 non-consecutive months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 30 non-consecutive months. During this time, total noise levels at these receptors would be in the low 60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 40 West 135th Street have insulated glass windows and an alternative means of ventilation. Most units have either through-wall air conditioning units or PTAC units; the building façade at these units would be expected to provide approximately 30 dBA or greater window/wall attenuation. Some units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels at residences in this building during worst-case construction would be in the low 30s to low 60s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 10 dBA higher at the units with through-wall ACs or PTACs and up to approximately 15 dBA higher at the residence with through-window ACs. Additionally, this building has outdoor balconies, which would not experience the attenuation provided by the windows alternate means of ventilation for the interior of the buildings. Consequently, balconies on various floors would experience significant noise impacts due to construction for limited portions of the construction period. However, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

Based on the prediction of construction noise levels up to the mid-80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 12 to 21 dBA and CEQR screening threshold exceedances occurring over the course of approximately 30 to 33 months, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at residences along the north and west facades of 40 West 135th Street. These receptors are discussed further in Chapter 21, "Mitigation."

At the south façade of this building (i.e., Receptor 2B), construction is predicted to produce noise levels in the high 40s to mid-70s dBA, resulting in noise level increases of up to approximately 16 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NW~~ and central podium~~), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 18 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the south façade of this building, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 18 months with maximum increments up to approximately 16 dBA for approximately 3 months and increments in the 1 to 8 dBA range for the remainder of that time. As a result, total noise levels during the approximately 18 months of exceedance of the CEQR screening threshold would be considered "marginally acceptable" or "acceptable" for all but six non-consecutive months. Due to the limited duration of time over which construction would exceed these thresholds, construction noise associated with the proposed actions at the south façade of 40 West 135th Street would not rise to the level of a significant adverse impact.

At the east façade of this building (i.e., Receptors 2C, 2K, and 2G), construction is predicted to produce noise levels in the low 50s to high 70s dBA, resulting in noise level increases of up to approximately 16 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Building N), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 6 months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 18 months. During this time, total noise levels at these receptors would be in the mid-60s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the east façade of this building, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 18 months with maximum increments up to approximately 16 dBA for approximately 3 months, increments up to 11 dBA for an additional 3 months, and increments in the 1 to 6 dBA range for the remainder of that time. As a result, total noise levels during the approximately 18 months of exceedance of the CEQR screening threshold would be considered "marginally acceptable" or "acceptable" for all but six months. Due to the limited duration of time over which construction would exceed these thresholds, construction noise associated with the proposed actions at the east façade of 40 West 135th Street would not rise to the level of a significant adverse impact.

10 West 135th Street / Lenox Terrace

At the residences of 10 West 135th Street on the Lenox Terrace site, represented by Receptor 3, the existing noise levels range from the low to high 60s dBA depending on line of sight to surrounding roadways and height above-grade (i.e., floor of the building).

At the north façade of this building (i.e., Receptor 3A), construction is predicted to produce noise levels in the low 50s to high 70s dBA, resulting in noise level increases of up to approximately 11 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE and pile installation at the proposed Building N), which would have a duration of approximately six non-consecutive months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 6 non-consecutive months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 30 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

At the east façade of this building (i.e., Receptors 3C, 3K, and 3G), construction is predicted to produce noise levels in the high 40s to mid-80s dBA, resulting in noise level increases of up to approximately 22 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately six months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 15 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

At the west façade of this building (i.e., Receptors 3D, 3L, and 3H), construction is predicted to produce noise levels in the high 40s to low 80s dBA, resulting in noise level increases of up to approximately 21 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building N), which would have a duration of up to approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 18 months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 30 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 10 West 135th Street have insulated glass windows and an alternative means of ventilation. Most units have either through-wall air conditioning units or PTAC units; the building façade at these units would be expected to provide approximately 30 dBA or greater window/wall attenuation. Some units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels at residences in this building during worst-case construction would be in the low 50s to low 60s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 11 dBA higher at the units with through-wall ACs or PTACs and up to approximately 16 dBA higher at the residences with through-window ACs. Additionally, this building has outdoor balconies, which would not experience the attenuation provided by the windows alternate means of ventilation for the interior of the buildings. Consequently, balconies on various floors would experience significant noise impacts due to construction for limited portions of the construction period. However, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

Based on the prediction of construction noise levels up to the mid-80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction

noise level increments up to approximately 11 to 22 dBA and CEQR screening threshold exceedances occurring over the course of approximately one and a half to three years, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at residences along the north, east, and west façades of 10 West 135th Street. These receptors are discussed further in Chapter 21, "Mitigation."

At the south façade of this building (i.e., Receptor 3B), construction is predicted to produce noise levels in the low 50s to low 70s dBA, resulting in noise level increases of up to approximately 11 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 24 non-consecutive months. During this time, total noise levels at these receptors would be in the low 60s to mid-70s dBA, which is comparable to existing noise levels along West 135th Street. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the south façade of this residence, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 24 non-consecutive months with maximum increments up to approximately 11 dBA for approximately 3 months, increments up to 8 dBA for an additional three months, and increments up to 7 dBA range for the remainder of that time. As a result, total noise levels during the approximately two years of exceedance of the CEQR screening threshold would be considered "marginally acceptable" or "acceptable" for all but six non-consecutive months. Due to the limited duration of time over which construction would exceed these thresholds, construction noise associated with the proposed actions at the south façade of 10 West 135th Street would not rise to the level of a significant adverse impact.

2186 Fifth Avenue / Lenox Terrace

At the residences of 2186 Fifth Avenue on the Lenox Terrace site, represented by Receptor 4, the existing noise levels range from the low to mid 60s dBA depending on line of sight to surrounding roadways and height above-grade (i.e., floor of the building).

At the north façade of this building (i.e., Receptor 4A), construction is predicted to produce noise levels in the mid-40s to low 80s dBA, resulting in noise level increases of up to approximately 23 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately six months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 36 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

At the south façade of this building (i.e., Receptor 4B), construction is predicted to produce noise levels in the mid-40s to low 80s dBA, resulting in noise level increases of up to approximately 23 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately three months. The predicted noise

level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 27 months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 27 months. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

At the east façade of this building (i.e., Receptors 4C, 4K, and 4G), construction is predicted to produce noise levels in the mid-40s to low 80s dBA, resulting in noise level increases of up to approximately 17 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Buildings NE and SE), which would have a duration of approximately six non-consecutive months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately six non-consecutive months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 30 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

At the west façade of this building (i.e., Receptors 4D, 4L, and 4H), construction is predicted to produce noise levels in the mid-40s to high 70s dBA, resulting in noise level increases of up to approximately 19 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Buildings NE and SE), which would have a duration of approximately 6 non-consecutive months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 6 non-consecutive months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 36 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 2186 Fifth Avenue have insulated glass windows and an alternative means of ventilation. Most units have either through-wall air conditioning units or PTAC units; the building façade at these units would be expected to provide approximately 30 dBA or greater window/wall attenuation. Some units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels at residences in this building during worst-case construction would be in the mid-50s to low 60s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 11 dBA higher at the units with through-wall ACs or

PTACs and up to approximately 16 dBA higher at the residence with through-window ACs. Additionally, this building has outdoor balconies, which would not experience the attenuation provided by the windows alternate means of ventilation for the interior of the buildings. Consequently, balconies on various floors would experience significant noise impacts due to construction for limited portions of the construction period. However, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

Based on the prediction of construction noise levels up to the low 80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 17 to 23 dBA and CEQR screening threshold exceedances occurring over the course of approximately two to three years, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at residences along all façades of 2186 Fifth Avenue. These receptors are discussed further in Chapter 21, "Mitigation."

25 West 132nd Street / Lenox Terrace

At the residences of 25 West 132nd Street on the Lenox Terrace site, represented by Receptor 5, the existing noise levels are in the low 60s dBA.

At the south façade of this building (i.e., Receptor 5B), construction is predicted to produce noise levels in the mid-50s to mid-70s dBA, resulting in noise level increases of up to approximately 17 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 24 months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 27 non-consecutive months. During this time, total noise levels at these receptors would be in the high 60s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the east façade of this building (i.e., Receptors 5C, 5K, and 5G), construction is predicted to produce noise levels in the mid-40s to low 80s dBA, resulting in noise level increases of up to approximately 22 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 27 non-consecutive months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 27 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 25 West 132nd Street have insulated glass windows and an alternative means of ventilation. Most units have either through-wall air conditioning units or PTAC units; the building façade at these units would be expected to provide approximately 30 dBA or greater window/wall attenuation. Some units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels at residences in this building during worst-case construction would be in the mid-50s to low 60s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 10 dBA higher at the units with through-wall ACs or PTACs and up to approximately 15 dBA higher at the residence with through-window ACs. Additionally, this building has outdoor balconies, which would not experience the attenuation provided by the windows alternate means of ventilation for the interior of the buildings. Consequently, balconies on various floors would experience significant noise impacts due to construction for limited portions of the construction period. However, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

Based on the prediction of construction noise levels up to the low 80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 17 to 22 dBA and a duration of CEQR screening threshold exceedances occurring over the course of approximately 27 months, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at residences along south and east façades of 25 West 132nd Street. These receptors are discussed further in Chapter 21, "Mitigation."

At the west façade of this building (i.e., Receptors 5D, 5L, and 5H), construction is predicted to produce noise levels in the high 40s to mid-60s dBA, resulting in noise level increases of up to approximately 9 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately six non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to low 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the west façade, construction noise levels would exceed the CEQR screening threshold over the course of approximately six non-consecutive months with maximum increments up to approximately 9 dBA. The maximum predicted total construction noise levels would be in the low 70s dBA. Consequently, construction noise associated with the proposed actions at the west façades of 25 West 132nd Street would not rise to the level of a significant adverse impact.

At the north façade of this building (i.e., Receptor 5A), construction is predicted to produce noise levels in the high 40s to low 70s dBA, resulting in noise level increases of up to approximately 12 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 18 non-consecutive months.

During this time, total noise levels at these receptors would be in the mid-60s to mid-70s dBA, which is comparable to existing noise levels along West 135th Street. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the north façade, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 18 non-consecutive months with maximum increments up to approximately 12 dBA for approximately 3 months and increments in the 1 to 8 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be up to the mid-70s dBA. Consequently, construction noise associated with the proposed actions at the north façade of 25 West 132nd Street would not rise to the level of a significant adverse impact.

45 West 132nd Street / Lenox Terrace

At the residences of 45 West 132nd Street on the Lenox Terrace site, represented by Receptor 6, the existing noise levels are in the low 60s dBA.

At the north façade of this building (i.e., Receptors 6A, 6E, and 6I), construction is predicted to produce noise levels in the high 40s to mid-70s dBA, resulting in noise level increases of up to approximately 16 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 24 non-consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to high 70s dBA, which is comparable to existing noise levels along West 135th Street. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range. Based on the predicted intensity and duration of construction noise, construction associated with the proposed actions at the north façade of 45 West 132nd Street would not rise to the level of a significant adverse noise impact.

At the west façade of this building (i.e., Receptor 6D), construction is predicted to produce noise levels in the high 40s to high 70s dBA, resulting in noise level increases of up to approximately 20 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately two and a half years. During this time, total noise levels at these receptors would be in the mid-60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 45 West 132nd Street have insulated glass windows and an alternative means of ventilation. Most units have either through-wall air conditioning units or PTAC units; the building façade at these units would be expected to provide approximately 30 dBA or greater window/wall attenuation. Some units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels at residences in this building during worst-case construction would be in the low 40s to high 50s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 8 dBA higher at the units with through-wall ACs or PTACs and up to approximately 13 dBA higher at the residence with through-window ACs. Additionally, this building has outdoor balconies, which would not experience the attenuation provided by the windows alternate means of ventilation for the interior of the buildings. Consequently, balconies on various floors would experience significant noise impacts due to construction for limited portions of the construction period. However, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during late afternoon, nighttime, and on weekends.

Based on the prediction of construction noise levels up to the high 70s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 16 to 20 dBA and a duration of CEQR screening threshold exceedances occurring over the course of approximately 18 to 30 months, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at residences along the west façade of 45 West 132nd Street. This receptor is discussed further in Chapter 21, "Mitigation."

At the east façade of this building (i.e., Receptor 6C), construction is predicted to produce noise levels in the high 40s to mid-60s dBA, resulting in noise level increases of up to approximately 8 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately three months. During this time, total noise levels at these receptors would be in the low 60s to low 70s dBA, which is comparable to existing noise levels along West 135th Street. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the east façade, construction noise level increments would exceed the CEQR screening threshold over the course of approximately three months with maximum increments up to approximately 8 dBA. The maximum predicted total construction noise levels would be up to the low 70s dBA. Consequently, construction noise associated with the proposed actions at the east façade of 45 West 132nd Street would not rise to the level of a significant adverse impact.

At the south façade of this building (i.e., Receptors 6B, 6F, and 6J), construction is predicted to produce noise levels in the mid-50s to mid-70s dBA, resulting in noise level increases of up to approximately 17 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 18 non-

consecutive months. During this time, total noise levels at these receptors would be in the mid-60s to high 70s dBA, which is comparable to existing noise levels along West 135th Street. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the south façade, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 18 months with maximum increments up to approximately 17 dBA for approximately 3 months and increments in the 1 to 6 dBA range for the remainder of that time. As a result, total noise levels during the approximately 18 months of exceedance of the CEQR screening threshold would be considered "marginally acceptable" or "acceptable" for all but 3 months. Consequently, construction noise associated with the proposed actions at the south façade of 45 West 132nd Street would not rise to the level of a significant adverse impact.

Lt. Joseph P. Kennedy Community Center / 34 West 134th Street

At the Lt. Joseph P. Kennedy Community Center, represented by Receptor 7, the existing noise levels are in the low 60s dBA.

At this building, construction is predicted to produce noise levels in the high 40s to high 60s dBA, resulting in noise level increases of up to approximately 9 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Buildings NW~~, central podium,~~ and N), which would have a duration of approximately six non-consecutive months. The predicted noise level increases at this community facility during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 18 non-consecutive months at this receptor. During this time, total noise levels at these receptors would be in the mid-60s to low 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

Based on field observations, the Lt. Joseph P. Kennedy Community Center has insulated glass windows and through-window air conditioning units; the building façade with these measures would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels in this building during worst-case construction would be in the low 40s to mid-40s dBA. Compared to the 45 dBA threshold recommended for community facility use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 1 dBA higher. At this receptor, construction noise levels would exceed the CEQR screening threshold over the course of approximately 18 non-consecutive months with maximum increments up to approximately 9 dBA. The maximum predicted total construction noise levels would be in the low 70s dBA and interior noise levels would exceed the recommended threshold for community facility use by no more than 1 dBA. Consequently, construction noise associated with the proposed actions at all façades of the Lt. Joseph P. Kennedy Community Center located at 34 West 134th Street would not rise to the level of a significant adverse impact.

Metropolitan AME Church and Projected Future Development Site / 58 West 135th Street

The analysis assumes that the existing building currently located on the projected future development site (at 58 West 135th Street) would be demolished and redeveloped during the construction time period for the proposed project. The analysis includes both the Metropolitan AME Church building currently located on the site (i.e., Receptor 8) and the projected future development site building (i.e., Receptor 48).

At the Metropolitan AME Church, represented by Receptor 8, the existing noise levels range from the low to high 60s dBA depending on line of sight to surrounding roadways and height above-grade (i.e., floor of the building).

At this building, construction is predicted to produce noise levels in the high 50s to mid-80s dBA, resulting in noise level increases of up to approximately 23 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Building NW ~~and central podium~~), which would have a duration of approximately three months. The predicted noise level increases at this community facility during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA and the total duration of exceedance of the CEQR construction noise screening criteria at these receptors would occur over approximately one and a half years of construction. During this time, total noise levels at these receptors would be in the high 60s to high 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the Metropolitan AME Church has no windows to its interior community facility space. The building façade would be expected to provide approximately 40 dBA attenuation. Consequently, interior noise levels at the community facility spaces in this building during worst-case construction would be in the high 40s dBA. Compared to the 45 dBA threshold recommended for community facility use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 4 dBA higher

Based on the prediction of construction noise levels up to the mid-80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 23 dBA and CEQR screening threshold exceedances occurring over the course of approximately one and a half years, construction noise associated with the proposed actions would have the potential to result in a temporary significant adverse impact at the Metropolitan AME Church at 58 West 135th Street. This receptor is discussed further in Chapter 21, "Mitigation."

The analysis assumes that the projected future development site located at 58 W 135th Street would be completed and occupied during the final approximately one year of construction of the proposed Buildings N and SE.

At these residences (i.e., Receptor 48), construction would result in $L_{10(1)}$ noise levels ranging from the mid to high 60s dBA with a maximum noise exposure of approximately 66 dBA, during the most noise-intensive stages of construction (i.e. superstructure construction at the proposed Building N), which would have a duration of approximately 6 months during the time that future development site is occupied. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally acceptable" range. Because noise levels from construction are anticipated to be acceptable according to the *CEQR Technical Manual* noise exposure criteria and would occur over a limited duration,

construction noise associated with the proposed actions at the projected future development site would not rise to the level of a significant adverse impact.

Hansborough Recreation Center / 35 West 135th Street

At the Hansborough Recreation Center, represented by Receptor 9, the existing noise levels are in the low 60s dBA.

There are approximately four lot-line windows on the north façade of this building, which will be covered by construction of the proposed Building N. Since these lot-line windows must be covered prior to the start of construction, resulting in a completely solid façade, the north façade of this building was not considered as a receptor. At the south, east, and west façades of this building (i.e., Receptors 9B, 9F, 9C, 9D), construction is predicted to produce noise levels in the low 50s to mid-70s dBA, resulting in noise level increases of up to approximately 16 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Buildings N and SE), which would have a duration of approximately three months. The predicted noise level increases at this community facility during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately two years. During this time, total noise levels at these receptors would be in the mid-60s high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

Based on field observations, the Hansborough Recreation Center building has insulated glass windows and through-window air conditioning units; with these measures, the building façade would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels in this building during worst-case construction would be in the high 30s to mid-50s dBA. Compared to the 45 dBA threshold recommended for community facility use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 8 dBA higher.

Based on the prediction of construction noise levels up to the high 70s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 16 dBA and CEQR screening threshold exceedances occurring over the course of approximately 18 months, construction noise associated with the proposed actions would not have the potential to result in a temporary significant adverse impacts at the south, east, and west façades of Hansborough Recreation Center located at 35 West 135th Street.

Harlem Hospital Center

At the Harlem Hospital Center, represented by Receptor 10, the existing noise levels range from the low to high 60s dBA depending on line of sight to West 135th Street and height above-grade (i.e., floor of the building).

At the north façade of this building (i.e., Receptors 10A and 10E), construction is predicted to produce noise levels in the high 30s to mid-60s dBA, resulting in noise level increases of up to approximately 7 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria

would be approximately 3 months. During this time, total noise levels at these receptors would be in the mid to high 60s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally acceptable" range. Because noise levels from construction are anticipated to be marginally acceptable and would occur over a limited duration, construction noise associated with the proposed actions at the north facade of the Harlem Hospital Center would not rise to the level of a significant adverse impact.

At the west façade of this building (i.e., Receptor 10D), construction is predicted to produce noise levels in the mid-50s to low 70s dBA, resulting in noise level increases of up to approximately 12 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Buildings NW ~~and central podium~~), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately one year. During this time, total noise levels at these receptors would be in the mid-60s to mid-70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range. At the west façade, maximum construction noise level increments would be up to approximately 12 dBA for approximately 3 months with increments in the 1 to 6 dBA range for the remainder of the approximately one year duration of exceedance of the CEQR construction noise screening criteria. Consequently, construction noise associated with the proposed actions at the west façade of Harlem Hospital Center would not rise to the level of a significant adverse impact.

At the south and east facades, construction (i.e., Receptors 10B, 10C, and 10F) construction is predicted to produce noise levels in the mid-50s to high 70s dBA, resulting in noise level increases of up to approximately 16 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Buildings NW ~~and central podium~~; pile installation at the projected future development site; and pile installation at the proposed Building N and superstructure construction at the projected future development site), which would have a duration of approximately 12 non-consecutive months. The predicted noise level increases at this receptor during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at this receptor would occur over approximately 15 non-consecutive months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately five years. During this time, total noise levels at these receptors would be in the mid-60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the Harlem Hospital Center has insulated glass windows and a central air conditioning system; with these measures the building façade would be expected to provide approximately 30 dBA or greater window/wall attenuation. Consequently, interior noise levels inside the hospital west, south, and east facades during worst-case construction would be in the

high 40s to low 50s dBA. Compared to the 45 dBA threshold recommended for hospital uses according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 6 dBA higher.

Based on the prediction of construction noise levels up to the low 80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 16 dBA and CEQR screening threshold exceedances occurring over the course of five years, construction noise associated with the proposed actions at the south and east façades of the Harlem Hospital Center would have the potential to result in a temporary significant adverse impact along the south and east facades of the building. This receptor is discussed further in Chapter 21, "Mitigation."

P.S. 197 and Howard Bennett Playground

At P.S. 197 located along West 135th Street, represented by Receptor 12 (school building) and Receptor 11 (Howard Bennett Playground and P.S. 197 play yard), the existing noise levels range from the high 50s to high 60s dBA depending on proximity to West 135th Street.

At P.S. 197, construction is predicted to produce noise levels in the high 40s to mid-70s dBA, resulting in noise level increases of up to approximately 10 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at these receptors during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 6 non-consecutive months. During this time, total noise levels at these receptors would be in the low 70s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

At the playground and play yard, construction is predicted to produce noise levels in the mid-50s to high 60s dBA, resulting in noise level increases of up to approximately 4 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Buildings NE and N), which would have a duration of approximately 6 non-consecutive months. The predicted noise level increases at these receptors during the most intensive work would be noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 6 non-consecutive months. During this time, total noise levels at these receptors would be in the low to mid-70s dBA. According to the *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

Predicted construction noise level increments at P.S. 197, its associated play yard, and Howard Bennett Playground would exceed the CEQR screening threshold for a duration of no longer than 6 months, with maximum increments up to approximately 10 dBA for approximately 3 months and increments in the 1 to 7 dBA range for the remainder of that time. Based on the limited duration and magnitude of predicted construction noise levels at these receptors, construction noise associated with the proposed actions at the P.S. 197, its associated play yard, and Howard Bennett Playground would not rise to the level of a significant adverse impact.

Schomburg Center for Research in Black Culture / 503 Lenox Avenue

At the Schomburg Center for Research in Black Culture—the New York Public Library space at 503 Lenox Avenue represented by Receptor 13—the existing noise levels range from the low to

mid 60s dBA depending on proximity and line of sight to Lenox Avenue and height above-grade (i.e., floor of the building).

At this building, construction is predicted to produce noise levels in the high 30s to mid-70s dBA, resulting in noise level increases of up to approximately 9 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NW ~~and central podium~~), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 12 non-consecutive months at this receptor. During this time, total noise levels at this receptor would be in the low 60s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at this receptor would be in the "marginally unacceptable" range.

Based on field observations, the library space at 503 Lenox Avenue appears to have insulated glass windows and central air conditioning. The building façade, with these measures, would be expected to provide approximately 30 dBA or greater window/wall attenuation. Consequently, interior noise levels in this building during worst-case construction would be in the low 30s to mid-40s dBA. Compared to the 45 dBA threshold recommended for community facility use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 2 dBA higher.

At this receptor, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 12 non-consecutive months with maximum increments up to approximately 9 dBA for approximately 3 months and increments in the 2 to 5 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be up to the mid-70s dBA and interior noise levels would exceed the recommended threshold for community facility use by no more than 2 dBA. Consequently, construction noise associated with the proposed actions at all façades of 503 Lenox Avenue would not rise to the level of a significant adverse impact.

223<u>5</u> Fifth Avenue

At the residences of 2235 Fifth Avenue, represented by Receptor 14, the existing noise levels range from the low to high 60s dBA depending on line of sight to Fifth Avenue and height above-grade (i.e., floor of the building).

At the north and east façades of this building (i.e., Receptors 14A, 14C, and 14G), construction is predicted to produce noise levels in the low 40s to mid-60s dBA, resulting in noise level increases of up to approximately 9 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. Noise level increases greater than the CEQR construction noise screening criteria would occur over the course of approximately six months. During this time, total noise levels at these receptors would be in the mid to low 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range. Predicted construction noise level increments at the north and east facades of this building would exceed the CEQR screening threshold for a duration of no longer than 6 months, with maximum increments up to approximately 9 dBA. Based on the limited duration and magnitude of predicted construction noise levels at this receptor, construction noise associated with the proposed actions at the north and east facades of 2235 Fifth Avenue would not rise to the level of a significant adverse impact.

At the south and west façades of this building (i.e., Receptor 14B, 14D, and 14H), construction is predicted to produce noise levels in the mid-40s to high 70s dBA, resulting in noise level increases of up to approximately 13 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be readily noticeable and potentially intrusive. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 27 non-consecutive months. During this time, total noise levels at these receptors would be in the high 60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 2235 Fifth Avenue have insulated glass windows. Most units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Some units do not have an alternate means of ventilation; an open window condition at these units would be expected to provide approximately 5 dBA window/wall attenuation. Consequently, interior noise levels at residences along the south and west facades with through-window AC units in this building during worst-case construction would be in the mid-40s to mid-50s dBA and in the mid-60s to mid-70s dBA for units in an open window condition. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 11 dBA higher than recommended thresholds at the units with through-window ACs and up to approximately 31 dBA higher at units in an open window condition along the south and west facades.

Based on the prediction of construction noise levels up to the high 70s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, resulting in construction noise level increments up to approximately 13 dBA, interior noise levels 11 to 31 dBA greater than the recommended residential threshold, and CEQR screening threshold exceedances occurring over the course of 27 non-consecutive months, construction noise associated with the proposed actions at residences along the south and west façades of 2235 Fifth Avenue would have the potential to result in a temporary significant adverse impact. These receptors are discussed further in Chapter 21, "Mitigation."

2199 and 2177 Fifth Ave

At the residences of 2199 and 2177 Fifth Avenue, represented by Receptors 15 and 16, the existing noise levels range from the low 60s to mid-60s dBA depending on line of sight to Fifth Avenue and height above-grade (i.e., floor of the building).

At the east façades of these buildings (i.e., Receptors 15C, 15G, 15K, 16C, 16G, and 16K), construction is predicted to produce noise levels in the low 40s to mid-60s dBA, resulting in noise level increases of up to approximately 7 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. Noise level increases exceeding the CEQR construction noise

screening criteria would occur over the course of approximately three months at these receptors. During this time, total noise levels at these receptors would be in the mid to high 60s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally acceptable" range. Because noise levels from construction are anticipated to be acceptable according to the *CEQR Technical Manual* noise exposure criteria and would occur over a limited duration, construction noise associated with the proposed actions at the east facades of 2199 and 2177 Fifth Avenue would not rise to the level of a significant adverse impact.

At the north, south, and west façades of these building (i.e., Receptors 15A, 15B, 15D, 15F, 15H, 15J, 15L, 16A, 16B, 16D, 16E, 16H, 16I, 16L), construction is predicted to produce noise levels in the mid-40s to low 80s dBA, resulting in noise level increases of up to approximately 17 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Buildings NE and SE), which would have a duration of approximately six non-consecutive months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA would occur over the course of 24 non-consecutive months and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 33 non-consecutive months of construction (including 21 consecutive months). During this time, total noise levels at these receptors would be in the mid-60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, the residences of 2199 and 2177 Fifth Avenue have insulated glass windows. Most units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Some units do not have an alternate means of ventilation; an open window condition at these units would be expected to provide approximately 5 dBA window/wall attenuation. Consequently, interior noise levels at residences along the north, south, and west facades with through-window AC units in this building during worst-case construction would be in the low 40s to high 50s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 13 dBA higher than the recommended threshold at units with through-window ACs and up to approximately 33 dBA higher at units in an open window condition on the north, south, and west facades.

Based on the prediction of construction noise levels up to the low 80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, resulting in noise level increments up to approximately 17 dBA, interior noise levels 13 to 33 dBA greater than the recommended residential threshold, and CEQR screening threshold exceedances occurring over the course of no more than 21 consecutive months, construction noise associated with the proposed actions at residences along the north, south, and west façades of 2199 and 2177 Fifth Avenue would not have the potential to result in a temporary significant adverse impact.

2120 and 2140 Madison Avenue

At the residences of 2120 and 2140 Madison Avenue, represented by Receptors 17 and 18, the existing noise levels are in the low 60s dBA.

At the south and east façades of these buildings (i.e., Receptors 17B, 17C, 18B, 18C), construction is predicted to produce noise levels in the low 40s to high 60s dBA, resulting in noise level increases of up to approximately 10 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building NE), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 24 non-consecutive months at these receptors. During this time, total noise levels at these receptors would be in the low 60s to low 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range during the three months of maximum construction noise, and in the "marginally acceptable" range throughout the remainder of the construction period. Because of the limited duration of construction noise at these receptors and because noise levels are anticipated to be acceptable according to the *CEQR Technical Manual* noise exposure criteria throughout most of the construction period, construction noise associated with the proposed actions at the south and east façades of 2120 and 2140 Madison Avenue would not rise to the level of a significant adverse impact.

At the north and west facades of these buildings (i.e., receptors 17A, 17D, 18A, and 18D), construction is predicted to produce noise levels in the low 40s to mid-70s dBA, resulting in noise level increases of up to approximately 15 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Buildings SE and NE), which would have a duration of approximately six non-consecutive months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately six non-consecutive months and exceedances of the CEQR construction screening criteria at these receptors would occur over approximately 27 non-consecutive months of construction. During this time, total noise levels at these receptors would be in the low 60s to high 70s dBA. According to the *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

Based on field observations, the residences of 2120 and 2140 Madison Avenue have insulated glass windows. Some units have through-window air conditioning units; the building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Some units do not have an alternate means of ventilation; an open window condition at these units would be expected to provide approximately 5 dBA window/wall attenuation. Consequently, interior noise levels at residences along the north and west facades with through-window AC units during worst-case construction would be in the high 30s to mid-50s dBA. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 8 dBA higher along the north and west facades at the units with through-window ACs and up to approximately 28 dBA higher at units in an open window condition.

Based on the prediction of construction noise levels up to the mid-70s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, resulting in noise level increments up to approximately 15 dBA, interior noise levels 8 to 28 dBA greater than the recommended residential threshold, and CEQR screening threshold exceedances occurring over

the course of 27 months, construction noise at residences along the north and west façades of 2120 and 2140 Madison Avenue would have the potential to result in a temporary significant adverse impact. These receptors are discussed further in Chapter 21, "Mitigation."

485 Malcolm X Boulevard

At the residential building at 485 Malcolm X Boulevard along the west side of Lenox Avenue between West 134th and 135th Streets, represented by Receptor 19, existing noise levels range from the high 50s to high 60s dBA depending on line of sight to Lenox Avenue and height above-grade (i.e., floor of the building).

At the north and west facades of the building (i.e., receptors 19A, 19D, and 19H), construction is predicted to produce noise levels in the high 40s to high 60s dBA, resulting in noise level increases of up to approximately 7 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Building~~s~~ NW ~~and central podium~~), which would have a duration of approximately 3 months. The predicted noise level increases at these façades during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 6 non-consecutive months at these façades. During this time, total noise levels would be in the mid-60s to mid-70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable".

At the north and west facades, construction noise levels would exceed the CEQR screening threshold over the course of approximately 6 non-consecutive months, with maximum increments of approximately 7 dBA for approximately 3 months and increments in the 1 to 4 dBA range for the remainder of that time. Consequently, construction noise associated with the proposed actions at the north and west facades of 485 Malcolm X Boulevard would not rise to the level of a significant adverse impact.

At residences along the south and east facades of the building (i.e., receptors 19B, 19C, and 19G), construction is predicted to produce noise levels in the high 40s to high 70s dBA, resulting in noise level increases of approximately 15 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Building~~s~~ NW ~~and central podium~~), which would have a duration of approximately three months. The predicted noise level increases at these façades during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 9 months and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 30 non-consecutive months. During this time, total noise levels would be in the mid-60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable."

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

With standard façade construction, including insulated glass windows and through-window air conditioning units, the façade of this building would be expected to provide approximately 25 dBA or greater window/wall attenuation. Consequently, interior noise levels at residences in these buildings during worst-case construction would be in the mid-50s on the south and west facades.

Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 10 dBA higher on the south and east facades.

Based on the prediction of construction noise levels up to the high 70s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 15 dBA and CEQR screening threshold exceedances occurring over the course of approximately three years, construction noise associated with the proposed actions at 485 Malcolm X Boulevard would have the potential to result in a temporary significant adverse impact. These receptors are discussed further in Chapter 21, "Mitigation."

Receptors along the West Side of Lenox Avenue between West 133rd and 134th Streets

At the residences along the west side of Lenox Avenue between West 133rd and 134th Streets, represented by Receptors 20 and 21, the existing noise levels range from the low to mid 60s dBA depending on line of sight to Lenox Avenue and height above-grade (i.e., floor of the building).

At the north and south facades of these receptors along 134th and 133rd Streets (i.e., receptors 20A and 21B), construction is predicted to produce noise levels in the mid-40s to mid-70s dBA, resulting in noise level increases of up to approximately 11 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be readily noticeable. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately one and a half years. During this time, total noise levels at these receptors would be in the high 60s to mid-70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At the north and south facades, construction noise levels would exceed the CEQR screening threshold over the course of approximately one and a half years with maximum increments of approximately 11 dBA for approximately three months and increments in the 1 to 9 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be in the high 70s dBA. Based on the limited duration and magnitude of predicted construction noise levels at this receptor, construction noise associated with the proposed actions at the north and south facades of residences located on Lenox Avenue between West 133rd and West 134th Streets would not rise to the level of a significant adverse impact.

At the east façade of these receptors along Lenox Avenue (i.e., Receptors 20C and 21C), construction is predicted to produce noise levels in the low 50s to high 70s dBA, resulting in noise level increases of up to approximately 13 dBA during the most noise-intensive stages of construction (i.e., pile installation at the proposed Buildings NW and SW ~~and central podium~~), which would have a duration of approximately six non-consecutive months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately nine months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 15 months. During this time, total noise levels at these receptors would be in the high 60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

At the east facade, construction noise levels would exceed the CEQR screening threshold over the course of approximately 15 months with maximum increments of approximately 13 dBA for approximately six months and increments in the 1 to 4 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be in the low 80s dBA. Based on the limited duration and magnitude of predicted construction noise levels at this receptor, construction noise associated with the proposed actions at the east facade of residences located on Lenox Avenue between West 133rd and West 134th Streets would not rise to the level of a significant adverse impact.

Receptors along Lenox Avenue between West 133rd and West 132nd Streets

At the residential receptors along Lenox Avenue between West 133rd and West 132nd Streets, represented by Receptors 24 and 25, the existing noise levels range from the low to high 60s dBA depending on proximity and line of sight to Lenox Avenue and height above-grade (i.e., floor of the building).

At these buildings, construction is predicted to produce noise levels in the low 50s to high 70s dBA, resulting in noise level increases of up to approximately 12 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be noticeable and potentially intrusive. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 18 months at these receptors. During this time, total noise levels at these receptors would be in the low 60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 18 months with maximum increments of approximately 12 dBA for approximately three months and increments in the 1 to 7 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be up to the low 80s dBA. Based on the limited duration and magnitude of predicted construction noise levels at this receptor, construction noise associated with the proposed actions at the residences along Lenox Avenue between West 133rd and West 132nd Streets would not rise to the level of a significant adverse impact.

Receptors along Lenox Avenue South of West 132nd Streets

At the residential receptors along Lenox Avenue south of West 132nd Streets, represented by Receptors 29, 51, 52, 31, 32D, 33D, 50D and 34, the existing noise levels range from the low to high 60s dBA depending on proximity and line of sight to Lenox Avenue and height above-grade (i.e., floor of the building).

At these buildings, construction is predicted to produce noise levels in the low 40s to high 70s dBA, resulting in noise level increases of up to approximately 12 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be noticeable and potentially intrusive. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately two years at these receptors. During this time, total noise levels at these receptors would be in the low 60s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 21 months (i.e., during the excavation, foundation, and superstructure phases of construction at the proposed building SW) with maximum increments of approximately 12 dBA for approximately three months and increments in the 1 to 5 dBA range for the remainder of that time. Due to the limited duration of time over which construction noise would exceed these thresholds, construction noise associated with the proposed actions at the residences along Lenox Avenue south of West 132nd Street would not rise to the level of a significant adverse impact.

Receptors West of Lenox Avenue

At the residential receptors west of Lenox Avenue, represented by Receptors 22, 23, 26, 27, 28, and 30, the existing noise levels are in the low 60s dBA.

At these buildings, construction is predicted to produce noise levels in the high 30s to high 60s dBA, resulting in noise level increases of up to approximately 11 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 9 months at these receptors. During this time, total noise levels at these receptors would be in the low 60s to mid-70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 9 months with maximum increments up to approximately 11 dBA for approximately 3 months and increments in the 1 to 6 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be up to the high 60s dBA. Consequently, construction noise associated with the proposed actions at the residences west of Lenox Avenue would not rise to the level of a significant adverse impact.

Receptors along the South Side of West 132nd Street between Lenox Avenue and 45 West 132nd Street

At the receptors along the south side of West 132nd Street between Lenox Avenue and 45 West 132nd Street, represented by Receptors 32A, 32E, 50C, and 33C the existing noise levels range

from the low to mid 60s dBA depending on line of sight to Lenox Avenue and height above-grade (i.e., floor of the building).

At these receptors, construction is predicted to produce noise levels in the low 40s to low 80s dBA, resulting in noise level increases of up to approximately 19 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately 3 months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 3 months of construction, and the maximum total duration of exceedance of the CEQR construction noise screening criteria would be approximately 24 months. During this time, total noise levels at these receptors would be in the mid-60s to low 80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, most of the units in buildings along the south side of West 132nd between Lenox and Fifth Avenues have insulated glass windows and window air conditioning units. The building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Some units do not have an alternate means of ventilation; an open window condition at these units would be expected to provide approximately 5 dBA window/wall attenuation. Consequently, interior noise levels at residences in these buildings with through-window AC units during worst-case construction would be in the mid-30s to mid-50s dBA and in the mid-50s to mid-70s dBA for units in an open window condition. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 12 dBA higher at the units with through-window ACs and up to approximately 32 dBA higher at units in an open window condition.

Based on the prediction of construction noise levels up to the mid-80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 19 dBA and CEQR screening threshold exceedances occurring over the course of up to 24 months, construction noise associated with the proposed actions at receptors along the south side of West 132nd between Lenox Avenue and 45 West 132nd Street would have the potential to result in a temporary significant adverse impact. These receptors are discussed further in Chapter 21, "Mitigation."

Receptors along the South Side of West 132nd Street between 25 West 132nd Street and Fifth Avenue

At the receptors along the south side of West 132nd Street between 25 West 132nd Street and Fifth Avenue, represented by Receptors 38 and 39, the existing noise levels range from the low 60s to low 70s dBA depending on line of sight to 132nd Street and height above-grade (i.e., floor of the building).

At these receptors, construction is predicted to produce noise levels in the mid-40s to high 70s dBA, resulting in noise level increases of up to approximately 16 dBA during the most noise-

intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately 3 months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 3 months of construction, and the maximum total duration of exceedance of the CEQR construction noise screening criteria would be approximately 27 non-consecutive months. During this time, total noise levels at these receptors would be in the low 60s to mid-80s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

The predicted "clearly unacceptable" noise levels at these receptors would occur at times during relatively short periods of peak noise generation, i.e., during times when multiple pile driving rigs would be operating simultaneously at their nearest locations to the receptors. Construction noise levels would more generally be in the "marginally unacceptable" range throughout the construction period (i.e., times when L_{10} noise levels would be less than 80 dBA as shown in **Appendix C**).

Based on field observations, most of the units in buildings along the south side of West 132nd between Lenox and Fifth Avenues have insulated glass windows and window air conditioning units. The building façade at these units would be expected to provide approximately 25 dBA or greater window/wall attenuation. Some units do not have an alternate means of ventilation; an open window condition at these units would be expected to provide approximately 5 dBA window/wall attenuation. Consequently, interior noise levels at residences in these buildings with through-window AC units during worst-case construction would be in the mid-30s to high 50s dBA and in the mid-50s to high 70s dBA for units in an open window condition. Compared to the 45 dBA threshold recommended for residential use according to CEQR noise exposure guidelines, interior noise levels would be up to approximately 13 dBA higher at the units with through-window ACs and up to approximately 33 dBA higher at units in an open window condition.

Based on the prediction of construction noise levels up to the mid-80s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 16 dBA and CEQR screening threshold exceedances occurring over the course of up to 27 months, construction noise associated with the proposed actions at receptors along the south side of West 132nd between 25 West 132nd Street and Fifth Avenue would have the potential to result in a temporary significant adverse impact. These receptors are discussed further in Chapter 21, "Mitigation."

Receptors along the South Side of West 132nd Street between 45 West 132nd Street and 25 West 132nd Street

At the receptors along the south side of West 132nd Street between 45 West 132nd Street and 25 West 132nd Street, represented by Receptors 35 and 36 the existing noise levels range from the low to mid 60s dBA depending on line of sight to Lenox Avenue and height above-grade (i.e., floor of the building).

At these receptors, construction is predicted to produce noise levels in the low 40s to mid 70s dBA, resulting in noise level increases of up to approximately 15 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately 3 months. The predicted noise level increases at these residences during the most intensive work would be noticeable and potentially intrusive. Noise level increases greater than 10 dBA at these receptors would occur over approximately 3 months of construction,

and the maximum total duration of exceedance of the CEQR construction noise screening criteria would be approximately 30 non-consecutive months. During this time, total noise levels at these receptors would be in the low 60s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range during the three months of maximum construction noise, and in the "marginally acceptable" range throughout the remainder of the construction period. Because of the limited duration of construction noise at these receptors and because noise levels are anticipated to be acceptable according to the *CEQR Technical Manual* noise exposure criteria throughout most of the construction period, construction noise associated with the proposed actions at the residences along the south side of West 132nd Street between 25 and 45 West 132nd Street would not rise to the level of a significant adverse impact.

Receptors along the West Side of Fifth Avenue between West 131st and 132nd Streets

At the residences along the west side of Fifth Avenue between West 131st and 132nd Streets, represented by Receptors 40 and 41, the existing noise levels range from the low 60s to low 70s dBA depending on line of sight to Fifth Avenue and height above-grade (i.e., floor of the building).

At these receptors, construction is predicted to produce noise levels in the low 40s to low 70s dBA, resulting in noise level increases of up to approximately 11 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be readily noticeable. Noise level increases greater than 10 dBA at these receptors would occur over approximately three months of construction, and the total duration of exceedance of the CEQR construction noise screening criteria would be approximately 21 months. During this time, total noise levels at these receptors would be in the high 60s to mid-70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 21 months with maximum increments of approximately 11 dBA for approximately three months and increments in the 1 to 6 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be up to the mid-70s dBA. Consequently, construction noise associated with the proposed actions at the residences along the west side of Fifth Avenue between West 131st and 132nd Streets would not rise to the level of a significant adverse impact.

Receptors along West 131st Street

At the residential receptors along West 131st Street, represented by Receptors 34 and 37, the existing noise levels are in the low to mid-60s dBA depending on proximity to Lenox Avenue and Fifth Avenue as well as height above grade (i.e., floor of the building).

At these buildings, construction is predicted to produce noise levels in the low 40s to mid-60s dBA, resulting in noise level increases of up to approximately 7 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SW), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately six months at these receptors. During this time, total noise levels at these receptors would be in the mid-60s to low

70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately six months with maximum increments up to approximately 7 dBA for approximately three months and increments in the 0 to 4 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be up to the low 70s dBA. Consequently, construction noise associated with the proposed actions at the residences along West 131st Street would not rise to the level of a significant adverse impact.

2159 Fifth Avenue

At the residences of 2159 Fifth Avenue, represented by Receptor 42, the existing noise levels range from the low to high 60s dBA depending on line of sight to Fifth Avenue and height above-grade (i.e., floor of the building).

At this receptor, construction is predicted to produce noise levels in the low 40s to mid-70s dBA, resulting in noise level increases of up to approximately 10 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately three months. The predicted noise level increases at these residences during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 21 months at these receptors. During this time, total noise levels at these receptors would be in the mid-60s to high 70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable."

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 21 months with maximum increments up to approximately 10 dBA for approximately three months and increments in the 1 to 5 dBA range for the remainder of that time. The maximum predicted total construction noise levels would be up to the high 70s dBA. Consequently, construction noise associated with the proposed actions at the residences at 2159 Fifth Avenue would not rise to the level of a significant adverse impact.

Receptors along the South Side of West 132nd Street East of Fifth Avenue

At the residential receptors along the south side of West 132nd Street east of Fifth Avenue, represented by Receptor 43, the existing noise levels are in the low to mid-60s dBA depending on proximity to Lenox Avenue and Fifth Avenue as well as height above grade (i.e., floor of the building).

At these buildings, construction is predicted to produce noise levels in the low 40s to low 70s dBA, resulting in noise level increases of up to approximately 8 dBA during the most noise-intensive stages of construction (i.e. pile installation at the proposed Building SE), which would have a duration of approximately three months. The predicted noise level increases at this building during the most intensive work would be readily noticeable. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately six months at these receptors. During this time, total noise levels at these receptors would be in the mid-60s to mid-70s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally unacceptable" range.

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately six months with maximum increments up to approximately 8 dBA. The maximum predicted total construction noise levels would be up to the

low 70s dBA. Consequently, construction noise associated with the proposed actions at the residences along the south side of West 132nd Street east of Fifth Avenue would not rise to the level of a significant adverse impact.

CONSTRUCTION NOISE EXPOSURE AT COMPLETED/OCCUPIED PROPOSED BUILDINGS

Since, the proposed project buildings would include noise-sensitive uses (e.g., residential, community facility) that would have the potential to experience construction noise (i.e., when a building is completed and occupied, but remaining development associated with the proposed actions is still under construction), the amount of noise exposure at these buildings during construction is considered. Consistent with *CEQR Technical Manual* guidance, noise exposure is evaluated using the $L_{10(1)}$ noise level. **Table 19-35** shows the projected $L_{10(1)}$ noise levels at the buildings that would be completed and occupied prior to completion of all construction, under the construction schedule.

Table 19-35
Construction Noise Exposure at Project Buildings in dBA

Receptor	Location	Total L_{10}	
		Min	Max
44	Proposed Building NE	63.3	73.1
45	Proposed Building SW	62.8	73.7
~~46~~	~~Midrise Central Podium~~	~~63.6~~	~~76.1~~
47	Proposed Building NW	63.2	91.7

Proposed Building NW

The analysis assumes that proposed Building NW would be completed and occupied during approximately two and a half years of construction on proposed Buildings N and SE as well as at the projected future development site.

At the south and west facades of the newly-constructed Building NW (i.e., Receptors 47B, 47D, 47H, 47L), construction would result in $L_{10(1)}$ noise levels ranging from the low 60s to mid-70s dBA with a maximum noise exposure of approximately 67 dBA, during the most noise-intensive stages of construction (i.e. excavation and foundation construction and superstructure construction at the projected future development site), which would have a duration of approximately 7 months. The total duration of exceedance of the CEQR construction noise screening criteria would be approximately 7 months at these receptors. During this time, total noise levels at these receptors would be in the mid-60s dBA. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "marginally acceptable" range.

At these receptors, construction noise level increments would exceed the CEQR screening threshold over the course of approximately 7 months. The maximum predicted total construction noise levels would be up to the mid-60s dBA. Consequently, noise resulting from construction of the remaining project buildings at the residences along the south and west facades of the newly-constructed Building NW would not rise to the level of a significant adverse impact.

At the north and east façades of the newly-constructed Building NW (i.e., Receptors 47A, 47C, 47G, and 47K), construction would result in $L_{10(1)}$ noise levels ranging from the low 60s to low 90s dBA with a maximum noise exposure of approximately 92 dBA, during the most noise-

intensive stages of construction (i.e. excavation and foundation construction and superstructure construction at the projected future development site), which would have a duration of approximately 7 months. According to *CEQR Technical Manual* noise exposure criteria, maximum construction noise levels at these receptors would be in the "clearly unacceptable" range.

Based on the 28 dBA window/wall attenuation expected to be included in the design for the façades of this building (see Table 16-6 in Chapter 16, "Noise"), interior noise levels at these buildings are predicted to exceed 45 dBA, which is the acceptable criterion for residential use according to CEQR noise exposure criteria, by up to approximately 19 dBA. These exceedances would be intermittent and temporary, and would not occur during the nighttime hour when residences are most sensitive to noise.

Based on the prediction of construction noise levels up to the low 90s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with CEQR screening threshold exceedances occurring over the course of 7 months, construction noise associated with the proposed actions at receptors along the north and east façades of the newly constructed Building NW would have the potential to result in a temporary significant adverse impact. These receptors are discussed further in Chapter 21, "Mitigation."

Proposed Building SW

The analysis assumes that proposed Building SW would be completed and occupied during approximately two and a half years of construction on proposed Buildings N and SE as well as at the projected future development site. At the newly constructed Building SW, construction would result in $L_{10(1)}$ noise levels ranging from the mid-60s to mid-70s dBA with a maximum noise exposure of approximately 74 dBA. Based on the 25 to 28 dBA window/wall attenuation expected to be included in the design for the façades of this building (see Table 16-6 in Chapter 16, "Noise"), interior noise levels at these buildings are predicted to exceed 45 dBA, which is the acceptable criterion for residential use according to CEQR noise exposure criteria, by up to approximately 4 dBA. These exceedances would be intermittent and temporary, and would not occur during the nighttime hour when residences are most sensitive to noise. Consequently, noise resulting from construction of the remaining project buildings would not result in a significant adverse impact at this completed project element.

Proposed Building NE

The analysis assumes that proposed Building NE would be completed and occupied during approximately two and a half years of construction on proposed Buildings N and SE as well as at the projected future development site. At the newly constructed Building NE, construction would result in $L_{10(1)}$ noise levels ranging from the mid-60s to mid-70s dBA with a maximum noise exposure of approximately 73 dBA. Based on the 25 to 31 dBA window/wall attenuation expected to be included in the design for the façades of this building (see Table 16-6 in Chapter 16, "Noise"), interior noise levels at these buildings are predicted to exceed 45 dBA, which is the acceptable criterion for residential use according to CEQR noise exposure criteria, by up to approximately 3 dBA. These exceedances would be intermittent and temporary, and would not occur during the nighttime hour when residences are most sensitive to noise. Consequently, noise resulting from construction of the remaining project buildings would not result in a significant adverse impact at this completed project element.

~~*Midrise Central Podium*~~

~~The analysis assumes that proposed central podium would be completed and occupied during approximately two and a half years of construction on proposed Buildings N and SE as well as at the projected future development site. At the newly constructed central podium, construction would result in $L_{10(1)}$ noise levels ranging from the mid-60s to mid-70s dBA with a maximum noise exposure of approximately 76 dBA. Based on the 25 to 28 dBA window/wall attenuation expected to be included in the design for the façades of this building (see Table 16-6 in Chapter 16, "Noise"), interior noise levels at these buildings are predicted to exceed 45 dBA, which is the acceptable criterion for residential use according to CEQR noise exposure criteria, by up to approximately 6 dBA. These exceedances would be intermittent and temporary, and would not occur during the nighttime hour when residences are most sensitive to noise. Consequently, noise resulting from construction of the remaining project buildings would not result in a significant adverse impact at this completed project element.~~

CONCLUSIONS

As described above, in addition to noise control measures as required by the *New York City Noise Control Code*, construction of the proposed project would include measures such as the use of quieter equipment and the installation of partially enclosed structures to house the concrete pump and concrete mixer trucks as they access the pump and when they are washed out before leaving the site.

With these noise control measures in place, noise levels from construction of the proposed project are expected to be comparable to those from typical New York City construction involving a new building or buildings with concrete slab floors and foundation on piles. Similarly, potential disruptions to adjacent residences and other receptors from elevated noise levels generated by construction would be expected to be comparable to those that would occur immediately adjacent to a typical New York City construction site during the portions of construction when the loudest activities would occur.

The detailed analysis of construction noise concluded that construction pursuant to the proposed actions has the potential to result in construction noise levels that exceed *CEQR Technical Manual* construction noise screening threshold for an extended period of time or the additional construction noise impact criteria defined herein at receptors within the rezoning area and surrounding the proposed construction work areas, including existing residential buildings within the rezoning area (i.e., 470 Lenox Avenue, 40 West 135th Street, 10 West 135th Street, 2186 Fifth Avenue, 25 West 132nd Street, and 45 West 132nd Street), Metropolitan AME Church, Harlem Hospital Center, 2235 Fifth Avenue, 2120 and 2140 Madison Avenue, 485 Malcolm X Boulevard, receptors along the south side of West 132nd Street between Lenox Avenue and 45 West 132nd Street, and receptors along the south side of West 132nd Street between 25 West 132nd Street and Fifth Avenue.

At these receptors, construction could produce noise level increases that would be noticeable and potentially intrusive during the most noise-intensive nearby construction activities, and would produce noticeable increases over the course of construction. While the greatest levels of construction noise would not persist throughout construction, and the noise levels would fluctuate resulting in noise increases that would be intermittent, these locations would experience construction noise levels whose magnitude and duration could constitute significant adverse impacts.

At proposed Building NW, which would be completed and occupied while other project construction is still ongoing, construction is predicted to result in interior noise levels exceeding the 45 dBA criterion considered acceptable by up to 19 dBA when the most noise-intensive construction activities would occur nearest to this building. Construction could produce noise level increases that would be noticeable and potentially intrusive during the most noise-intensive nearby construction activities, and would produce noticeable increases over the course of construction. While the greatest levels of construction noise would not persist throughout construction, and the noise levels would fluctuate resulting in noise increases that would be intermittent, these locations would experience construction noise levels whose magnitude and duration could constitute significant adverse impacts.

At proposed Buildings NE and~~,~~ SW ~~and the midrise central podium~~ that would be completed and occupied while other project construction is still ongoing, construction is predicted to result in interior noise levels exceeding the 45 dBA criterion considered acceptable by up to 6 dBA when the most noise-intensive construction activities would occur nearest to these buildings. While construction noise would be noticeable and potentially intrusive at times, the greatest predicted noise exposure would be temporary and intermittent, and would not occur during the evening or nighttime hours when residence are most sensitive to noise. Consequently, the predicted levels of construction noise exposure at completed project elements would not constitute a significant adverse impact.

VIBRATION

INTRODUCTION

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

CONSTRUCTION VIBRATION CRITERIA

For purposes of assessing potential structural or architectural damage at historic buildings, the determination of a significant impact is typically based on the vibration impact criterion used by LPC of a peak particle velocity (PPV) of 0.50 inches/second as specified in the DOB TPPN #10/88. 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.

VIBRATION ANALYSIS

Potential structural or architectural damage is determined using the following formula:

PPVequip = PPVref x (25/D)1.5

where:

PPV_{equip} is the peak particle velocity in inches/second 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.

Potential annoyance or interference with vibration-sensitive activities is assessed using the following formula:

Lv(D) = Lv(ref) – 30log(D/25)

where:

Lv(D) is the vibration level in VdB of the equipment at the receiver location;

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

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

Table 19-36 shows vibration source levels for typical construction equipment.

Table 19-36
Vibration Source Levels for Construction Equipment

Equipment		PPV_{ref} (in/sec)	Approximate L_v (ref) (VdB)
Pile driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Hydromill (slurry wall)	In soil	0.008	66
	In rock	0.017	75
Clam shovel drop (slurry wall)		0.202	94
Vibratory roller		0.210	94
Hydraulic break 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
Source: Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06, May 2006.			

Construction Vibration Analysis Results

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are the existing buildings and structures within the rezoning area. However, given their distances from the construction work areas (at least 60 feet), vibration levels at these buildings and structures would not be expected to exceed 0.50 in/sec PPV, including during pile driving, which would be the most vibration-intensive activity associated with construction under the proposed actions. Additional receptors farther away from the proposed development site would

experience less vibration than those listed above, which would not be expected to cause structural or architectural damage.

In terms of potential vibration levels that would be perceptible and annoying to occupants of nearby buildings, equipment with the most potential for producing levels which exceed the 65 VdB limit would be impact pile drivers associated with foundation construction. These pieces of equipment would not produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at grade-level receptors that are at least approximately 550 feet away. While vibration resulting from demolition, excavation and foundation construction may be perceptible and potentially intrusive, it would be of limited duration as these pieces of equipment would not operate at each construction site for more than approximately nine to twelve months, during which time they would operate intermittently. Furthermore, vibration levels would be lower at floors above the grade level (reducing by approximately 2 dB per floor). As such, the predicted levels of vibration would not be considered significant. In no case are significant adverse impacts from vibrations expected to occur.

OTHER TECHNICAL AREAS

LAND USE AND NEIGHBORHOOD CHARACTER

According to the *CEQR Technical Manual*, a construction impact analysis for land use and neighborhood character is typically needed if construction would require continuous use of property for an extended duration, thereby having the potential to affect the nature of the land use and character of the neighborhood.

As is typical with construction projects, during periods of peak activity there would be some disruption to the nearby area. There would be construction trucks and construction workers coming to the area as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be most pronounced within the Lenox Terrace complex but would have more limited effects on land uses in the larger study area, as most construction activities would take place within the proposed development site or within portions of sidewalks and curb lanes immediately adjacent to the proposed development site: along Lenox Avenue and Fifth Avenue between 132nd Street and 135th Street, and along 132nd Street and 135th Street between Lenox and Fifth Avenues. In addition, throughout the construction period, measures would be implemented to control air quality, noise, and vibration within the construction areas, including the erection of construction barriers. The barriers would reduce potentially undesirable views of construction areas and buffer noise emitted from construction activities. Barriers would be used to protect the safety of pedestrians and bicyclists.

Overall, construction activities at the proposed development site would be widely evident to the local community, and would adversely affect conditions within the Lenox Terrace complex for an extended period. Depending upon the phase of construction, those existing buildings which are closest to the areas of work would receive the greatest negative consequence with respect to the residents' sense of the character of the complex. However, the construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the broader neighborhood.

SOCIOECONOMIC CONDITIONS

A preliminary assessment of direct business displacement is presented in Chapter 3, "Socioeconomic Conditions." As detailed in that chapter, 19 businesses would be directly

displaced from the proposed actions. However, as discussed in Chapter 3, comparable goods and services would be available to study area residents in the future with the proposed actions. Access to businesses within the Lenox Terrace complex would be maintained until they are displaced to accommodate the construction of the proposed buildings. As the proposed retail spaces are completed, they would available for rent by potential new businesses as well as those businesses that were directly displaced~~. For example, it is expected that new retail spaces within the midrise central podium connecting Proposed Buildings NW and SW would be available for occupancy by the fourth quarter of 2023~~.

Construction under the proposed actions would not significantly affect the operations of any other nearby businesses or businesses occupying the proposed new buildings, nor would construction obstruct major thoroughfares used by customers or businesses. Sidewalk bridges and sidewalk closures would not front any active businesses, and pedestrians would continue to have views of and access to businesses on surrounding blocks. Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits near the proposed development site created by expenditures by material suppliers, construction workers, and other employees involved in the construction activity. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes. Construction activities associated with the proposed actions would not result in any significant adverse impacts on socioeconomic conditions.

COMMUNITY FACILITIES

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

Construction activities under the proposed actions would not physically displace or alter any existing community facilities (i.e., public schools, child care centers, libraries, health care facilities, or police and fire protection services facilities). While construction under the proposed actions would result in temporary increases in traffic during the construction period, access to and from P.S. 197 and the Harlem Hospital Center located directly north of the proposed development site would be maintained during the construction period. Access to the Metropolitan AME Church within the rezoning area would also be maintained until it is redeveloped as part of the projected future development site. Measures outlined in the MPT plans would ensure that lane closures and sidewalk closures are kept to a minimum and that adequate pedestrian access is maintained. 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 in the rezoning area. Emergency vehicle access to the proposed development site would be maintained throughout the construction period, and emergency services and response times are not expected to be materially affected by construction. Therefore, construction under the proposed actions would not result in any significant adverse impacts on community facilities.

OPEN SPACE

No open space resources would be used for staging or other construction activities. The nearest open spaces resources are the Hansborough Recreation Center within the rezoning area, the Howard Bennett Playground to the north of the rezoning area across West 135th Street, and Abraham Lincoln Playground to the east of the rezoning area across Fifth Avenue. Access to the Howard Bennett Playground and Abraham Lincoln Playground would be maintained throughout

the duration of the construction period; however, during construction of the proposed Building N, a pedestrian gate to the east of the construction site may need to be temporarily closed, limiting access to the Hansborough Recreation Center from that location. Access to the main entrance to the recreation center, from the west via Lenox Terrace Place, would be maintained throughout construction

As presented above under "Air Quality," the detailed air modeling analysis concludes that construction associated with the proposed project would not result in significant adverse air quality impacts on nearby open spaces. Construction would be required to follow the requirements of the *New York City Noise Control Code* to minimize the noise effects during construction on nearby open space resources. As discussed above, noise levels expected to be experienced at the Howard Bennett Playground during construction would be "noticeable" (in the low to mid 70s dBA) during the three-month period of the most noise-intensive construction activity, and would be imperceptible to barely perceptible throughout the remainder of construction. Predicted construction noise levels would be in the "marginally unacceptable" range according to the *CEQR Technical Manual* noise exposure criteria. However, based on the limited duration and magnitude of predicted construction noise levels, construction-related noise would not rise to the level of a significant adverse open space impact at the Howard Bennett Playground. Construction noise levels anticipated to be experienced at the Hansborough Recreation Center would be in the "marginally unacceptable range" during the most noise-intensive stages of construction, which would have a duration of approximately three months, and would be noticeable at times over the course of 18 months. Based on the prediction of construction noise levels up to the high 70s dBA, as would be typical of construction in New York City involving driven piles adjacent to a receptor, with construction noise level increments up to approximately 16 dBA and CEQR screening threshold exceedances occurring over the course of approximately 18 months, construction noise associated with the proposed actions would not have the potential to result in a temporary significant adverse impacts at the Hansborough Recreation Center.

HISTORIC AND CULTURAL RESOURCES

A detailed assessment of potential impacts on historic and cultural resources is described in Chapter 7, "Historic and Cultural Resources."

The study area for archaeological resources is defined as the area where subsurface disturbance would occur. In a comment letter dated September 1, 2017, LPC determined that it has no archaeological concerns for the rezoning area.

LPC also has determined that the Lenox Terrace complex on the proposed development site appears eligible for listing on the New York State and National Registers of Historic Places (S/NR), for its cultural associations with prominent African Americans in the Harlem community. The proposed project would entail the demolition of five one-story retail structures on the proposed development site. These buildings are not known to have had any tenants that contribute to the Lenox Terrace complex's cultural associations with prominent African Americans in the Harlem community, and the buildings do not physically connect to any of the residential buildings that housed prominent community members and are in all cases separate and distinct structures. However, the retail buildings were constructed as part of the overall development of the Lenox Terrace complex and are part of the S/NR eligibility determination by LPC. Therefore, the demolition of the one-story structures on the proposed development site during construction would result in a significant adverse impact to historic resources. To avoid inadvertent demolition and/or construction-related damage from ground-borne construction period vibrations, falling debris,

collapse, etc., the residential buildings to be retained on the proposed development site would be included in a CPP for historic structures that would be prepared in coordination with LPC and implemented in consultation with a licensed professional engineer.

The Bethel AME Church is~~and P.S. 197 are~~ located within 90 feet from the proposed development site. Therefore, to avoid inadvertent demolition and/or construction-related damage to ~~these~~ this resource~~s~~ from ground-borne construction period vibrations, falling debris, collapse, etc., ~~they~~ it would be included in the project's CPP.

In addition, should standard DOB controls governing the protection of adjacent properties during construction activities not provide sufficient protection, it is possible that redevelopment of the projected future development site and the potential development site could have a direct significant adverse impact on the S/NR-eligible Lenox Terrace historic resource during construction. This potential impact could not be avoided, as these sites are not under the control of the applicant.

HAZARDOUS MATERIALS

The proposed actions would result in demolition of the existing retail structures on the proposed development site, and construction of five buildings with residential, commercial, and community facility uses on the proposed development site. A detailed assessment of the potential risks related to the construction of the proposed project with respect to any hazardous materials is described in Chapter 9, "Hazardous Materials."

The potential for hazardous material conditions within the rezoning area was evaluated based on a Phase I Environmental Site Assessment (ESA) of the proposed development site (AKRF, September 2018), and a hazardous materials screening for the projected future development site, performed by AKRF in May and June 2018. The hazardous materials assessment identified various potential sources of contamination on, or in close proximity to, the rezoning area. To reduce the potential for adverse impacts associated with new construction resulting from the proposed actions, further environmental investigations will be required as follows:

- Prior to any subsurface disturbance, a Subsurface (Phase II) Investigation, including the collection of samples for laboratory analysis, would be conducted, with sampling locations biased toward the proposed areas of disturbance. It is anticipated that due to access considerations, it will not be possible to conduct a Phase II on the proposed development site prior to the completion of the CEQR process.
- For the projected future development site, potential future development site, and any lots on the proposed development site where disturbance is planned, a hazardous materials (E) designation would be assigned to ensure that soil testing and any necessary remedial activities would be undertaken prior to and/or, as necessary, during redevelopment. The (E) designation would ensure that appropriate procedures for any necessary subsurface disturbance would be followed prior to, during, and following construction. The following actions would be required by the (E) designation prior to obtaining DOB permits for each new development entailing soil disturbance or change to a more sensitive building use (since development of each site would likely occur independently, this process would be applied to each site separately):
  - Prior to subsurface investigation, the (E) designation for that site would require the preparation of a Phase I ESA in accordance with the American Society of Testing Materials (ASTM) Standard E1527-13 (a Phase I ESA has already been prepared for the proposed development site).

- Based on Phase I ESA findings, a subsurface investigation of the area to be redeveloped would be performed in accordance with an OER-approved sampling protocol.
- Based on the findings of the investigation, a site-specific RAP and CHASP would be prepared for implementation during construction at that site, and submitted to OER for review and approval. The RAP and CHASP would address requirements for items such as: soil stockpiling, soil disposal and transportation; dust control; quality assurance; and contingency measures should petroleum storage tanks or contamination be unexpectedly encountered. The CHASP would include measures for worker and community protection, including personal protective equipment and dust control. OER approval of the RAP and CHASP would be required prior to obtaining construction permits for that site from DOB.
- Following the completion of soil disturbance, the (E) designation would require the submission of a Remedial Closure Report (RCR) to OER for review and approval to obtain a Notice of Satisfaction and Certificates of Occupancy for each newly constructed structures. The RCR would document proper performance of all procedures required by the RAP and CHASP.

The hazardous materials assessment also identified the potential for hazardous materials in existing buildings (such as ACM, LBP, and PCB-containing equipment and lighting fixtures). Regulatory requirements for maintenance and (if necessary) disposal of such materials prior to or during demolition would continue to be followed.

With the implementation of the above measures, construction under the proposed actions would not result in any significant adverse impacts with respect to hazardous materials. ✷