A. INTRODUCTION

This chapter summarizes the construction plans for the proposed project and assesses the potential for significant adverse impacts during the construction period. Construction impacts, although temporary, can include noticeable and disruptive effects from an action that is associated with construction or could induce construction. Determination of the significance of construction impacts and the need for mitigation is generally based on the duration and magnitude of the impacts. Construction impacts are usually important when construction activity could affect traffic conditions, hazardous materials, archaeological resources, the integrity of historic resources, community noise patterns, and/or air quality conditions.

The Proposed Action includes a zoning map amendment, a City map amendment, a zoning text amendment, large-scale general development Special Permits, a waterfront Special Permit, authorization to modify the waterfront public access area requirements, and waterfront certification by the Chairperson of the City Planning Commission (CPC). As discussed in Chapter 1, "Project Description," the Applicant, 2030 Astoria Developers, LLC, is proposing the aforementioned actions to facilitate a proposal to construct a new approximately 2,189,068 gross square foot (gsf) mixed-use development on approximately 377,736 sf of lot area (the "project site"). Under the reasonable worst-case development scenario (RWCDS), the Proposed Action would result in a total of approximately 1,689 dwelling units, approximately 109,470 gsf of local retail space, a site for a 456-seat elementary school, approximately 900 parking spaces, and approximately 83,846 sf (1.92 acres) of publicly accessible open space, as well as a variety of infrastructure (sewer and roadway) improvements.

Under the Applicant's proposed Uniform Land Use Review Procedure (ULURP) Phasing Plan for the proposed project, construction of the Astoria Cove development would occur in four general phases: Phase 1 would entail construction of Building 4 and the residential portion of Building 5, as well as the reconstruction of 26th Avenue west of 9th Street and the development of the 8th Street Mews south of 26th Avenue; Phase 2 would comprise Building 3's construction and the development of the 8th Street Mews north of 26th Avenue; Phase 3 would entail the construction of Building 2 and the 4th Street extension; and Phase 4 would entail the construction of Building 1 and the school portion of Building 5. The waterfront open space (including the public access easement) would be constructed in phases in conjunction with the adjacent waterfront parcel buildings. The anticipated Build Year is 2023.

The conceptual construction phasing and schedule for the proposed project is described in this chapter, followed by the types of activities likely to occur during construction. An assessment of potential impacts of construction activity and the methods that may be employed to avoid or minimize the potential for significant adverse impacts are then presented. While the anticipated construction schedule has been developed by an experienced New York City construction manager, the discussion is only illustrative. Specific means and methods will be chosen at the time of construction as there are no specific construction programs or finalized designs for the proposed project at this time. The conceptual schedule conservatively includes overlapping construction activities and simultaneously operating construction equipment while certain phases of the proposed project would be operational.

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

B. PRINCIPAL CONCLUSIONS

The analysis concludes that construction of the proposed project would result in significant adverse construction impacts with respect to vehicular traffic and noise. The results of construction analyses for each technical area are discussed in more detail below. Measures to mitigate the identified significant adverse construction traffic and noise impacts are presented in Chapter 20, "Mitigation."

Land Use and Neighborhood Character

Construction of the proposed project would not result in significant adverse impacts on land use or neighborhood character. The proposed project would entail construction over an approximately nine-year period; no one location on-site would be under construction or used for staging for the full nine years. Throughout the construction period, access to surrounding residences, businesses, and waterfront uses in the area would be maintained, as required by City regulations. In addition, throughout the construction period, measures would be implemented to control noise and air pollutant emissions, and dust on the construction sites and minimize impacts on the surrounding areas. Even with these measures in place, in some cases significant impacts, are predicted to occur. However, because none of these impacts would be continuous in any one location or permanent, they would not create significant impacts on land use patterns or neighborhood character in the area.

Socioeconomic Conditions

Construction of the proposed project would not result in significant adverse impacts on socioeconomic conditions. Construction of the proposed project could, in some instances, temporarily affect pedestrian and vehicular access on street frontages immediately adjacent to the project site. However, lane and/or sidewalk closures are not expected to occur in front of entrances to any existing or planned retail businesses, construction activities would not obstruct major thoroughfares used by customers or businesses, and the limited number of businesses surrounding the project site would not be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. In addition, construction would create direct benefits resulting from expenditures on labor, materials, and services and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction would also contribute to increased tax revenues for the City and the State, including those from personal income taxes.

Community Facilities

No study area community facilities would be directly affected by construction activities for an extended duration. The construction sites would be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. As the proposed 456-seat elementary school in Building 5 would be constructed in the final phase of the proposed project's development, no construction activities would occur adjacent to the school once it is operational. In addition, construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care services. Construction of the proposed project's buildings and other project elements would not block or restrict access to any community facilities in the area and would not materially affect emergency response times.

Open Space

Construction of the proposed project would not result in significant adverse impacts to area open spaces. As no open space resources currently exist on the project site, and no open space resources would be used for staging or other construction activities, no open space resources would be disrupted during the construction of the proposed project. Construction fences around these sites would shield the adjacent parks (including the nearby Shore Towers waterfront open space and the completed portions of the proposed waterfront open space) from construction activities. As construction of the proposed project would not limit access to existing or proposed open spaces in the vicinity of the project site, no significant adverse construction-related impacts on open space are anticipated.

However, as described in the "Noise" section of this chapter, noise levels at some project site and study area public open spaces would exceed the CEQR-recommended open space noise level of 55 dBA during certain periods of the proposed project's construction, as under the full build conditions (see Chapter 16, "Noise"). These activities would generate noise that could impair the enjoyment of nearby public open space users. However, as such noise effects would be temporary and of short duration, these would not be considered significant adverse open space impacts.

Historic and Cultural Resources

As described in Chapter 7, "Historic and Cultural Resources," a Phase 1A archaeological documentation study concluded that portions of the project site (Block 906, Lot 1; Block 908, Lot 12; and Block 909, Lot 35) could contain potentially sensitive archaeological resources. To determine if archaeological resources are present, Phase 1B archaeological testing will be carried out in these archaeologically sensitive areas; the Phase 1B testing protocol has been reviewed and approved by the New York City Landmarks Preservation Commission (LPC). The Phase 1B testing would be conducted in consultation with the LPC prior to construction of the affected blocks. If no resources of significance are encountered, no further archaeological study would be warranted. Should the Phase 1B archaeological field testing find significant archaeological resources on the project site, further testing would be undertaken in consultation with LPC to identify the boundaries and significance of the find. If required, data recovery would be undertaken in consultation with LPC. With implementation of all of the above measures, which will be incorporated into the Restrictive Declaration, there would be no significant adverse impacts to archaeological resources resulting from construction of the proposed project.

Natural Resources

Construction of the proposed project would not result in significant adverse impacts to natural resources. Construction activities that would be located within the tidal wetlands adjacent area would not result in a net increase in fill below the Spring High Water (SHW) or Mean High Water (MHW) lines or a change in shoreline configuration that would result in loss of New York State Department of Environmental Conservation (NYSDEC) littoral zone tidal wetlands. The new stormwater outfalls would be constructed above the SHW elevation and would not have the potential to adversely affect NYSDEC littoral zone tidal wetlands or aquatic resources. As outlined in Chapter 9, "Natural Resources," further discussions will be held with the NYSDEC during the NYSDEC application process, and additional measures may be incorporated either on- or off-site to eliminate the potential for significant adverse impacts to NYSDEC littoral zone tidal wetlands, if deemed necessary. With the implementation of such measures, there would be no significant adverse impacts to NYSDEC littoral zone tidal wetlands, water quality, or aquatic biota from construction of the esplanade.

While construction of the proposed project would require tree removal on the project site as well as the 9th Street sidewalk located along the project site boundaries, it would not eliminate or degrade valuable wildlife habitat. Terrestrial ecological communities present on the project site are characteristic of an urbanized landscape and highly ubiquitous throughout New York City. These ecological communities are not of high ecological value or uncommon in the surrounding area. Therefore, loss of some areas of these communities within the project site due to clearing activities would not result in a significant adverse impact to these or other ecological communities at a local or regional scale. Overall, construction of the proposed project would not have significant adverse impacts to wildlife or wildlife habitat within the project site or in the surrounding area.

Implementation of erosion and sediment control measures and stormwater management measures identified in the Stormwater Pollution Prevention Plan (SWPPP) would minimize potential impacts on littoral zone tidal wetlands and aquatic resources along the edges of the project site associated with discharge of stormwater runoff during land-disturbing activities resulting from construction of the proposed project. Furthermore, the proposed project would adhere to all applicable rules and regulations governing groundwater; consequently, significant adverse impacts to groundwater would not occur as a result of construction of the proposed project. Any hazardous materials encountered during grading or other land-disturbing activities would be handled and removed in accordance with New York City Department of Environmental Protection (DEP), NYSDEC, the Occupational Safety and Health Administration (OSHA), and United States Environmental Protection Agency (EPA) requirements, and the Remedial Action Plan (RAP)/Construction Health and Safety Plan (CHASP) to be prepared for the project site in accordance with the (E) designation that will be assigned to the project site.

Hazardous Materials

Based on the findings of the Phase I Environmental Site Assessment (ESA), an (E) designation (E-343) will be assigned to the project site (Block 906, Lots 1 and 5; Block 907, Lots 1 and 8; Block 908, Lot 12; and Block 909, Lot 35) to ensure that remedial activities would be undertaken prior to redevelopment. With these (E) designations in place, sampling and remedial protocols and reports will be required, and will be submitted to the New York City Office of Environmental Remediation (OER) for review and approval prior to construction. Specifically, based on the findings of the Phase I ESA, a Subsurface (Phase II) Investigation would be conducted in substantial conformance with the DEP-approved Work Plan for the project site to determine whether past or present, on-site or off-site activities have affected subsurface conditions; all Phase II work would be conducted in substantial conformance with the DEP-approved Health and Safety Plan (HASP). Following implementation of this Phase II investigation and based on its findings, a RAP and associated CHASP would be prepared (and submitted to OER for review and approval) for implementation during the proposed construction. With the (E) designation in place and implementation of the associated sampling and remedial protocols described above, in addition to adherence to the applicable DEP and OSHA regulations, construction of the proposed project would not result in significant adverse hazardous materials impacts.

Transportation

Peak construction conditions during the fourth quarter of 2022 were considered for the analysis of potential transportation (traffic, parking, transit, and pedestrian) impacts during construction. Based on the combined construction and operational vehicle trip projections in 2022 (Q4), construction activity is expected to result in significant adverse traffic impacts. However, no significant adverse impacts to parking, transit, or pedestrian conditions are anticipated due to construction.

Traffic

The peak construction period vehicle trips, including both construction and operational trips, are expected to occur in the fourth quarter of 2022. Increased vehicle volumes in the surrounding area are anticipated to result in significant adverse impacts at three of the five analyzed construction traffic study area intersections in one or more peak hour: 27th Avenue and 4th Street during the 3-4 PM peak hour; 27th Avenue and 8th Street during both construction peak hours; and 27th Avenue and 9th Street during both construction peak hours. At all other study area intersections where significant adverse traffic impacts are anticipated for the proposed project's full build, similar or lesser impacts are anticipated. With implementation of the same mitigation measures recommended to mitigate the operational traffic impacts (see Chapter 20, "Mitigation"), the identified potential significant adverse construction period impacts at 27th Avenue/8th Street and 27th Avenue/9th Street could be fully mitigated. Impacts at 27th Avenue/4th Street could be only partially mitigated.

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

Parking

The anticipated construction activities are projected to generate a maximum parking demand of 85 spaces during the peak construction traffic period (2022, Q4). The combined construction and operational parking demand during the construction traffic peak period would be accommodated by the completed project site parking garages, with temporary shortfalls of parking on-site during the construction peak period accommodated by available on-street parking within a ¼-mile of the project site.

Transit

The estimated number of total construction peak hour transit trips would be 37, below the CEQR analysis thresholds of 200 trips at any one subway station (or station element) or any one bus route and 50 trips in any one direction on one bus route. In addition, these construction worker trips would occur outside of peak periods for transit ridership and be distributed and dispersed to the nearby transit facilities. As such, no significant adverse transit impacts are anticipated during the project's construction.

Pedestrians

The estimated number of total construction peak hour pedestrian trips traversing the area's sidewalks, corners, and crosswalks would be 122. While the combined construction and operational pedestrian trips (including walk-only, bus, and subway trips) during the construction peak hour would exceed the CEQR threshold of 200 trips for detailed analysis, they would occur during off-peak hours, and would be less than half the operational project peak pedestrian trips. As the Proposed Action would not result in operational pedestrian impacts upon completion in 2023, there would be no pedestrian impacts with partial build-out of the proposed project during 2022 (Q4) peak construction.

During construction, where sidewalk closures are required, adequate protection or temporary sidewalks would be provided in accordance with NYCDOT-OCMC requirements.

Air Quality

Construction air quality was modeled for CO, NO_2, $PM_{2.5}$, and PM_{10} using EPA's AERMOD dispersion model for the worst-case for construction activities. The Applicant has committed to measures that would minimize pollutant emissions during construction. This includes use of Tier 3 with diesel particle filters (DPFs) or newer equipment, locating all construction equipment 50 feet from nearby residential/community facility buildings and open spaces (where feasible), and using DPFs and selective catalytic reduction (SCR) retrofit kits on stationary equipment with 50 horsepower (hp) or more. Based on these commitments, the worst-case construction air quality analysis showed no potential for concentrations of criteria pollutants to exceed the National Ambient Air Quality Standards (NAAQS) or *de minimis* criteria at sidewalks, open space, or residential windows in the vicinity of the construction sites for Buildings 2 or 3. As the remaining construction sites are of similar size, have similar numbers of equipment on the site, or are similarly oriented with regard to adjacent receptor locations, modeled exceedances of the *de minimis* criteria are not likely to occur at additional receptor locations adjacent to the remaining construction sites.

The construction air quality analysis for the Draft Environmental Impact Statement (DEIS) was based on conservative assumptions. The maximum annual concentrations were computed for the peak construction quarter and the results conservatively assumed that this peak construction activity would last an entire year. In addition, the modeling assumed that the construction activity would occur 24 hours per day instead of the actual construction workday of 8 to 12 hours. Furthermore, the analysis did not account for the effect of construction fencing around the site perimeter. The location of the maximum annual average concentrations also would vary based on the location of the sources during construction, which would move throughout the site over time. Based on more refined modeling conducted for the Final EIS (FEIS) and the components of the emissions reduction program described below, the Restrictive Declaration has been adjusted, as appropriate.

Noise

Between the DEIS and the FEIS, a more refined construction noise analysis was undertaken to more precisely determine the magnitude of the elevated noise levels resulting from construction at these locations. The refined analysis examined both the practicality and feasibility of relocating some equipment within the construction sites to add distance and/or shielding between the equipment and the adjacent receptors, and the addition of a 16-foot high wall around the active construction sites.

With the implementation of noise control measures, including path and source controls, construction of the proposed project would not result in significant adverse noise impacts on existing sensitive receptors in the surrounding areas, including open space resources. While interior noise levels at existing nearby residential buildings would, during some time periods (i.e., the periods when exterior $L_{10(1)}$ noise levels due to construction would be greater than the low- to mid-70s dBA range), exceed the CEQR acceptable interior noise level criteria for residential uses of 45 dBA $L_{10(1)}$., such exceedances would occur for less than 24 consecutive months and therefore would not represent a significant adverse impact at these project site buildings, pursuant to CEQR impact criteria.

With the provision of 26 dBA of attenuation along the northwest façade of Building 2, and 25 dBA of attenuation on the west façade of Building 3 and the north façade of Building 4, no significant adverse noise impacts are expected to occur on completed and occupied project site buildings during construction on adjacent building sites. Interior noise levels would, during some time periods, exceed the CEQR acceptable interior noise level criteria for residential uses of 45 dBA $L_{10(1)}$. Such exceedances may be intrusive, but would occur for less than 24 consecutive months and therefore would not represent a significant adverse impact at these project site buildings, pursuant to CEQR impact criteria.

Rodent Control

Construction contracts for the proposed project would include provisions for a rodent (mouse and rat) control program. Before the start of construction of any of the proposed buildings, construction contractors would survey and bait the appropriate areas and provide for proper site sanitation. During the construction phase, as necessary, the contractors would carry out a maintenance program in a manner that avoids hazards to persons, domestic animals, and non-target wildlife. Coordination would be maintained with the appropriate public agencies.

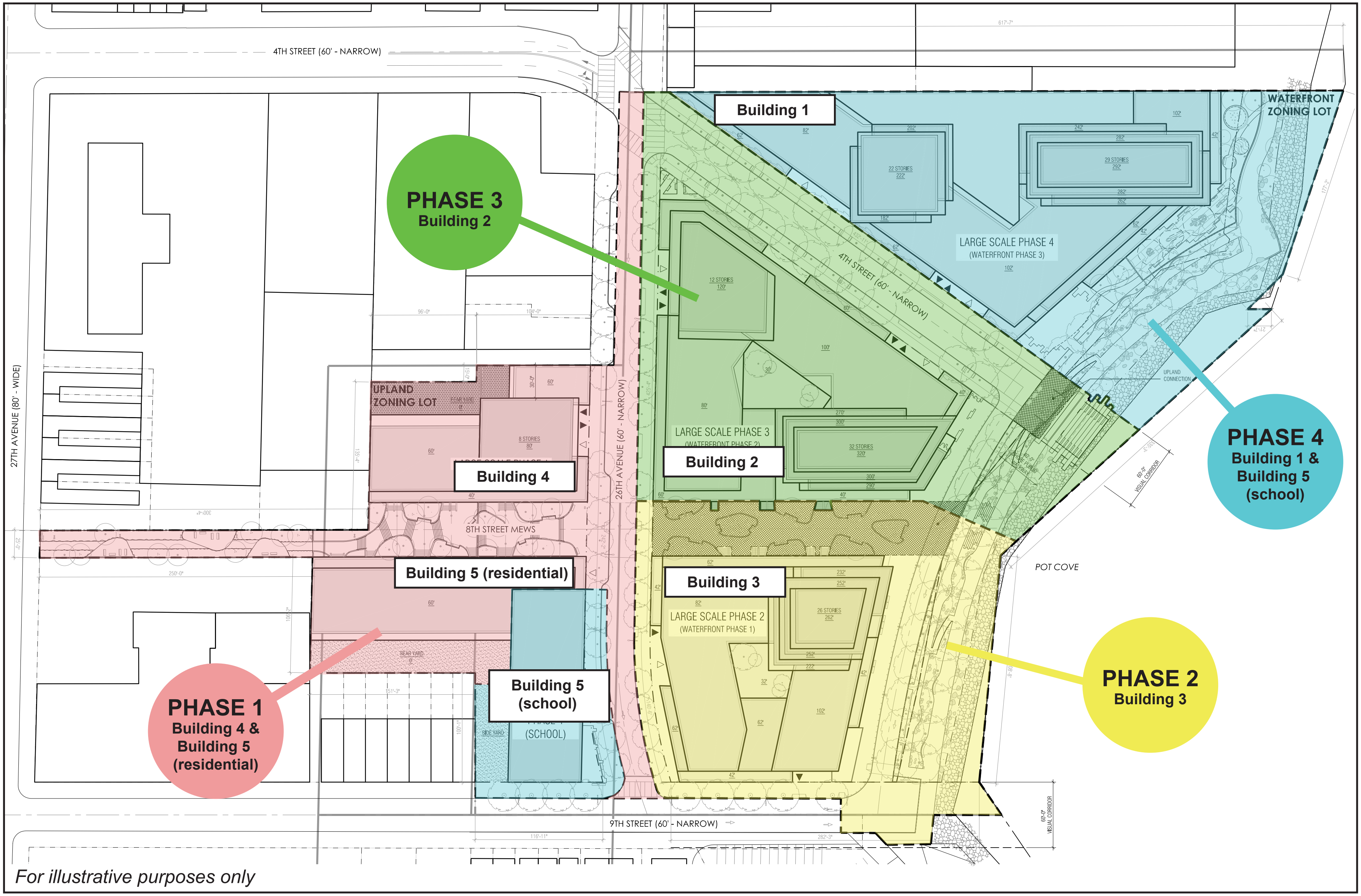
C. CONSTRUCTION PHASING AND ACTIVITIES

As depicted in Figure 19-1, construction of the Astoria Cove development would occur in four general phases: Phase 1 would entail construction of Building 4 and the residential portion of Building 5, as well as the reconstruction of 26th Avenue and the development of the 8th Street Mews south of 26th Avenue; Phase 2 would comprise Building 3's construction and development of the 8th Street Mews north of 26th Avenue; Phase 3 would entail the construction of Building 2 and the 4th Street extension; and Phase 4 would entail the construction of Building 1 and the school portion of Building 5. The waterfront open space (including the public access easement) would be constructed in phases in conjunction with the adjacent waterfront parcel buildings, as shown in Figure 19-1. It is further anticipated that all existing industrial buildings on the waterfront parcel would remain operational during construction on the upland parcel; waterfront buildings would be vacated prior to their respective demolition.

The anticipated construction schedule is shown in Table 19-1. The construction schedule reflects the sequencing of construction events as currently contemplated, based on the detailed construction schedule provided by the Applicant (see Appendix H). The schedule represents the best estimate based upon the current building designs and prior experience. As shown in the table, construction is expected to begin in the fourth quarter of 2014, with an anticipated 2023 (Q2) completion.

Construction of the residential buildings would generally occur over a 24-month period, including six months of demolition, excavation and foundation work, nine months of superstructure work, and nine months of interior and exterior finishing; construction of Building 5's residential portion (the smallest of the proposed residential buildings) would take slightly less time, and is expected to occur over an approximately 18-month period. The Building 5 school construction would occur over a 15-month period, including three months of excavation and foundation work, six months of superstructure work, and six months of interior and exterior finishing. Detailed descriptions of the anticipated construction activities that would occur during the respective construction phases are provided below.

In general, only one building would be under construction at a time, with two exceptions: construction of Building 4 and Building 5's residential portion would overlap for approximately twelve months (2015, Q4 – 2017, Q1), and construction of Building 1 and Building 5's school portion would overlap for approximately fifteen months (2022, Q1 – 2023, Q1). Construction on the project site is generally expected to be continuous throughout the approximately nine-year construction period, with the exception of a three-month period in 2019 between completion of Building 3 and the start of construction of Building 2 (2019, Q2).



Astoria Cove

Figure 19-1

Astoria Cove Anticipated Construction Phasing Schedule

Table 19-1: Astoria Cove Conceptual Construction Schedule

Building	2014	2015				2016				2017				2018				2019				2020				2021				2022				2023	
	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
1																																			
2																																			
3																																			
4																																			
5 (Residential)																																			
5 (School)																																			

Notes:

1. Green indicates demolition/excavation/foundation phase as well as Phase II hazardous materials testing and Phase 1B archaeological testing if warranted; Blue indicates superstructure phase; Orange indicates exterior and interior finishing work.
2. Construction of the proposed waterfront esplanade and associated upland connections as well as the waterfront parcel's new roadways and associated infrastructure is included in the construction of Buildings 1, 2, and 3, as each of these building sites will also involve the construction of the corresponding portion of the esplanade and upland connections. Construction of 26th Avenue and associated infrastructure and 8th Street south of 26th Avenue is included in construction of Building 4 and 5, as each of these building sites will also involve the construction of the adjacent portions of these roadways.

Construction Activities

Overview

Construction of mid-rise or large-scale buildings in New York City typically follows a general pattern. The first task is construction startup, which involves the siting of work trailers, installation of temporary power and communication lines, and the erection of site perimeter fencing. Then, if there is an existing building on the site, any potential hazardous materials (such as asbestos) are abated, and the building is then demolished with some of the materials recycled and debris taken to a licensed disposal facility. For sites requiring new or upgraded public utility connections, these activities are undertaken next (e.g., electrical connection, installation of new water or sewer lines and hook-ups, etc.). Excavation and removal and/or addition and re-grading of the soils is the next step, followed by construction of the foundations. When the below-grade construction is completed, construction of the core and shell of the new building begins. The core is the central part of the building and is the main part of the structural system. It contains the elevators and the mechanical systems for heating, ventilation, and air conditioning (HVAC). The shell is the outside of the building. As the core and floor decks of the building are being erected, installation of the mechanical and electrical internal networks would start. As the building progresses upward, the exterior cladding is placed, and the interior fit-out begins. During the busiest time of building construction, the upper core and structure are built while the mechanical/electrical connections, exterior cladding, and interior finishing progress on lower floors. Finally, site work, including landscaping and other site work associated with a particular building site, like completing or resurfacing new access roadway and sidewalks (or for Buildings 1, 2, and 3, completing the associated segments of waterfront esplanade and upland connections) is undertaken, and site access and protection measures required during construction are removed.

General Construction Practices

<u>Governmental Coordination and Oversight</u>

The following describes governmental construction oversight agencies and typical construction practices in New York City. In certain instances, specific practices may vary from those described below. However, the typical practices are expected to be used as they have been developed over many years and have been found to be necessary to successfully complete large projects in a confined urban area. All deliveries, material removals, and hoist uses have to be tightly scheduled to maintain an orderly work area and to keep the construction on schedule and within budget.

The governmental oversight of construction in New York City is extensive and involves a number of City, State, and Federal agencies. Table 19-2 shows the main agencies involved in construction oversight and each agency’s areas of responsibility. The primary responsibilities lie with New York City agencies. The New York City Department of Buildings (DOB) has the primary responsibility for ensuring that the construction meets the requirements of the Building Code and that buildings are structurally, electrically, and mechanically safe. In addition, DOB enforces safety regulations to protect both construction workers and the public. The areas of responsibility include the installation and operation of construction equipment, such as cranes and lifts, sidewalk sheds, and safety netting and scaffolding. DEP enforces the Noise Code, approves RAPs and CHASPSs, and regulates water disposal into the sewer system. The New York City Fire Department (FDNY) has primary oversight for compliance with the Fire Code and for the installation of tanks containing flammable materials. NYCDOT reviews and approves any traffic lane and sidewalk closure. New York City Transit (NYCT) is in charge of bus stop relocations and any subsurface construction within 200 feet of a subway. The LPC approves studies and testing to prevent loss of archaeological materials and to prevent damage to fragile historic structures.

Table 19-2: Construction Oversight in New York City

Agency	Area(s) of Responsibility
New York City	
Department of Buildings (DOB)	Primary oversight for Building Code and site safety
Department of Environmental Protection (DEP)	Noise, hazardous materials, dewatering
Fire Department (FDNY)	Compliance with Fire Code, tank operation
Department of Transportation (DOT)	Traffic lane and sidewalk closures
New York City Transit (NYCT)	Bus stop relocation; any subsurface construction within 200 feet of a subway
Landmarks Preservation Commission (LPC)	Archaeological and historic architectural protection
New York State	
Department of Labor (DOL)	Asbestos workers
Department of Environmental Conservation (NYSDEC)	Dewatering, hazardous materials, tanks, Stormwater Pollution Prevention Plan (SWPPP), Industrial State Pollution Discharge Elimination System (SPDES), if any discharge into the Hudson River
United States	
Environmental Protection Agency (EPA)	Air emissions, noise, hazardous materials, toxic substances
Occupational Safety and Health Administration (OSHA)	Worker safety

The NYSDEC regulates discharge of water into rivers and streams, disposal of hazardous materials, and construction, operation, and removal of bulk petroleum and chemical storage tanks. The New York State Department of Labor (DOL) licenses asbestos workers. On the Federal level, the EPA has wide raging authority over environmental matters, including air emissions, noise, hazardous materials, and the use of poisons; much of the responsibility is delegated to the state level. The United States Occupational Safety and Health Administration (OSHA) sets standards for work safety and the construction equipment.

Deliveries and Access

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

Material deliveries to the site would be controlled and scheduled. Unscheduled or haphazard deliveries would be minimized. To aid in adhering to the delivery schedules, as is normal for building construction in New York City, flaggers would be employed at each of the gates. The flaggers could be supplied by the subcontractor on-site at the time or by the construction manager. The flaggers would control trucks entering and exiting the site so that they would not interfere with one another. In addition, they would provide an additional traffic aid as the trucks enter and exit the on-street traffic streams.

Hours of Work

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

Occasionally, Saturday or overtime hours may be required to complete some time-sensitive tasks. Weekend work requires a permit from the DOB and, in certain instances, approval of a noise mitigation plan from the DEP under the City's Noise Code. The New York City Noise Control Code, as amended December 2005 and effective July 1st, 2007, limits construction (absent special circumstances as described below) to weekdays between the hours of 7 AM and 6 PM and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6 PM and 7 AM and on weekends) may be permitted only to accommodate: (1) emergency conditions; (2) public safety; (3) construction projects by or on behalf of City agencies; (4) construction activities with minimal noise impacts; and (5) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. In such cases, the number of workers and pieces of equipment in operation would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. The typical weekend workday would be on Saturday from 7 AM with worker arrival and site preparation to 5 PM for site cleanup.

Sidewalk and Lane Closures

During the course of construction, traffic lanes and sidewalks would be closed or protected for varying periods of time. NYCDOT-OCMC reviews and approves all MPT plans, which specify any planned sidewalk or lane closures and staging for all construction sites. In general practices, construction managers for major projects on adjacent sites would coordinate their activities to avoid delays and inefficiencies.

Truck movements would be spread throughout the day and would generally occur between the hours of 6 AM and 3 PM, depending on the stage of construction. Some street lanes and sidewalks would be closed temporarily to allow for certain construction activities during the project's construction; no rerouting of traffic is anticipated. Pedestrian circulation and access would be maintained throughout the construction period through the use of protected sidewalks enclosures, temporary sidewalks, or sidewalk bridges. NYCDOT would be consulted to determine the appropriate protective measures for ensuring pedestrian safety surrounding the building sites.

Rodent Control

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

General Construction Tasks

Abatement, Demolition, and Remediation

Development under the Proposed Action would require the demolition of several existing buildings on the project site. As indicated in Table 19-1, demolition activities would occur in phases following the Applicant's proposed ULURP Phasing Plan. These areas would be abated of asbestos and any other hazardous materials within the existing building and structures, where applicable, as outlined in the DEP-approved Phase II Work Plan and Health and Safety Plan (HASP).

Prior to demolition, a New York City-certified asbestos investigator would inspect the buildings for asbestos-containing materials (ACMs). If ACMs are found, these materials must be removed by a DOL-licensed asbestos abatement contractor prior to building demolition. Asbestos abatement is strictly regulated by DEP, DOL, EPA, and OSHA to protect the health and safety of construction workers and nearby residents and workers. Depending on the extent and types of ACMs, these agencies would be notified of the asbestos removal project and may inspect the abatement site to ensure that work is being performed in accordance with applicable regulations. These regulations specify abatement methods, including wet removal of ACMs that minimize asbestos fibers from becoming airborne. The areas of the building with ACMs would be isolated from the surrounding area with a containment system and a decontamination system. The types of these systems would depend on the type and quantity of ACMs, and may include hard barriers, isolation barriers, and/or critical barriers. Specially trained and certified workers, wearing personal protective equipment, would remove the ACMs and place them in bags or containers lined with plastic sheeting for disposal at an asbestos-permitted landfill. Depending on the extent and type of ACMs, an independent third-party air monitoring firm would collect air samples before, during, and after the asbestos abatement. These samples would be analyzed in a laboratory to ensure that regulated fiber levels are not exceeded. After the abatement is complete and the work areas have passed a visual inspection and monitoring, if applicable, the general demolition work can begin. At the same time that the ACMs are being abated, removal of other materials that could be hazardous could take place. These other materials may include fluorescent light bulbs that contain mercury, lead based paints, and transformers that contain polycyclic biphenyls.

General demolition is the next step. First, any economically salvageable materials are removed. Then the building is deconstructed using large equipment. Typical demolition requires solid temporary walls around the building to prevent accidental dispersal of building materials into areas accessible to the general public. As the building is being deconstructed, bulldozers and front-end loaders would be used to load materials into dump trucks. The demolition debris would be sorted prior to being disposed at landfills to maximize recycling opportunities.

Construction Startup Tasks

The following tasks are considered to be typical startup work to prepare a site for construction. Construction startup work prepares a site for the construction work and would involve the installation of public safety measures, such as fencing, sidewalk sheds, and Jersey barriers. The construction sites would be fenced off, typically with solid fencing to minimize interference between the persons passing by the site and the construction work. Gates for workers and for trucks would be installed, and sidewalk sheds and Jersey barriers would be erected. Trailers for the construction engineers and managers would be hauled to the site and installed. Also, portable toilets, dumpsters for trash, and water and fuel tankers would be brought to the site and installed. Temporary utilities would be connected to the construction trailers. During the startup period, permanent utility connections may be made, especially if the construction manager has obtained early electric power for construction use, but utility connections may be made almost any time during the construction sequence.

Excavation and Foundation

As part of the proposed project, below-grade space would be built. Excavators would be used for the task of digging foundations. Any excavated soil to be removed from the project site would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse elsewhere on the project site or on another construction site. Foundation work would include the use of cranes, drill rigs, excavators, backhoes, pumps, vibrator plate compactors, concrete pumps, jackhammers, compressors, a variety of small tools, and dump trucks and concrete trucks.

All construction subsurface soil disturbances would be performed in accordance with an agency-approved RAP and CHASP. As outlined in Chapter 10, "Hazardous Materials," preparation of the RAP and CHASP will be mandated through a hazardous materials (E) designation that will be assigned to the project site lots (E-343). The RAP and CHASP would be reviewed and approved by OER. At a minimum, the RAP would provide for the appropriate handling, stockpiling, testing, transportation, and disposal of excavated materials, as well as any unexpectedly encountered tanks, in accordance with all applicable Federal, State, and local regulatory requirements. The CHASP would ensure that all subsurface disturbances are done in a manner protective of workers, the community, and the environment.

The project site's excavated areas could be subject to accumulated groundwater as well as collected rain and snow until the slab-on-grade is built. This accumulated water would need to be removed, and would be pretreated prior to discharge, if necessary. The decanted water would then be discharges into the City sewer system. For water discharged into the City's sewers, DEP regulations specify maximum concentrations of pollutants, and DEP can impose project-specific limits, depending on the location of the project and contamination that has been found in nearby areas. Any groundwater discharged into the City's sewer system would meet the applicable limits.

Superstructure and Exterior Facade

Building construction generally involves building the core, fitting the exteriors or shell, installing the mechanical and electrical systems, and finishing the interior fit-out. Construction of the core would include construction of the building's framework (installation of beams and columns) and floor decks; elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; core stairs; and restroom areas. Exterior construction involves the installation of the façade (exterior walls, windows, and cladding and the roof). These activities would require the use of air compressors, cranes, delivery and concrete trucks, concrete pumps, concrete trowels, welding equipment, and a variety of handheld tools. Temporary construction elevators (hoists) would also be constructed for the delivery of materials and vertical movement of workers when necessary.

Interior and Finishing

This stage would include the construction of interior partitions, installation of lighting fixtures, amenity construction, interior finishes (floor, painting, millwork, glass and glazing, door and hardware, etc.), mechanical and electrical work (such as the installation of elevators), and plumbing and fire protections fit-out work. Equipment used during interior construction would include exterior hoists, cranes, and a variety of small hand-held tools. This stage of construction is typically the quietest and does not generate fugitive dust.

This stage of construction would include the final finishing of the building and grounds, including landscaping activities. The respective waterfront esplanade, upland connection, 8th Street Mews, and street finishing work would also occur during this phase, in conjunction with their associated building phases (see Figure 19-1). This is also when the construction protection measures (fencing, sidewalk enclosures, bridges, temporary sidewalks, remaining scaffolding, etc.) around the construction sites would be removed.

Detailed Construction Phasing

Phase 1

Phase 1 of the Astoria Cove project's construction would involve construction activity occurring on the two upland parcels over an approximately 30-month period. Several important infrastructure improvements would occur during this phase, including construction of the 8th Street Mews between 26th and 27th Avenues and the reconstruction, extension, and paving of 26th Avenue to 9th Street. New stormwater and sanitary sewers would be laid below 26th Avenue. As described in Chapter 11, "Water and Sewer Infrastructure," it is currently anticipated that the new sanitary sewer would connect to the existing 26th Avenue interceptor at the intersection of 4th Street and 26th Avenue. The new stormwater sewer would extend the length of the Astoria Cove buildings' 26th Avenue frontages, continue along 9th Street (north of 26th Avenue), and flow to the proposed new stormwater outfall at the northern terminus of 9th Street. All of these infrastructure improvements would occur during Phase 1 of the Astoria Cove project's construction.

The existing industrial uses on the waterfront parcel could remain tenanted during this first phase of the project's development, and 26th Avenue would serve both construction and operational traffic. Upon completion, the improved and extended 26th Avenue would serve one-way eastbound traffic. As the mapped 26th Avenue does not provide a through connection to 9th Street under existing conditions, disruptions to existing traffic patterns due to construction and paving activities on the currently unimproved portion of the roadway would be minor.

It is anticipated that construction equipment staging during this phase would occur on the upland parcels and the adjacent portions of 26th Avenue and 8th Street. As described above, all temporary sidewalk and lane closures during construction would be coordinated with NYCDOT-OCMC to ensure that the existing industrial uses on the waterfront parcel would maintain sufficient vehicular and pedestrian access throughout Phase 1 of the proposed project's construction.

Based on the results of the Phase 1A archaeological assessment, further archaeological testing is warranted on both upland parcels. As outlined in the Phase 1B Work Plan, which was reviewed and approved by LPC in August 2013, the upland parcels will be investigated by excavating test pits and mechanical testing down to virgin soil to determine the location of the historic buildings' footprints and any potential cistern. While only a portion of Building 5 would be constructed during Phase 1, all archaeological testing on the upland parcel would take place during Phase 1 of Astoria Cove's construction so as to avoid destruction of any potential archaeological resources.

Phase 2

Phase 2 of the Astoria Cove project's construction would occur over a 24-month period and would entail construction of Building 3 on the waterfront parcel, the adjacent waterfront open space (including a portion of the proposed public access easement), the 8th Street Mews between 26th Avenue and the waterfront, and the vehicle turnaround area at the northern terminus of 9th Street. Existing waterfront parcel industrial uses to the west of the Building 3 site could remain operational throughout Phase 2 of the Astoria Cove project's construction.

As Block 906, Lot 1 (which comprises a portion of the Building 3 site) was identified as an area of potential archaeological sensitivity, the lot's required archaeological testing would occur during the demolition/excavation/foundation portion of Phase 2. As outlined in the LPC-approved Phase 1B Work Plan, archaeological testing would initially take place prior to demolition of the existing building on the lot and would include six soil borings and the opening of a series of test trenches. Additional archaeological testing may be warranted upon demolition of the existing building on the lot.

It is anticipated that construction equipment staging during this phase would occur on the project site, with temporary disruptions on the adjacent portions of 9th Street and 26th Avenue. As previously stated, existing Applicant-owned properties to the west on the waterfront parcel would be operational during this phase, and the adjacent roadways would continue to serve operational traffic (including traffic generated by the Astoria Cove project's Phase 1 buildings) throughout Phase 2 of the project's construction. Upon completion of Phase 2 and prior to connection to the proposed 4th Street extension, the Phase 2 portion of the proposed public access easement would primarily serve as a pedestrian area and an emergency vehicle access area.

Phase 3

Phase 3 of the Astoria Cove project's construction would involve construction of Building 2, the 4th Street northern extension and all associated infrastructure (including new stormwater and sanitary sewers), the adjacent waterfront open space (including a portion of the proposed public access easement), as well as the proposed stormwater outfall into Pot Cove at the northern terminus of 4th Street. At the start of this 24-month phase of construction, all remaining waterfront parcel industrial/warehousing buildings would be vacated and demolished, while the adjacent Buildings 3, 4, and 5 (residential portion) would be fully operational. As such, 26th Avenue would continue to serve operational traffic generated by the Astoria Cove project's Phase 1 and 2 buildings throughout Building 2's construction.

Phase 3 construction equipment staging would occur primarily on the Building 2 site and along the future 4th Street extension. As described above, temporary sidewalk and/or lane closures along adjacent portions of 26th Avenue would be reviewed and approved by NYCDOT-OCMC. Upon completion of Phase 3, 4th Street would connect to the waterfront public access easement, providing a vehicular connection between 4th Street/26th Avenue and 9th Street/the public access easement.

Phase 4

The final phase of construction would occur over an approximately 24-month period and would entail construction of Building 1 and the adjacent waterfront open space, as well as the school portion of Building 5 on the upland parcel. As stated above, the existing industrial buildings on the Building 1 site would be demolished during Phase 3 of the proposed project's construction, and therefore, no building demolition would occur during Phase 4.

All project site and adjacent roadways would continue to serve operational traffic throughout Phase 4, with temporary sidewalk and lane closures anticipated along portions of the proposed 4th Street extension as well as along portions of 26th Avenue and 9th Street, adjacent to the Building 5 school. As described above, all temporary sidewalk and/or lane closures would be reviewed and approved by NYCDOT-OCMC.

Number of Construction Workers and Material Deliveries

The number of workers and the number of truck trips associated with material deliveries vary with the general construction task and the size of the building. Table 19-3, below, shows the estimated number of workers and deliveries to the project site by calendar quarter for all construction, based on the detailed construction schedule provided by the Applicant. As shown in Table 19-3, the average number of workers would be approximately 92 per day throughout the construction period and would peak at 152 per day from 2022, Q1 – 2023, Q1. For truck trips, the average number of delivery trucks would be 13 per day, and the peak number of trucks (28) would occur during the first quarter of construction (the fourth quarter of 2014). The estimate of average daily truck trips conservatively assumes a minimum of six truck trips per day (the minimum number of delivery trucks anticipated, per the detailed construction schedule) during all building construction periods.

Table 19-3: Average Number of Daily Workers and Trucks by Quarter

Year	**2014**				**2015**				**2016**				**2017**			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	--	--	--	41	41	41	41	56	56	56	56	15	15	77	77	77
Trucks	--	--	--	28	16	6	6	25	21	21	18	18	6	23	23	8
Year	**2018**				**2019**				**2020**				**2021**			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	77	77	77	77	77	0	127	127	127	127	127	127	127	127	139	139
Trucks	8	7	6	6	6	0	23	23	9	9	7	6	6	6	26	26
Year	**2022**				**2023**								**Average**		**Peak**	
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th								
Workers	152	152	152	152	152	139	--	--					92		152	
Trucks	10	10	15	22	11	6	--	--					13		28	

D. FUTURE WITHOUT THE PROPOSED ACTION (NO-ACTION CONDITION)

In the future without the Proposed Action, the existing waterfront industrial uses would remain on the site, and two four-story residential buildings would be constructed on the upland parcel. In conjunction with the as-of-right upland parcel development, it is assumed that portions of 8th Street and/or 26th Avenue would be built-out to satisfy DOB building frontage requirements. As No-Action development on the project site would involve less construction, the duration of construction would be shorter; during active periods of construction, the effects would be similar to those of other low- to mid-rise residential construction projects in the City.

As outlined in the 2013 *Halletts Point Rezoning FEIS*, construction of the nearby Halletts Point project is projected to occur between the fourth quarter of 2014 and the second quarter of 2022 and therefore would overlap with the majority of the anticipated Astoria Cove construction schedule. Due to its proximity to the project site, consideration of Halletts Point's operation and construction have been incorporated into the future without the Proposed Action for a conservative impact analysis.

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

Similar to many large development projects in New York City, construction can be disruptive to the surrounding area for limited periods of time throughout the construction period. While the anticipated construction schedule has been developed by an experienced New York City construction manager, the discussion is only illustrative. Specific means and methods will be chosen at the time of construction as there are no specific construction programs or finalized designs for the proposed project at this time. The conceptual schedule represents a conservative potential timeline for construction with overlapping construction activities and simultaneously operating construction equipment while certain phases of the proposed project would be operational.

The following analyses describe potential construction impacts of the proposed project, with respect to land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, hazardous materials, natural resources, transportation, air quality, noise, and rodent control.

Land Use and Neighborhood Character

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

The proposed project would entail construction over an approximately nine-year period; no one location on-site would be under construction or used for staging for the full nine years. Throughout the construction period, access to surrounding residences, businesses, and waterfront uses in the area would be maintained, as required by City regulations. In addition, throughout the construction period, measures would be implemented to control noise and air pollutant emissions, and dust on the construction sites and minimize impacts on the surrounding areas. These measures would include committing to the use of Tier 3 equipment and the use of path controls and equipment with lower noise emissions. Overall, while construction of the proposed project would be evident to the local community, the limited duration of construction at each of the proposed project's building sites and the areas of the other project elements would not create significant or long-term impacts on land use patterns or neighborhood character in the area.

Socioeconomic Conditions

According to the *CEQR Technical Manual*, construction impacts to socioeconomic conditions are possible if a proposed project would entail construction of a long duration that could affect the access to and therefore viability of a number of businesses, and if the failure of those businesses has the potential to affect neighborhood character.

Construction of the proposed project could, in some instances, temporarily affect pedestrian and vehicular access on street frontages immediately adjacent to the project site. However, because of MPT measures required by NYCDOT, lane and/or sidewalk closures are not expected to occur in front of entrances to any existing or planned retail businesses, construction activities would not obstruct major thoroughfares used by customers or businesses, and the limited number of businesses surrounding the project site would not be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. Utility service would be maintained to all businesses, although very short-term interruptions (i.e., hours) may occur when new equipment (e.g., a transformer or a sewer line) is put into operation. Overall construction of the proposed project is not expected to result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction also would contribute to increased tax revenues for the City and the State, including those from personal income taxes.

Community Facilities

According to the *CEQR Technical Manual*, construction impacts to community facilities are possible if a community facility would be directly affected by construction (e.g., if construction would disrupt services provided at the facility or close the facility temporarily, etc.). No study area community facilities would be directly affected by construction activities for an extended duration. The construction sites would be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. In addition, as the proposed 456-seat elementary school in Building 5 would be constructed in the final phase of the proposed project's development, no construction activities would occur adjacent to the school once it is operational. As indicated in Table 19-1, it is anticipated that Building 1 exterior and interior finishing work would continue three months after the Building 5 school is completed and operational. However, as described above, this stage of construction is typically the quietest and does not generate fugitive dust.

Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care services. Construction of the proposed project's buildings and other project elements would not block or restrict access to any community facilities in the area and would not materially affect emergency response times. The New York City Police Department (NYPD) and FDNY emergency services and response times would not be materially affected as a result of the geographic distribution of the police and fire facilities and their respective coverage areas.

Open Space

According to the *CEQR Technical Manual*, construction impacts to open space are possible if the open space is taken out of service for a period of time during the construction process. As no open space resources currently exist on the project site and no open space resources would be used for staging or other construction activities, no open space resources would be disrupted during the construction of the proposed project. The closest existing open space to the project site is the Shore Towers esplanade, to the east of the project site. Construction activities associated with the proposed project that would be the most proximate to the Shore Towers esplanade would occur on the Building 3 site and its adjacent waterfront esplanade, as well as improvements to 9th Street. It is anticipated that access to the Shore Towers open space would be maintained throughout construction of Astoria Cove. Furthermore, as the project site waterfront open space would be developed in phases, the portions of the waterfront open space already completed would be protected from construction activities at subsequent adjacent building sites. Construction fences around these sites would shield the adjacent parks from construction activities.

As construction of the proposed project would not limit access to existing or proposed open spaces in the vicinity of the project site, no significant adverse construction-related impacts on open space are anticipated.

However, as described in the "Noise" section of this chapter, noise levels at some project site and study area public open spaces would exceed the CEQR-recommended open space noise level of 55 dBA during some periods of the proposed project's construction, as under the full build conditions (see Chapter 16, "Noise"). These activities would generate noise that could impair the enjoyment of nearby public open space users. However, as such noise effects would be temporary and of short duration, they would not be considered significant adverse open space impacts.

Historic and Cultural Resources

According to *CEQR Technical Manual* guidelines, construction impacts may occur on historic and cultural resources if in-ground disturbance or vibrations associated with a project's construction could undermine the foundation or structural integrity of nearby resources.

As described in Chapter 7, "Historic and Cultural Resources," a Phase 1A archaeological documentation study concluded that portions of the project site (Block 906, Lot 1; Block 908, Lot 12; and Block 909, Lot 35) could potentially contain sensitive archaeological resources. To determine if archaeological resources are present, Phase 1B archaeological testing will be carried out in these archaeologically sensitive areas; the Phase 1B testing protocol has been reviewed and approved by LPC. The Phase 1B testing would be conducted in consultation with the LPC prior to construction of the affected blocks. If no resources of significance are encountered, no further archaeological study would be warranted. Should the Phase 1B archaeological field testing find significant archaeological resources on the project site, further testing would be undertaken in consultation with LPC to identify the boundaries and significance of the find. If required, data recovery would be undertaken in consultation with LPC.

As outlined above, the upland parcels (Block 908, Lot 12 and Block 909, Lot 35) will be investigated in Phase 1 of the project's construction by excavating test pits and mechanical testing down to virgin soil to determine the location of the historic buildings' footprints and any potential cistern. While only a portion of Building 5 would be constructed during Phase 1, all archaeological testing on the upland parcel would take place during Phase 1 of Astoria Cove's construction so as to avoid destruction of any potential archaeological resources. Archaeological testing on Block 906, Lot 1 would take place in Phase 2 of the project's construction prior to demolition of the existing building on the lot. As outlined in the LPC-approved Phase 1B Work Plan, archaeological testing would include six soil borings and the opening of a series of test trenches. Additional archaeological testing may be warranted upon demolition of the existing building on the lot.

With implementation of all of the above measures, which will be incorporated into the Restrictive Declaration, there would be no significant adverse impacts to archaeological resources resulting from construction of the proposed project.

As outlined in Chapter 7, "Historic and Cultural Resources," no architectural resources are located on, or in close proximity to, the project site. As such, no significant adverse impacts to architectural resources would occur during the proposed project's construction.

Natural Resources

According to the *CEQR Technical Manual*, natural resources may be affected during construction, particularly during such activities as excavation; grading; site clearance or other vegetation removal; cutting; filling; installation of piles, bulkheads, or other waterfront structures; dredging; dewatering; or soil compaction from construction vehicles and equipment.

As discussed in Chapter 9, "Natural Resources," proposed construction activities that would be located within the tidal wetlands adjacent area include: construction of two new stormwater outfalls, construction of portions of the waterfront esplanade and landscaped open space areas, and the replacement of portions the existing rip-rap in-kind as necessary. These activities would not result in a net increase in fill below the SH) or MHW lines or a change in shoreline configuration that would result in loss of NYSDEC littoral zone tidal wetlands. The new stormwater outfalls would be constructed above the SHW elevation and would not have the potential to adversely affect NYSDEC littoral zone tidal wetlands or aquatic resources. As outlined in Chapter 9, "Natural Resources," further discussions will be held with NYSDEC during the NYSDEC application process, and additional measures may be incorporated either on- or off-site to eliminate the potential for significant adverse impacts to NYSDEC littoral zone tidal wetlands, if deemed necessary. With the implementation of such measures, there would be no significant adverse impacts to NYSDEC littoral zone tidal wetlands, water quality, or aquatic biota from construction of the esplanade.

The proposed project would be covered under the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-10-001. To obtain coverage under this permit, a SWPPP would be prepared and a Notice of Intent (NOI) would be submitted to NYSDEC. The SWPPP would comply with all of the requirements of GP-0-10-001, NYSDEC's technical standard for erosion and sediment control, presented in "New York Standards and Specifications for Erosion and Sediment Control," and NYSDEC's Stormwater Management Design Manual. The SWPP would include both structural (e.g., silt fencing, inlet protection, and installation of a stabilized construction entrance) and non-structural (e.g., routine inspection, dust control, cleaning, and maintenance programs; instruction on the proper management, storage, and handling of potentially hazardous materials) BMPs. Implementation of erosion and sediment control measures and stormwater management measures identified in the SWPPP would minimize potential impacts on littoral zone tidal wetlands and aquatic resources along the edges of the project site associated with discharge of stormwater runoff during land-disturbing activities resulting from construction of the proposed project.

While construction of the proposed project would require tree removal on the project site as well as the 9th Street sidewalk located along the project site's eastern boundary, it would not eliminate or degrade valuable wildlife habitat. Terrestrial ecological communities present in the project site are characteristic of an urbanized landscape and highly ubiquitous throughout New York City. The waterfront portion of the project site is predominantly comprised of urban structure exterior and paved asphalt areas. The upland portion of the project site is comprised of asphalt paved areas and well as unpaved areas utilized for vehicle storage. These ecological communities are not of high ecological value or uncommon in the surrounding area. Therefore, loss of some areas of these communities within the project site due to clearing activities would not result in a significant adverse impact to these or other ecological communities at a local or regional scale.

Construction of the proposed project would not have significant adverse impacts to wildlife at either the individual or population level. Terrestrial wildlife habitat in the area is presently extremely limited, as the parcels primarily consist of buildings, roads, and parking lots. The proposed project's buildings and other structures would be constructed on existing paved lots and, as such, would not eliminate or degrade quality wildlife habitat. Some tree removal would be required to redevelop the project site, but the loss of these trees would not significantly degrade or reduce the amount of habitat available to the generalist species of wildlife present in the study area. Overall, construction of the proposed project would not have significant adverse impacts to wildlife or wildlife habitat within the project site or in the surrounding area.

The proposed project would adhere to all applicable rules and regulations governing groundwater. Consequently, significant adverse impacts to groundwater would not occur as a result of construction of the proposed project. Because groundwater is not used as a potable water supply in the area, there would be no potential impacts to drinking water supplies. In the event that construction dewatering is necessary, the recovered groundwater would be treated in accordance with NYSDEC and/or DEP requirements prior to being discharged to the East River or the DEP storm sewer. Any hazardous materials encountered during grading or other land-disturbing activities would be handled and removed in accordance with DEP, NYSDEC, OSHA, and EPA requirements, and the RAP/CHASP to be prepared for the project site in accordance with the (E) designation that will be assigned to the project site (E-343).

Hazardous Materials

According to the guidelines in the *CEQR Technical Manual*, any impacts from in-ground disturbance that are identified in hazardous materials studies should be identified in this chapter as well. Institutional controls, such as (E) designations or Restrictive Declarations, should be disclosed here as well.

As described in Chapter 10, "Hazardous Materials," a Phase I ESA prepared in July 2013 identified potential sources of contamination on the project site, including past and present manufacturing, woodworking, manufacturing supply storage, and automobile repair uses, evidence of historic leaks associated with machinery use, known aboveground storage tanks (ASTs), suspected underground storage tanks (USTs), asbestos containing materials (ACM), and/or lead based paint (LBP).

Based on the findings of the Phase I ESA, to reduce the potential for human or environmental exposure to contamination during construction of the proposed project, an (E) designation will be assigned to the project site (Block 906, Lots 1 and 5; Block 907, Lots 1 and 8; Block 908, Lot 12; and Block 909, Lot 35) to ensure that remedial activities would be undertaken prior to redevelopment. With these (E) designations in place, sampling and remedial protocols and reports will be required and will be submitted to OER for review and approval prior to construction. Specifically, based on the findings of the Phase I ESA, a Subsurface (Phase II) Investigation would be conducted in substantial conformance with the DEP-approved Work Plan for the project site to determine whether past or present on-site or off-site activities have affected subsurface conditions; all Phase II work would be conducted in substantial conformance with the DEP-approved HASP. Following implementation of this Phase II investigation and based on its findings, a RAP and associated CHASP would be prepared (and submitted to OER for review and approval) for implementation during the proposed construction.

In addition, demolition of interiors, portions of existing buildings, and entire buildings is regulated by the DOB and requires abatement of asbestos prior to any intrusive construction activities including demolition. As described above, OSHA regulates construction activities to prevent excessive exposure of workers to contaminants in the building materials including lead in paint. New York City Solid Waste regulations control where demolition debris and contaminated materials associated with construction are handled and disposed.

With the (E) designation in place and implementation of the associated sampling and remedial protocols described above, in addition to adherence to the applicable regulations described above, construction of the proposed project would not result in significant adverse hazardous materials impacts.

Transportation

Traffic

Construction activities would generate construction worker and truck traffic. Similar to other typical construction projects in New York City, most of the construction activity at the project site is expected to take place during the construction shift of 7 AM to 3:30 PM. The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. While construction truck trips would be made throughout the day (with more trips typically made during the early morning), construction workers would typically commute during the hours before and after the work shift. For analysis purposes, each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out"), and each truck trip has a Passenger Car Equivalent (PCE) of 2.0, pursuant to CEQR. For construction workers, the majority (80 percent) of the arrival and departure trips would take place during the hour before and after each shift. For construction trucks, deliveries typically peak during the early morning (25 percent), overlapping with construction worker arrival traffic. Based on 2000 Census data on the construction and excavation industry, approximately 70 percent of the construction workers would be expected to travel to the site by private autos at an average occupancy of 1.25 persons per vehicle. The remaining 30 percent would use public transportation. The above-described trip generation assumptions were used as the basis for assessing the potential transportation-related impacts during construction.

Table 19-4 presents the hourly construction trip estimates in PCEs for the approximately nine-year construction period, based on the assumptions described above. As shown in the table, peak construction traffic is expected to take place during the third and fourth quarters of 2022 when Building 1 (the largest of the proposed buildings) and the school portion of Building 5 would both be under construction. As such, this peak construction period would represent the reasonable worst-case scenario for the construction transportation assessment. As indicated in Figure 19-1, 26th Avenue would be developed in the first phase of the project's development, and the 4th Street extension and public access easement would be developed in the second and third phases of the proposed project's construction. Therefore these roadways would serve both construction and operational traffic in the construction peak period.

In addition, by this phase of the proposed project's development, it is conservatively assumed that Buildings 2, 3, and 4, as well as the residential portion of Building 5 would be complete and fully operational and therefore would also generate operational traffic. This operational traffic was combined with the construction traffic to estimate the worst-case traffic impacts during this period. Building 1 and the school portion of Building 5 (approximately 40 percent of the proposed project) would not be complete and therefore would not generate traffic during the 2022 (Q4) peak construction traffic period. As such, operational traffic volumes would be significantly less than under 2023 Build Year conditions.

Table 19-5 presents the worst-case combined construction and operational trips during the peak construction analysis hours (6–7 AM and 3–4 PM). As shown in the table, total combined construction and operational vehicle volumes during the AM and PM construction traffic analysis periods would be 221 and 416, respectively. In comparison, the weekday AM and PM 2023 Build Year incremental traffic volumes analyzed in Chapter 13, "Transportation," would be 534 and 633.

Construction Traffic Capacity Analysis

The five traffic study area intersections that either (a) are most proximate to the project site and expected to experience significant adverse traffic impacts in one or more 2023 Build Year peak analysis hour; and/or (b) would be developed as part of the proposed project, were selected for analysis of potential construction traffic impacts. The intersections selected for analysis are listed below:

- 26th Avenue at 4th Street;
- 26th Avenue at 9th Street;
- 27th Avenue at 4th Street;
- 27th Avenue at 8th Street; and
- 27th Avenue at 9th Street.

Table 19-4: Construction Trip Generation (Autos and Trucks, in PCEs)

	2014				2015				2016				2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
6 AM – 7 AM	-	-	-	46	34	24	24	51	47	47	43	25	13	58	58	42
7 AM – 8AM	-	-	-	17	11	7	7	16	14	14	14	10	4	19	19	13
8 AM – 9 AM	-	-	-	12	6	2	2	10	8	8	8	8	2	10	10	4
9 AM – 10 AM	-	-	-	12	6	2	2	10	8	8	8	8	2	10	10	4
10 AM – 11 AM	-	-	-	12	6	2	2	10	8	8	8	8	2	10	10	4
11 AM – 12 PM	-	-	-	12	6	2	2	10	8	8	8	8	2	10	10	2
12 PM – 1 PM	-	-	-	12	6	2	2	10	8	8	8	8	2	10	10	2
1 PM – 2 PM	-	-	-	4	4	2	2	6	6	6	2	2	2	4	4	2
2 PM – 3 PM	-	-	-	5	5	3	3	6	6	6	4	2	3	5	5	5
3 PM – 4 PM	-	-	-	22	22	20	20	28	28	28	26	9	9	36	36	34
4 PM – 5 PM	-	-	-	4	4	4	4	5	5	5	5	2	1	6	6	6
5 PM – 6 PM	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
Daily Total	-	-	-	158	110	70	70	162	146	146	134	90	42	178	178	118
	2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
6 AM – 7 AM	42	42	40	40	40	0	81	81	67	67	65	63	63	63	88	88
7 AM – 8AM	13	13	11	11	11	0	24	24	18	18	18	16	16	16	26	26
8 AM – 9 AM	4	2	2	2	2	0	10	10	4	4	2	2	2	2	10	10
9 AM – 10 AM	4	2	2	2	2	0	10	10	4	4	2	2	2	2	10	10
10 AM – 11 AM	4	2	2	2	2	0	10	10	4	4	2	2	2	2	10	10
11 AM – 12 PM	2	2	2	2	2	0	10	10	4	4	2	2	2	2	10	10
12 PM – 1 PM	2	2	2	2	2	0	10	10	2	2	2	2	2	2	10	10
1 PM – 2 PM	2	2	2	2	2	0	4	4	2	2	2	2	2	2	6	6
2 PM – 3 PM	5	5	5	5	5	0	6	6	6	6	6	6	6	6	10	10
3 PM – 4 PM	34	36	36	36	36	0	59	59	57	57	59	59	59	59	68	68
4 PM – 5 PM	6	6	6	6	6	0	10	10	10	10	10	10	10	10	12	12
5 PM – 6 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daily Total	118	114	110	110	110	0	234	234	178	178	170	166	166	166	260	260
	2022				2023											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								
6 AM – 7 AM	78	78	84	90	80	68	-	-								
7 AM – 8AM	21	21	23	27	23	18	-	-								
8 AM – 9 AM	4	4	6	8	4	2	-	-								
9 AM – 10 AM	4	4	6	8	4	2	-	-								
10 AM – 11 AM	4	4	6	8	4	2	-	-								
11 AM – 12 PM	4	4	6	8	4	2	-	-								
12 PM – 1 PM	4	4	4	8	4	2	-	-								
1 PM – 2 PM	2	2	4	6	2	2	-	-								
2 PM – 3 PM	6	6	8	10	6	6	-	-								
3 PM – 4 PM	70	70	70	72	70	64	-	-								
4 PM – 5 PM	13	13	13	13	13	12	-	-								
5 PM – 6 PM	0	0	0	0	0	0	-	-								
Daily Total	210	210	230	258	214	180	-	-								

Table 19-5: Weekday Construction and Operational Vehicle Trip Generation during the Peak Construction Traffic Period

Analysis Period	Incremental Construction Trips in PCEs			Incremental Operational Trips from Completed Project Site Buildings			Total PCEs		
	In	Out	Total	In	Out	Total	In	Out	Total
6 AM – 7 AM	79	11	90	48	83	131	127	94	221
3 PM – 4 PM	2	70	72	178	166	344	180	236	416

The operations at these intersections were analyzed using the Highway Capacity Software (HCS+) version 5.5, which is based on the methodologies presented in the 2000 *Highway Capacity Manual* (HCM).

Due to the relatively low peak construction-related traffic volumes, the lower operational traffic volumes compared to 2023 Build Year action-generated traffic, and the lower background volumes during the AM and PM construction peak hours (6-7 AM and 3-4 PM) compared to the full build peak hours (7:30-8:30 AM and 4:30-5:30 PM), similar or lesser impacts than those anticipated at the remaining study area intersections where significant adverse impacts are projected for 2023 Build Year conditions are anticipated during the construction traffic peak period (see Chapter 13, "Transportation"). No new impacts at any of the remaining study area intersections are anticipated, and therefore further detailed analyses of these remaining traffic study area analysis locations are unwarranted. Furthermore, as outlined in Chapter 20, "Mitigation," many of the operational mitigation measures would be installed prior to the project's completion and prior to the proposed project's peak construction traffic period (2022[Q4]).

Future without Construction of the Proposed Project

Since the peak construction period is one year before the 2023 Build Year, the No-Action traffic volumes were adjusted to decrease background traffic growth accordingly. Additionally, the peak construction period traffic volumes (both construction and operational) from the nearby Halletts Point development were conservatively included in the 2022 No-Action construction period traffic volumes against which the Astoria Cove worst-case construction traffic volumes were compared. The construction No-Action trip assignment is presented in Figure 19-2.

As indicated in Table 19-6, under the construction No-Action condition, four of the five analyzed intersection would operate at an overall acceptable level of service during both construction peak hours. At the 27th Avenue/8th Street intersection, the 27th Avenue westbound approach would operate at LOS E and LOS F during the 6-7 AM and 3-4 PM construction peak periods, respectively.

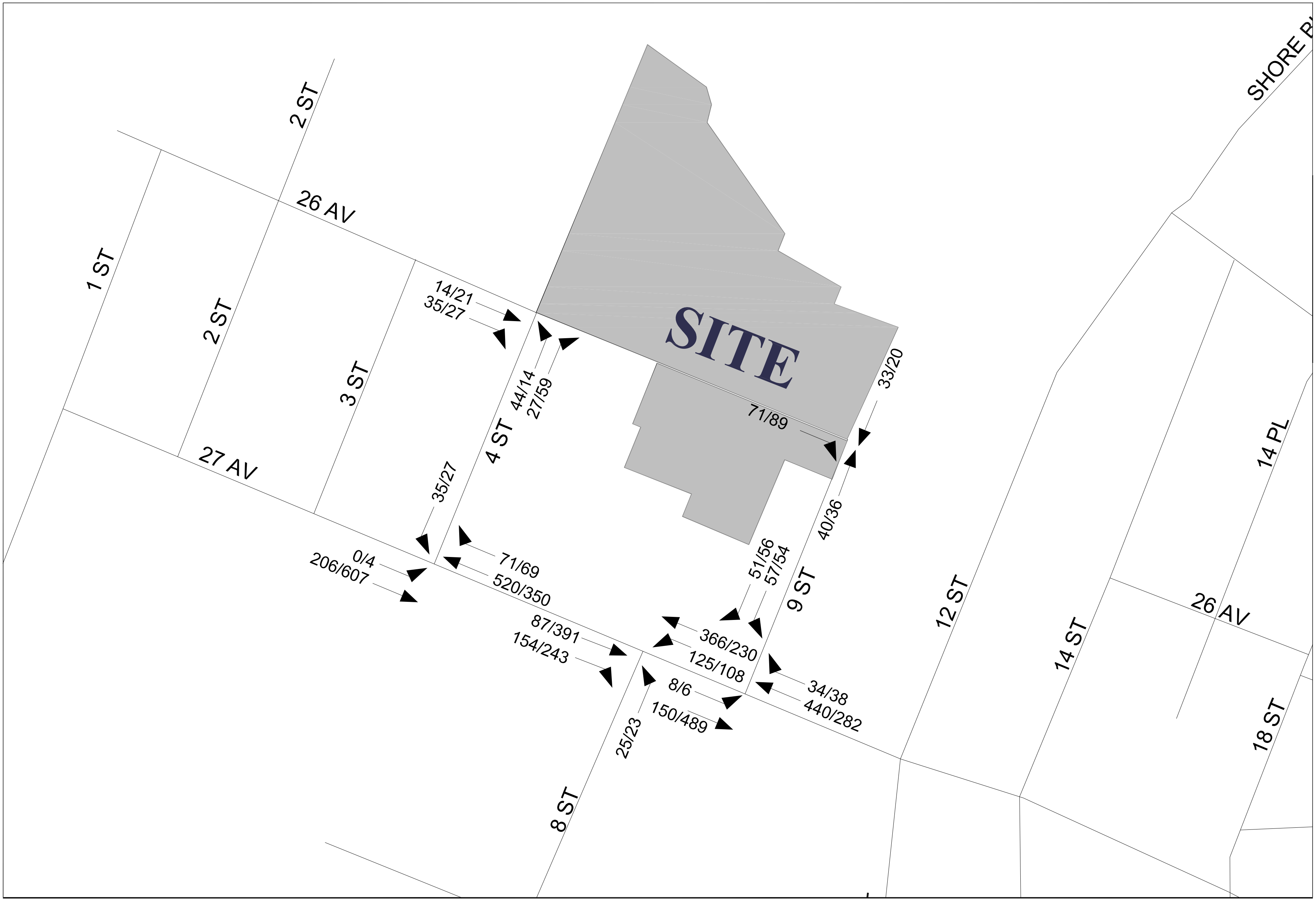
Future with Construction of the Proposed Project

As indicated in Table 19-5, during the peak construction period (2022, Q4), the Astoria Cove project's combined construction and operation would generate 221 vehicles in the 6-7 AM construction peak hour and 416 vehicles in the 3-4 PM construction peak hour. The construction peak hour trip assignment and total With-Action construction volumes are presented in Figure 19-3 and 19-4, respectively.

Table 19-6 presents the traffic levels of service at the five construction traffic study area intersections. As indicated in the table, significant adverse construction period impacts are anticipated during the construction peak period at three of the five study area intersections during one or more construction peak hour. By applying the same mitigation measures as those proposed for mitigation under With-Actions conditions, two of the three impacted intersections would be either fully or partially mitigated.[1] As noted in Chapter 20, "Mitigation," additional review of potential mitigation measures that may fully or partially mitigate significant impact locations has been undertaken between the DEIS and the FEIS.

27th Avenue and 9th Street. As under With-Action conditions, the southbound approach at the intersection of 27th Avenue and 9th Street would deteriorate to LOS F during both construction peak hours. The impact could be fully mitigated through early implementation of the mitigation measures proposed for the project's Build Year: installing a traffic signal along with daylighting and restriping measures. These mitigation measures would covert two-way (northbound/southbound) 9th Street to a one-way southbound roadway between 26th and 27th Avenues.

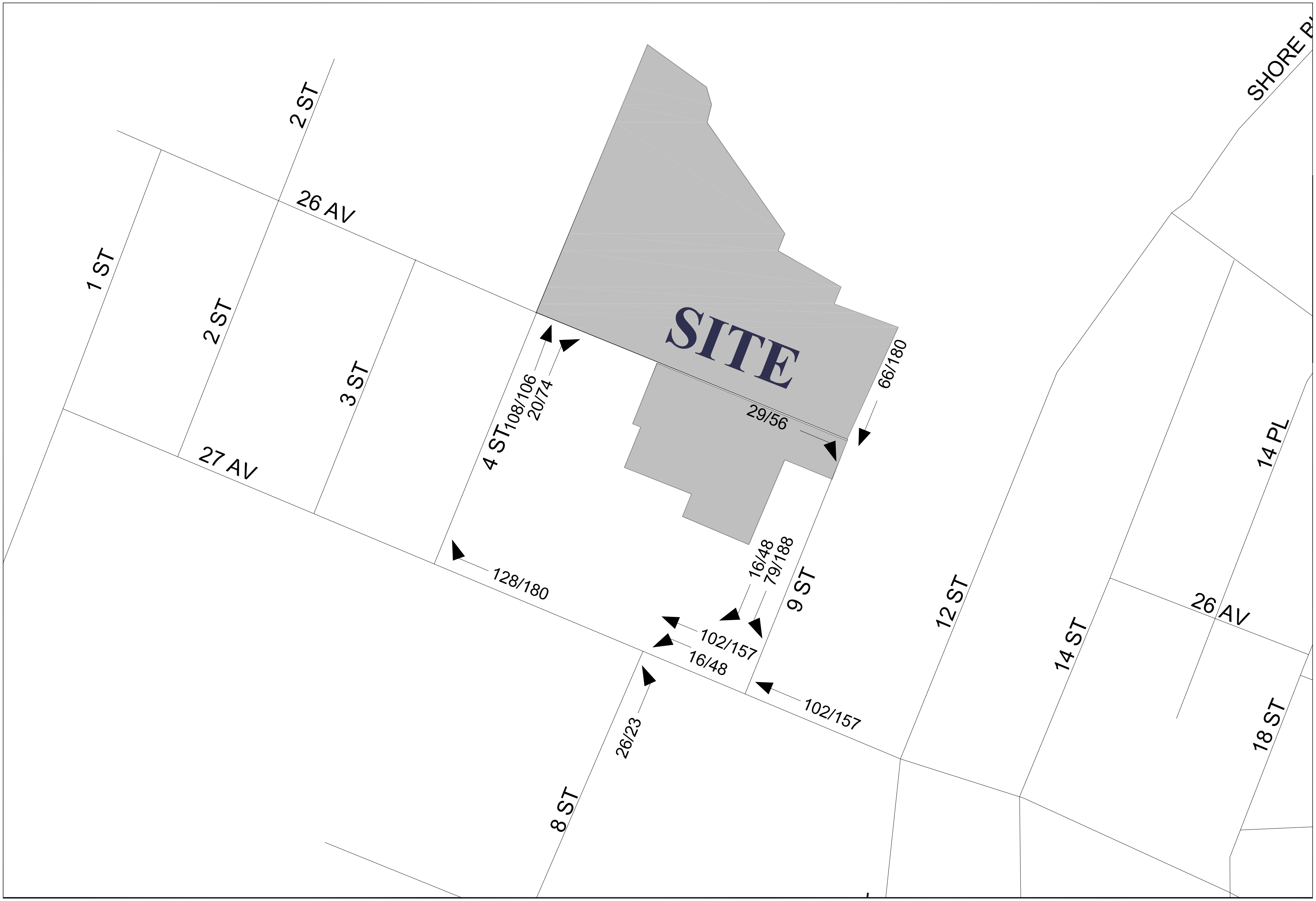
[1] Refer to Chapter 20, "Mitigation," for a full description of the proposed mitigation measures.



Traffic volumes shown in PCEs

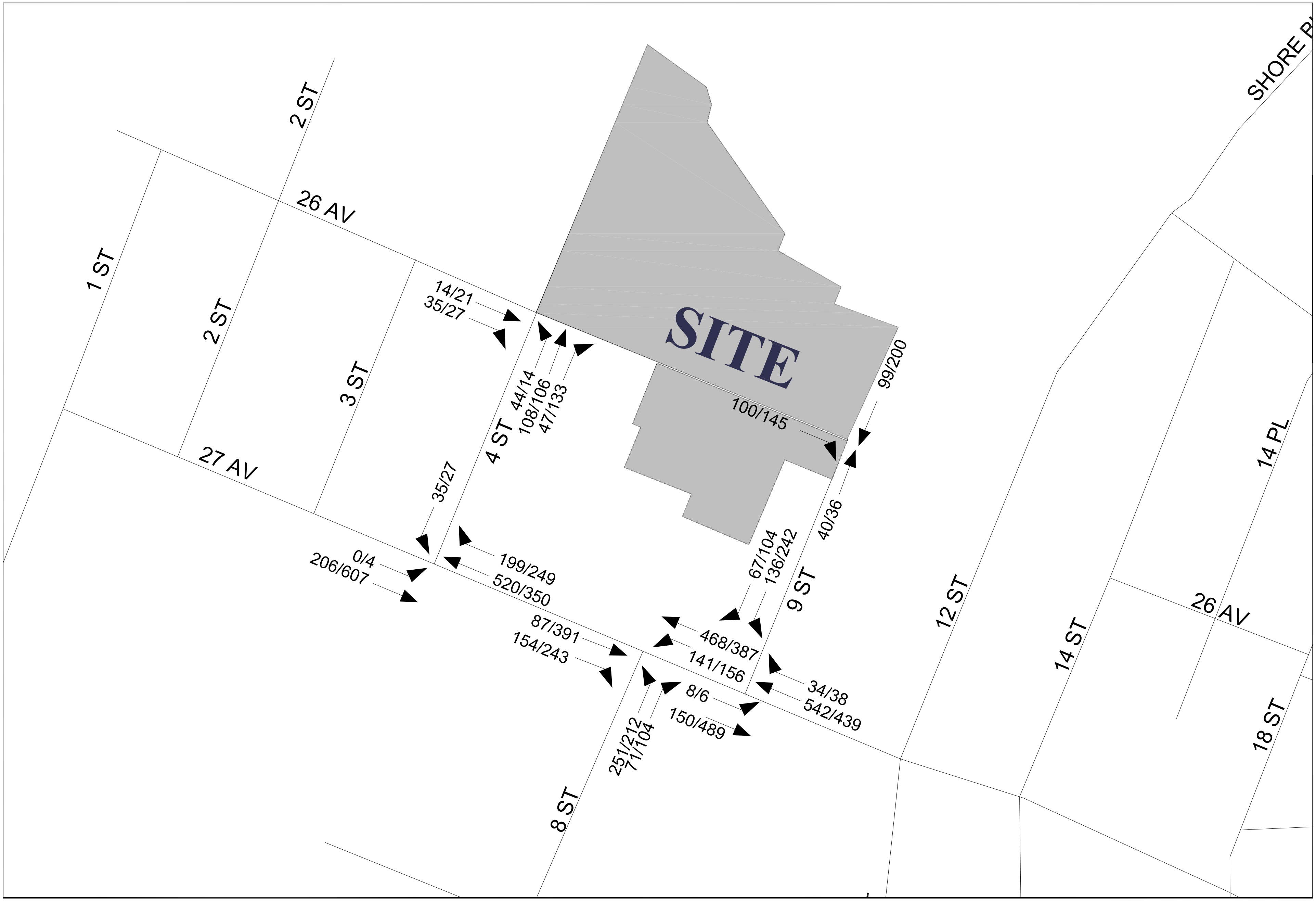
Astoria Cove **Figure 19-2**

2022 Construction No-Action Traffic Volume - AM (6AM-7AM)/PM (3PM-4PM) Peak Hour



Astoria Cove **Figure 19-3**

Construction Increment Traffic Volume (Construction and Operational) - AM (6AM-7AM)/PM (3PM-4PM) Peak Hour



Traffic volumes shown in PCEs

Astoria Cove **Figure 19-4**

2022 Construction With-Action Traffic Volume - AM (6AM-7AM)/PM (3PM-4PM) Peak Hour

Table 19-6: 2022 (Q4) No-Action, With-Action, and Mitigation Conditions Construction Traffic Levels of Service

Intersection	Lane Group	Construction No-Action			Construction With-Action			Construction With-Action with Mitigation			Mitigation Measures
		V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	
6-7 AM											
1. 26th Avenue and 4th Street	EB-LTR	-	-	-	N/A	7.7	A	N/A			No Mitigation Needed
	NB-LTR	0.09	9.6	A	N/A	8.9	A				
A. 26th Avenue and 9th Street	EB-R	0.08	8.8	A	0.13	9.4	A	N/A			No Mitigation Needed
2. 27th Avenue and 4th Street	EB-LT	0.30	12.0	B	0.30	12.0	B	N/A			No Mitigation Needed
	WB-T	0.67	18.2	B	0.67	18.2	B				
	WB-R	0.22	11.8	B	0.61	20.3	C				
	SB-LR	0.08	20.2	C	0.08	20.2	C				
3. 27th Avenue and 8th Street[1]	EB-T	0.15	10.0	A	0.15	10.0	A	0.15	10.0	B	-Install "No Standing Anytime" regulations to daylight the WB approach along 27th Avenue between 8th and 9th Streets. -Install "No Standing Anytime" regulations along the WB receiving lane for 100 feet to allow vehicles to realign with the receiving end. -Shift the WB approach centerline 1 foot to the south and restripe the WB approach from one 11-foot wide travel lane with parking and one 11-foot wide receiving lane to one 10-foot wide through-only lane, one 10-foot wide left-turn only lane, and one 10-foot wide receiving lane.
	EB-R	0.40	14.0	B	0.40	14.0	B	0.40	14.0	B	
	WB-LT	1.05	70.0	E	1.29	159.3	F*	-	-	-	
	WB-L	-	-	-	-	-	-	0.43	14.4	B	
	WB-T	-	-	-	-	-	-	0.80	23.4	C	
	NB-L	0.81	41.7	D	0.90	52.2	D	0.93	57.1	E	
	NB-R	0.44	29.3	C	0.44	29.3	C	0.39	27.7	C	
26. 27th Avenue and 9th Street[1]	EB-LT	0.01	8.8	A	0.01	9.2	A				-Install a traffic signal with 90-second cycle length and two phases. [EB/WB phase green time is 43s; SB phase green time is 37s; all phases have 3s of amber and 2s of all red time. -Install "No Standing Anytime" regulations along the east curb of 9th Street for 150 feet to allow for a left-turn lane. -Restripe the SB approach from one 16.5-foot wide travel lane with parking and one 15.5-foot wide NB receiving lane with parking to one 20-foot wide right-turn lane with parking and one 12-foot wide left-turn lane for 100 feet. -Shift the EB approach centerline to the south and restripe the EB approach from one 11-foot wide travel lane and one 19-foot wide receiving lane with parking to one 10-foot wide through-only lane and two 10-foot wide receiving lane. [Two-way (NB/SB) 9th Street would be converted to a one-way SB roadway between 26th and 27th Avenue as a result of the proposed mitigation measures].
	EB-T	-	-	-	-	-	-	0.25	14.7	B	
	WB-T	-	-	-	-	-	-	0.96	48.2	D	
	SB-LR	0.38	18.4	C	0.89	58.7	F*	-	-	-	
	SB-L	-	-	-	-	-	-	0.31	19.4	B	
	SB-R	-	-	-	-	-	-	0.17	17.6	B	

Table 19-6 (continued): 2022 (Q4) No-Action, With-Action, and Mitigation Conditions Construction Traffic Levels of Service

Intersection	Lane Group	Construction No-Action			Construction With-Action			Construction With-Action with Mitigation			Mitigation Measures
		V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)	LOS	
3-4 PM											
1. 26th Avenue and 4th Street	EB-LTR	-	-	-	N/A	7.6	A	N/A			No Mitigation Needed
	NB-LTR	0.09	9.3	A	N/A	8.6	A				
A. 26th Avenue and 9th Street	EB-R	0.10	8.8	A	0.23	10.9	B	N/A			No Mitigation Needed
2. 27th Avenue and 4th Street[1]	EB-LT	0.87	28.4	C	0.87	28.4	C	0.82	22.5	C	Modify signal timing: Shift 3s of green time from the SB phase to the EB/WB phase [SB phase green time shifts from 29s to 26s; EB/WB phase green time shifts from 51s to 54s].
	WB-T	0.44	12.2	B	0.44	12.2	B	0.41	10.4	B	
	WB-R	0.29	11.7	B	1.03	71.0	E*	1.11	92.5	F*	
	SB-LR	0.08	21.6	C	0.08	21.6	C	0.09	23.8	C	
3. 27th Avenue and 8th Street[1]	EB-T	0.54	16.0	B	0.54	16.0	B	0.54			-Install "No Standing Anytime" regulations to daylight the WB approach along 27th Avenue between 8th and 9th Streets. -Install "No Standing Anytime" regulations along the WB receiving lane for 100 feet to allow vehicles to realign with the receiving end. -Shift the WB approach centerline 1 foot to the south and restripe the WB approach from one 11-foot wide travel lane with parking and one 11-foot wide receiving lane to one 10-foot wide through-only lane, one 10-foot wide left-turn only lane, and one 10-foot wide receiving lane.
	EB-R	0.67	23.8	C	0.67	23.8	C	0.67			
	WB-LT	1.06	83.6	F	1.65	323.9	F*	-	-	-	
	WB-L	-	-	-	-	-	-	0.73	31.0	C	
	WB-T	-	-	-	-	-	-	0.61	18.2	B	
	NB-L	0.46	25.4	C	0.52	26.8	C	0.53	27.1	C	
	NB-R	0.71	43.2	D	0.71	43.2	D	0.66	40.0	D	
26.27th Avenue and 9th Street[1]	EB-LT	0.01	8.2	A	0.01	8.8	A	-	-	-	-Install a traffic signal with 90-second cycle length and two phases. [EB/WB phase green time is 52s; SB phase green time is 28s; all phases have 3s of amber and 2s of all red time. -Install "No Standing Anytime" regulations along the east curb of 9th Street for 150 feet to allow for a left-turn lane. -Restripe the SB approach from one 16.5-foot wide travel lane with parking and one 15.5-foot wide NB receiving lane with parking to one 20-foot wide right-turn lane with parking and one 12-foot wide left-turn lane for 100 feet. -Shift the EB approach centerline to the south and restripe the EB approach from one 11-foot wide travel lane and one 19-foot wide receiving lane with parking to one 10-foot wide through-only lane and two 10-foot wide receiving lane. [Two-way (NB/SB) 9th Street would be converted to a one-way SB roadway between 26th and 27th Avenue as a result of the proposed mitigation measures].
	EB-T	-	-	-	-	-	-	0.63	15.8	B	
	WB-T	-	-	-	-	-	-	0.69	17.9	B	
	SB-LR	0.53	25.3	D	2.65	785.5	F*	-	-	-	
	SB-L	-	-	-	-	-	-	0.76	40.9	D	
	SB-R	-	-	-	-	-	-	0.37	27.1	C	

Notes: EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound; L=Left; T=Through; R=Right; /C Ratio=Volume-to-Capacity Ratio; sec.=Seconds; LOS=Level of Service
* Denotes a significant adverse impact
Analysis is based on the 2000 *Highway Capacity Manual* methodology (HCS+, version 5.5)
[1] Construction With-Action with Mitigation analysis reflects traffic volumes diverted from one-way southbound conversion of 9th Street between 26th and 27th Avenues.

27th Avenue and 8th Street. As under With-Action conditions, significant impacts are anticipated along the westbound approach of the 27th Avenue and 8th Street intersection during both construction peak hours. Impacts during the 6-7 AM construction peak hour could be fully mitigated through lane restriping and daylighting measures.

27th Avenue and 4th Street. At 27th Avenue and 4th Street, significant adverse impacts would occur only during the 3-4 PM peak hour and could be partially mitigated through signal timing modifications. As under With-Action conditions, no significant adverse impacts would occur at this location during the AM peak hour.

Curb Lane Closures and Staging

Construction staging would most likely occur on the project site and may extend within portions of sidewalks, curbs, and travel lanes of public streets adjacent to the project site. Similar to many other construction projects in New York City, temporary curb lane and sidewalk closures are expected to be required adjacent to the project site, which would have dedicated gates, driveways, or ramps for delivery vehicle access. Flag persons are expected to be present at active project site driveways, where needed, to manage the access and movement of trucks to ensure no on-street queueing. Some of the site deliveries may also occur along the perimeters of the construction site within delineated closed-off areas for concrete pour or steel delivery.

Due to construction activities related to Building 1 and the Building 5 school, potentially affected adjacent roadways during the 2022 (Q4) construction period could include adjacent portions 9th Street, 26th Avenue, and the proposed 4th Street extension (which would be completed by the peak construction period). Any sidewalk or street closures require the approval of the DOT-OCMC, the entity that ensures critical arteries are not interrupted, especially in peak travel periods.

Parking

As outlined above, during the peak construction traffic period (2022, Q4), 152 workers would be on-site daily, approximately 70 percent of whom would be expected to travel to the project site by private auto.[2] Based on an average vehicle occupancy of 1.25 persons per vehicle, the maximum daily parking demand from project site construction workers would total 85 spaces. During the peak construction period, the majority of the project site would be fully built-out, with Building 1 and the Building 5 school in the finishing stage. As such, the Building 2, 3, and 4 garages (with a combined 544 spaces) would be fully built out and would be used by their respective building users. Additional parking demand generated by on-site construction workers would occur when parking demand from the occupied project site buildings would be at its lowest (refer to Table 13-52, "Weekday Parking Accumulation Forecast," in Chapter 13, "Transportation"). Table 19-7, below, presents the combined operational and construction worker parking accumulation for the 6AM to 5PM period during which on-site construction workers would contribute to area parking demand.

As indicated in the table, the maximum parking accumulation during the construction peak period would be approximately 613 spaces between 6 and 7 AM. This maximum accumulation would be accommodated by the 544 off-street parking spaces in Buildings 2, 3, 4, and 5, with the peak temporary shortfall of 69 spaces accommodated by available on-street parking within the parking study area. As indicated in Chapter 13, "Transportation," there are approximately 991 on-street parking spaces within a ¼-mile of the project site. In addition, as Building 1 would be in the final stage of construction, and all superstructure/core work would be complete, it is anticipated that the building's 356-space parking garage could accommodate construction worker vehicles prior to the building's completion.

[2] Based on 2000 Census data on the construction and excavation industry.

Table 19-7: 2022(Q4) Operational and Construction Worker Parking Accumulation

Time Period	Operational Accumulation	Construction Accumulation	Total Accumulation
6-7AM	545	68	613
7-8AM	508	85	593
8-9AM	375	85	460
9-10AM	383	85	468
10-11AM	369	85	454
11AM-12PM	351	85	436
12-1PM	351	85	436
1-2PM	333	85	418
2-3PM	321	81	402
3-4PM	333	13	346
4-5PM	404	0	404

Notes: Operational parking accumulation applies the temporal distribution used in the parking analysis in Chapter 13, "Transportation."

Transit

As outlined above, approximately 30 percent of the 152 construction workers anticipated during the peak construction period are expected to travel to and from the project site via public transit. This would represent approximately 46 daily workers traveling by transit. With 80 percent of these workers arriving and departing during the construction peak hours (6-7 AM and 3-4 PM), the estimated number of total peak hour transit trips would be 37, below the CEQR analysis thresholds of 200 trips at any one subway station (or station element) or any one bus route and 50 trips in any one direction on one bus route. In addition, these construction worker trips would occur outside of peak periods for transit ridership and be distributed and dispersed to the nearby transit facilities. As such, no significant adverse transit impacts are anticipated during the proposed project's construction.

Pedestrians

As indicated in Table 19-2, during the peak construction period, approximately 152 construction workers are expected to be on-site, 80 percent (122) of whom would be arriving and departing during the construction peak hours. The associated pedestrian trips would be distributed among the pedestrian facilities (i.e., sidewalks, corner reservoirs, and crosswalks) in the area.

Operational pedestrian peak trips (including walk-only, bus, and subway trips) would total approximately 326 during the 6-7 AM peak period and approximately 1,064 during the 3-4 PM peak period. Therefore, while the construction peak hour pedestrian trips would be less than the CEQR threshold of 200 trips for detailed analysis. the total combined operational and construction pedestrian trips during the construction peak periods would exceed the CEQR threshold of 200 trips. However, the combined construction peak period trips would occur during off-peak hours and would be less than half the operational project peak pedestrian trips (1,635 and 2,292 during the weekday AM and PM peak hours). As the Proposed Action would not result in operational pedestrian impacts upon completion in 2023, there would be no pedestrian impacts with partial build-out of the proposed project during the 2022 (Q4) peak construction traffic period.

During construction, where sidewalk closures are required, adequate protection or temporary sidewalks would be provided in accordance with DOT-OCMC requirements.

Air Quality

Exhaust emissions from on-site construction equipment and on-road construction-related vehicles, as well as dust generated by construction activities, have the potential to affect air quality. Much of the heavy equipment used in construction has diesel-powered engines that generate carbon monoxide, nitrogen oxides, and fine particulates. Fugitive dust generated by equipment moving around on the site also contributes to concentrations of fine particulates. Therefore, the primary air pollutants of concern for construction activities include carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), and particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometer ($PM_{2.5}$).

To minimize pollutant emissions and ensure that construction of the proposed project results in the lowest practicable diesel particulate matter (DPM) emissions, the Applicant would implement the following measures (which will be included in the Restrictive Declaration, to be recorded):

- ***Utilization of Newer Equipment.*** The EPA's Tier 1 through 4 standards for nonroad engines regulate the emission of criteria pollutants from new engines, including PM, CO, NO_x, and hydrocarbons (HC). All nonroad construction equipment for the proposed project with a power rating of 50 hp or greater would meet Tier 3 with DPFs and SCRs or newer emissions standard. Tier 3 NO_x emissions range from 40 to 60 percent lower than Tier 1 emissions and considerably lower than uncontrolled engines. All nonroad construction equipment with power rating less than 50 hp would meet at least the Tier 2 emissions standard. This would be included in the bid documents and contracts.
- ***Source Location.*** To reduce the resulting concentration increments, stationary equipment would be located at least 50 feet away from nearby sensitive receptors (i.e., residential buildings and publicly accessible open spaces) and at least 30 feet away from sidewalks, to the extent practicable and feasible.
- ***Ultra Low Sulfur Fuel.*** To reduce sulfur oxide emissions, all diesel engines used in construction would use ultra-low sulfur fuel (ULSD). With the use of ULSD, emissions of sulfur oxides would be negligible.

Additional measures may be taken to reduce pollutant emissions during construction of the proposed project besides all applicable laws, regulations, and building codes.

Construction Air Quality Analysis Methodology

Chapter 14, "Air Quality," contains a review of pollutants for analysis; applicable regulations, standards, guidelines; and general methodology for stationary and mobile source air quality analyses. The general methodology for stationary modeling (regarding model selection, receptor placement, and meteorological data) was presented in Chapter 14 for modeling dispersion of pollutants from on-site sources. Additional details relevant only to the construction air quality analysis methodology are presented below.

On-Site Construction Activity

The sizes, types, and number of construction equipment on each site during the worst-case quarters were obtained from the construction activity schedule provided by the Applicant. The use of on-site mobile and stationary diesel equipment would be greatest during the demolition/excavation/foundations phases. The proposed school site, which is part of Building 5, would be partially included in the site preparation for the residential component of Building 5 (2015, Q4) and, therefore, would have minimal equipment on-site during its demolition/excavation/foundation at 2022 (Q1) phase.

The third quarter of 2019, when Building 2 would be in the demolition/excavation/foundation stage of construction, was identified as the worst-case construction period because the Building 2 construction site is located in close proximity to Buildings 3, 4, and 5, all of which would be occupied when site preparation for Building 2 commences. In addition, up to fourteen pieces of diesel-powered equipment would be in use on the Building 2 construction site at the same time. This is more than any other building except Building 1, which would be constructed last. Therefore, the Building 2 site and period were selected for further analysis using AERMOD. To further show that no significant adverse impacts are likely, the Building 3 site also was modeled.

Exhaust emission factors for on-site equipment were obtained from EPA's *Non Road Model* (2008). All PM emissions were categorized as PM_{10}, and 97 percent of the PM_{10} was considered $PM_{2.5}$. Exhaust emission factors were modeled as point sources for equipment that would remain in one place most of the time. This includes, but is not limited to, the, compressors, and cranes. All stationary equipment was assumed to be at least 30 feet from a sidewalk and at least 50 feet from a residential building, school, or publicly accessible open space, as outlined above. Where multiple pieces of the same equipment were planned, they were spaced evenly along the façade to simulate typical activity conditions.

Exhaust emissions for the backhoes and excavators, which move around the site, were modeled as area sources. They were assumed to move over a large area during the day, but to remain no closer than twenty feet to the lot line. In addition to engine emissions, fugitive dust emissions from mobile equipment were calculated based on the formulas for unpaved roads in AP-42. Fugitive dust emissions were added to the exhaust emissions and included in the modeling of mobile sources for the construction equipment.

Sensitive receptors (locations in the model where concentrations are predicted) were placed on the sidewalks and at residential and other sensitive uses at both ground-level and elevated locations (e.g., residential windows). This included existing buildings as well as completed project site buildings and at open spaces, where appropriate.

Pollutant concentrations were modeled with EPA's AERMOD model using five years of meteorological data from La Guardia Airport. AERMOD was designed to support EPA's regulatory modeling programs. It is a steady-state Gaussian plume model with three separate components: AERMOD (a dispersion model), AERMAP (a terrain preprocessor), and AERMET (a meteorological preprocessor). AERMOD can handle emissions from point, line, area, and volume sources.

Mobile Source Screen

As outlined in the *CEQR Technical Manual*, if the operational analysis indicates that the project would not result in significant mobile source air quality impacts and the vehicular trip generation from construction would be less than that of the proposed project, then a more detailed assessment is usually not necessary. As discussed above in the construction traffic analysis, the combined construction and operational vehicle volumes during the AM and PM construction traffic analysis periods would be 221 and 416, respectively. In comparison, the weekday AM and PM 2023 Build Year incremental traffic volumes analyzed in Chapter 13, "Transportation," would be 534 and 633. Therefore, as the peak construction traffic increment would be less than the 2023 Build Year increment, and no significant mobile source air quality impacts are anticipated in the full build condition, peak construction traffic mobile source air quality emissions would be similar or slightly less than those predicted in Chapter 14, "Air Quality." As such, no significant construction-related mobile source air quality impacts are anticipated, and a detailed analysis is not required.

Construction Air Quality Impact Criteria

As stated in the *CEQR Technical Manual*, the determination of significance for construction-related air quality impacts is based on the same criteria applicable to operational air quality impacts (see Chapter 14, "Air Quality"). In addition, the *CEQR Technical Manual* states that the significance of a likely consequence (i.e., whether it is material, substantial, large, or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected. In terms of the magnitude of air quality impacts, an action predicted to increase the concentrations of a criteria air pollutant to a level that would exceed the NAAQS or increase the concentration of $PM_{2.5}$ above the *de minimis* criteria could have an adverse impact of significant magnitude. The factors identified above would then be considered in determining the overall significance of the potential impact. The one-hour concentrations of NO_x were analyzed for stationary sources but typically are not analyzed for mobile sources.

Construction Air Quality Analysis Results

Maximum predicted concentration increments from construction of the proposed project and overall concentrations, including background concentrations, are presented in Table 19-8a for the third quarter of 2019 (the demolition/excavation/foundation phase of Building 2's construction), which would be the worst-case condition. Table 19-8b shows the projected concentrations for the second quarter in 2017, which would be the demolition/excavation/foundation phase for Building 3. This construction period was also modeled to show that no impacts were likely. For $PM_{2.5}$, the potential impacts are determined by comparing the emission increment (between the construction No-Action and With-Action conditions) to the *de minimis* criteria. As shown in Tables 19-8a and 19-8b, the maximum predicted total concentrations of 24-hour $PM_{2.5}$, PM_{10}, annual $PM_{2.5}$, CO, and NO_2 at the two modeled construction sites are not expected to exceed the NAAQS or *de minimis* criteria. Therefore, no impacts are projected due to construction activities.

Table 19-8a: Maximum Predicted Pollutant Concentrations at Adjacent Sidewalks, Residences, and Open Spaces from Building 2 Construction Site Sources (μg/m³)

Pollutant	Modeled	Background	Total (μg/m³)*	Evaluation Criteria (μg/m³)
One-Hour CO	305 DW	3,876	4,181	40,000 (NAAQS)
Eight-Hour CO	62 No DW	1,938	2,000	10,000 (NAAQS)
24-Hour PM_{10}	3.7 No DW	50	53.7	150 (NAAQS)
24-Hour $PM_{2.5}$	2.34 No DW	NA	2.34	5.5 (*de minimis*)
Annual $PM_{2.5}$	0.216 No DW	NA	0.3	0.3 (*de minimis*)
One-Hour NO_2	47.0 DW	120	167.0	188 (NAAQS)
Annual NO_2	24.9 No DW	42	66.9	100 (NAAQS)

Source: Sandstone Environmental Associates, Inc.
Notes:
*Includes background concentrations.
DW = Downwash; No DW = No downwash
This table has been updated for the FEIS.

Table 19-8b: Maximum Predicted Pollutant Concentrations at Adjacent Sidewalks, Residences, and Open Spaces from Building 3 Construction Site Sources (μg/m^3)

Pollutant	Modeled	Background	Total (μg/m^3)*	Evaluation Criteria (μg/m^3)
One-Hour CO	199.3 No DW	3876	4,075.3	40,000 (NAAQS)
Eight-Hour CO	43.9 DW	1938	1,981.9	10,000 (NAAQS)
24-Hour PM_{10}	3.1 DW & No DW	50	53.1	150 (NAAQS)
24-Hour $PM_{2.5}$	2.1 DW & No DW	NA	2.1	5.5 (*de minimis*)
Annual $PM_{2.5}$	0.162 DW	NA	0.162	0.3 (*de minimis*)
One-Hour NO_2	55 No DW	120	175	188 (NAAQS)
Annual NO_2	18.2 No DW	42	60.2	100 (NAAQS)

Source: Sandstone Environmental Associates, Inc.
Notes:
*Includes background concentrations.
DW = Downwash; No DW = No downwash
This table is new to the FEIS.

Cumulative Impacts

The combined pollutant concentrations from on-site construction equipment and on-road construction-related vehicles may be sufficient to warrant a cumulative assessment. As described above, the maximum anticipated on-site concentrations due to construction equipment would occur at receptors in close proximity to the construction site. Peak mobile source emissions from construction trucks would occur at the intersections of 27th Avenue and 4th, 9th, and 14th Streets. As described above, the peak construction-related traffic increment would be less than the peak operational traffic increment (see Section, "Traffic," above). Therefore, as under full build conditions, construction-related mobile source emissions would not result in significant adverse air quality impacts.

Due to the distances between the locations expected to experience the highest concentrations of air quality emissions from on-site equipment and on-road construction-related vehicles, respectively, the traffic contribution to pollution during construction activities would be minimal and was not further analyzed.

Assessment

As indicated in Tables 19-8a and 19-8b, and discussed above, no pollutant concentrations are projected to exceed the *de minimis* criteria or NAAQS due to construction activities at Buildings 2 and 3. For the Building 2 site, receptors were placed on the adjacent sidewalks and at residential windows in the proposed project's Buildings 3, 4, and 5. For Building 3's construction, receptors were placed on Buildings 4 and 5. The maximum increments are based on conservative assumptions. They were computed for the peak construction quarter; during other construction quarters, on-site activity would be less. Therefore, the potential annual increments that account for the varied activity during the year would be lower. In addition, the location of the maximum annual average increments would vary based on the location of the sources during construction, which would move throughout the site over time. Based on the analysis for Buildings 2 and 3, no significant adverse impacts are projected.

At the remaining construction sites, the site sizes, numbers of equipment, and orientation with regard to adjacent receptor locations are no greater than those analyzed. Therefore, no exceedances of the *de minimis* criteria and NAAQS are projected at additional receptor locations adjacent to the remaining construction sites. Based on the additional more detailed analyses, the components of the emissions reduction program described below and the construction emission requirements outlined in the Restrictive Declaration may be adjusted, as appropriate.

The Applicant has committed to measures that will minimize the potential for impacts as part of an emissions reduction program that include, but are not limited to, the following components:

1. ***Diesel Equipment Reduction.*** Construction would minimize the use of diesel engines and maximize the use of electric engines where practical.
2. ***Best Available Tailpipe Reduction Technologies.*** Nonroad diesel engines with a power rating of 50 hp or greater and controlled truck fleets (i.e., truck fleets under long-term contract, such as concrete mixing and pumping trucks) would utilize the best available tailpipe reduction technology for reducing DPM emissions, such as diesel particle filters (DPFs) and SCRs. Construction contracts would specify that all diesel nonroad engines rated at 50 hp or greater would utilize DPFs and SCRs, either installed on the engine by the original equipment manufacturer (OEM) or a retrofit DPF verified by the EPA or the California Air Resources Board, and may include active DPFs, if necessary or other technology proven to achieve equivalent emissions reduction. This measure is expected to reduce site-wide tailpipe PM emissions by approximately 90 percent or more. Stationary equipment would be fitted with devices to reduce NO_2.
3. ***Dust Control.*** Fugitive dust control plans would be required as part of contract specifications. For example, stabilized truck exit areas would be established for washing off the wheels of all trucks that exit the construction site. Tracking pads would be established at construction exits to prevent dirt from being tracked onto roadways. Any truck routes within the sites would be either watered as needed or, in cases where such routes would remain in the same place for an extended duration, the routes would be stabilized, covered with gravel, or temporarily paved to avoid the re-suspension of dust. All trucks hauling loose material would be equipped with tight fitting tailgates and their loads securely covered prior to leaving the sites. To minimize fugitive dust emissions, vehicles on-site could be limited to a speed of five mph. Chutes would be used for material drops during demolition. Water sprays and or misting systems would be used for all excavation, demolition, and transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air. Loose materials would be watered, stabilized with a biodegradable suppressing agent, or covered. In addition, all necessary measures would be implemented to ensure that the New York City Air Pollution Control Code regulating construction-related dust emissions is followed. Construction areas would also be surrounded by perimeter fencing that would help contain fugitive dust emissions.
4. ***Idle Times.*** In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time will also be restricted to three minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.
5. ***Utilization of Newer Equipment.*** USEPA's Tier 3 and Tier 4 standards for nonroad engines regulate the emission of criteria pollutants for new engines, including PM, CO, NO_x, and hydrocarbons (HC). All nonroad construction equipment in the proposed project with a power rating of 50 hp or greater would meet at least the Tier 3 emissions standard. Tier 3 NO_x emissions range from 40 to 60 percent lower than Tier 1 emissions and considerably lower than uncontrolled engines. All nonroad engines in the project rates less than 50 hp would meet at least the Tier 2 emissions standard.
6. ***Source Location.*** To reduce the resulting pollutant concentration increments, large emissions sources would be located away from residential buildings and publicly accessible open spaces to the extent practicable and feasible.

Additional measures may be taken to reduce pollutant emissions during construction of the proposed project in accordance with all applicable laws, regulations, and building codes. Overall, the proposed emission reduction program is expected to significantly reduce DPM emissions consistent with the goals of the currently best available control technologies under New York City Local Law 77, which are required only for publically funded City projects.

Noise

Potential impacts on community noise levels during construction of a proposed project can result from noise from construction equipment operation and from construction vehicles and delivery vehicles traveling to and from the construction site. Noise levels at a given location are dependent on the type and quantity of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), 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 phase of construction (i.e., demolition, superstructure, interior fit-outs, etc.) and the location of the construction activities relative to noise-sensitive receptor locations. The most significant construction noise sources are expected to be the operation of backhoes/loaders, cranes, excavators, rebar bending machines, and vibratory plate compactors.

As previously stated, 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), the DEP Notice of Adoption Rules for Citywide Construction Noise Mitigation (also known as Chapter 28), and the EPA's noise emission standards. These local and Federal 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 hours work, permits would be required, as specified in the New York City Noise Control Code. In addition, EPA requirements mandate that certain classifications of construction equipment meet specified noise emission standards.

Construction Noise Impact Criteria

The *CEQR Technical Manual* states that significant noise impacts due to construction would occur "only at sensitive receptors that would be subjected to high construction noise levels for an extensive period of time." Based on the *CEQR Technical Manual* and subsequent protocols established by review agencies, a construction noise impact would occur if sensitive receptors would experience:

- Cumulative construction noise levels exceeding ambient noise levels by three to five dBA or more for a period of two years or more. If the No-Action noise level is 60 dBA $L_{eq(1)}$ or less, a five dBA $L_{eq(1)}$ or greater increase would be considered significant. If the No-Action noise level is 61 dBA $L_{eq(1)}$, the maximum incremental increase would be four dBA. Similarly, if the No-Action noise level is 62 dBA $L_{eq(1)}$ or more, a three dBA $L_{eq(1)}$ or greater change is considered significant;
- Cumulative construction noise levels exceeding 85 dBA for the duration of a construction phase; or
- Cumulative construction noise levels exceeding ambient noise levels by 18 dBA or more for more than one year.

For conservative analysis purposes, existing noise levels were used as the baseline noise levels for determining construction-generated noise level increases.

Construction Noise Analysis Methodology

Potential impacts to surrounding neighborhoods can occur due to both on-site equipment (stationary sources) and the movement of construction-related vehicles (i.e., worker trips and material and equipment trips) (mobile sources). Between the DEIS and FEIS, a more refined analysis using CadnaA was performed for the worst case (i.e., noisiest) construction quarters for each building to be constructed. A discussion of the methodology used for the mobile source and stationary source construction noise analysis is presented below.

Mobile Sources (Off Site)

Based on the peak construction traffic presented above, an assessment of potential noise impacts from construction traffic was carried out for the construction peak hours of 6-7 AM and 3-4 PM for the worst-case construction traffic period (2022[Q4]). As both peak 2022 (Q4) construction traffic and 2023 operational traffic would represent a substantial increase in traffic volumes over the No-Action conditions (see Section “Traffic,” above), for conservative analysis purposes, the 2023 full build vehicle increment and associated mobile source noise increases were assumed.

On-Site Sources

As outlined in the *CEQR Technical Manual*, construction noise analysis modeling methodologies have been developed by a variety of Federal agencies, including the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the EPA. The Roadway Construction Noise Model (RCNM) is the FHWA model for detailed construction noise analysis. Also noted in the *CEQR Technical Manual* is the use of CadnaA for a detailed construction noise analysis. CadnaA (Computer Aided Noise Abatement Model), developed by DataKustic, quantifies industrial and construction noise sources using the International Environmental Noise Directive and ISO guidelines to accurately describe ambient noise in community environments. Compared to the FHWA’s RCNM and spreadsheet techniques, CadnaA has the following benefits:

- It incorporates reflections from building surfaces in the calculations:
- It more accurately calculates noise levels at the higher stories of a building; and
- It more accurately allows the potential benefits of a temporary 16-foot noise barrier during construction to be determined.

Noise results in CadnaA can be analyzed one-dimensionally at receptors, two-dimensionally through contour grids, and three-dimensionally using profile and digital terrain perspectives. Noise remediation measures are assessed using several program capabilities: barriers, natural embankments, and on-site attenuation measures such as sound reducing materials and equipment silencers.

Construction equipment noise associated with the proposed project was evaluated using a two-step approach. As a preliminary on-site source construction noise screening, all time periods and all potential receptor groups were examined using a spreadsheet-based procedure that uses accepted noise attenuation calculations as used in the FHWA’s RCNM. The screening analysis of stationary source construction noise impacts was based on the following average conservative condition assumptions: 1/3 of the construction equipment would be located approximately 50 feet inside the building lot lines, 1/3 at 100 feet, and 1/3 at 150 feet. Based on the results of the screening analysis, a more refined analysis using CadnaA was performed for the worst-case (i.e., noisiest) construction quarters for each building to be constructed. This refined analysis was prepared between the DEIS and the FEIS. The distribution of on-site equipment for the CadnaA analysis was the same as used for the air quality analysis (see the “Air

Quality" section, above) for Buildings 2 and 3 which were also modeled for air quality. Similar protocols were used to locate the equipment in Buildings 1, 4, 5, and the School, which were not modeled for air quality.
Equipment utilization factors and noise levels at a reference distance of 50 feet were provided by the Applicant for each month of each building's construction. Table 19-9, below, shows the Applicant-committed noise levels for the applicable construction equipment used in the analysis. Equipment noise levels quieter than those of typical construction equipment could be achieved through better engine mufflers, refinements in fan design, improved hydraulic systems, and/or newer equipment with specific manufacture noise levels. Path controls (e.g., the placement of equipment and implementation of barriers between equipment and sensitive receptors) could include portable noise barriers, enclosures, acoustical panels, and curtains, dependent on feasibility and practicality.

Table 19-9: Construction Equipment Noise Emission Levels at 50 Feet (L_{max} in dBA)

Equipment	DEP & FTA Typical Lmax Noise Levels	Applicant-Committed Noise Levels
Air Compressor	75-80	67[1]
Asphalt Paver	85	75[2]
Asphalt Roller	85	74[1]
Backhoe/Loader	80	77[1]
Chain Saws	85	75[1]
Circular Saws	76	76
Concrete Power Trowel	75	75
Concrete Saw (Walk Behind)	90	75[2]
Crane: 500-Ton Hydraulic	85	75
Crane: Manitowoc 999 with Luffing Jib	85	77[1]
Cut Off Saw	76	76
Excavators	85	77[1]
Generators	70-82	68[1]
Hoist	72	70
Jack Hammer	85	72[1,2]
Masonry Bench Saw	85	76[1]
Mortar Mixer	80	63[1]
Powder Actuated Device	85	75[2]
Rebar Bending Machine	80	80
Sledge Hammers	85	75[2]
Spray-On Fire Proof Pump	82	76[1]
Table Saws – Electric	76	76
Vibratory Plate Compactor	80	80
Water Pumps	77	76[1]
Welding Machines	73	73

Notes:
[1] Noise levels achieved by using quieter equipment, better engine mufflers, refinements in fan design, and improved hydraulic systems.
[2] Noise levels achieved through patch controls, including portable noise barriers, enclosures, acoustical panels, and curtains, where feasible and practical.
[3] Source: Kessler, Frederick M., "Noise Control for Construction Equipment and Construction Sites," report for Hydro Quebec.

As the assessment of potential noise impacts is based on changes in L_{eq}, the L_{max} values presented in Table 19-9 were converted to L_{eq} using the following equation:[3]

L_{max} + 10 x log (operating time/project time)

For instance, if the equipment has an L_{max} of 85 dBA at 50 feet, and it operates 40 percent of the time over a one-hour period, then the $L_{eq(1)}$ at 50 feet would be about four decibels less, or 85 – 4 = 81 dBA. Beyond

[3] *Noise and Vibration Control Engineering: Principles and Applications*, edited by Leo L. Beranek and Istvan L. Ver, John Wiley & Sons, 1992, p. 652.

50 feet, the noise level would attenuate at a rate of six dBA per distance doubling. Thus, at 100 feet, the L_{eq} would be 75 dBA (81 – 6 = 75).

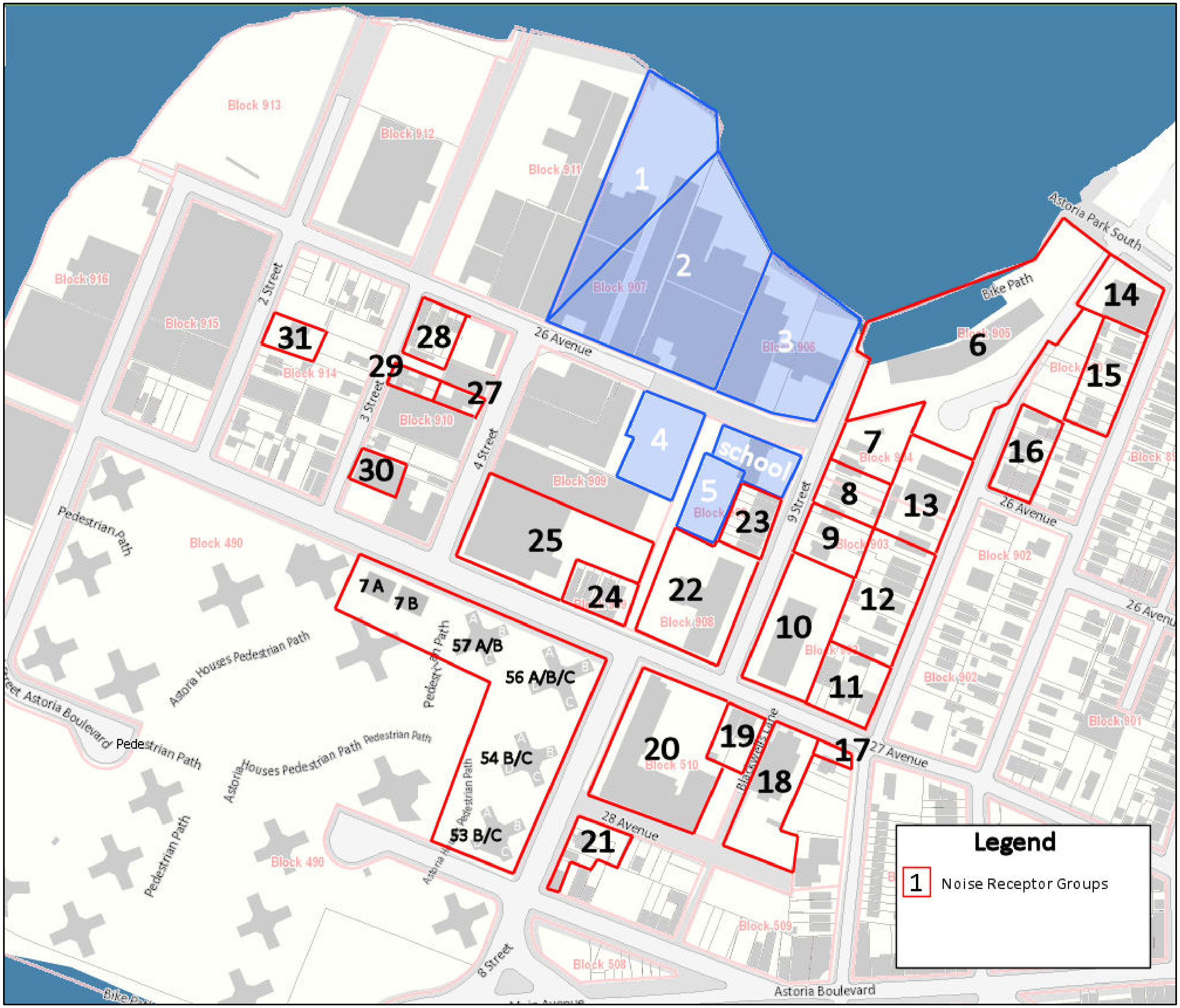
To determine the potential for a receptor to experience noise level increments of three dBA or more (or four or five dBA or more depending on the No-Action values) for a period of two years or more, the cumulative L_{eq} from the on-site equipment was calculated for appropriate receptors for each of the proposed project's building sites for their respective construction periods. Calculation of noise generated by construction equipment that would be located inside of the buildings' superstructures accounted for a ten dBA insertion loss due to exterior walls (with and without windows) and interior walls and partitions that would be between the construction equipment and nearby sensitive receptors. The equipment noise was adjusted for distance using the formula of six decibels per distance doubling, pursuant to CEQR methodology. Where an existing or newly constructed building would provide shielding for another building, a five dBA attenuation credit was applied; where there was complete blockage or multiple rows of buildings, a ten dBA credit was be applied.[4] The resulting equipment noise was then logarithmically added to the existing ambient noise from the relevant noise monitoring sites.

Sensitive Receptors

Peak potential construction noise impacts typically occur within 20 feet from ground level, as combustion engines and disruption of the ground floor surface occurs within this envelope. Buildings that are wholly or partially shielded from the ground level operations generally are not the worst-case receptor. Sensitive receptors beyond 400 feet were not included in the analysis as they are protected by intervening buildings. Sensitive receptor locations close to the project site (within approximately 400 feet of one or more of the proposed project's building sites or along the roadway corridors where construction traffic would be concentrated) were selected as noise receptor sites for the stationary source construction noise analysis. In addition, the project site buildings that would be completed in Phases 1, 2, and 3 (Buildings 2, 3, 4, and the residential portion of Building 5) were analyzed for potential construction-related noise impacts from subsequent construction phases. As Building 1 would be developed in the final construction phase (Phase 4) and would not be occupied during any project site construction, no significant adverse noise impacts would occur at this location due to nearby project site construction. In addition, while the Building 5 school is expected to be completed six months prior to completion of the proposed Building 1 and therefore could be occupied during the final Building 1 construction phase, as only interior/finishing work associated with low noise emissions would be underway on Building 1 during this six-month period and Building 2 would serve as a barrier, no analysis of potential construction-related noise impacts at the Building 5 school is warranted, and no construction noise impacts would occur at this location. Table 19-10 and Figure 19-5 present the analyzed nearby sensitive receptors.

Thirteen noise measurement locations were selected to determine the baseline existing noise levels (against which the projected construction noise levels were conservatively compared). In addition to noise monitoring locations 1 through 5 included in the operational noise analysis (refer to Chapter 16, "Noise"), field measurements were conducted at the following locations on December 11th and December 12th, 2013: 4th Street between 26th and 27th Avenues; 26th Avenue east of 4th Street; 8th Street at 27th Avenue; 8th Street between 27th Avenue and Astoria Boulevard; the northern terminus of 9th Street; 9th Street at 26th Avenue; 12th Street at 27th Avenue; and 12th Street at 27th Avenue.

[4] FHWA RCNM



Astoria Cove

This figure has been updated for the FEIS.

Figure 19-5
Noise Receptor Groups

Table 19-10: Sensitive Receptor Groups and Distance to Construction Sites

Receptor Group						Distance from Receptor Building to Building Construction Site (feet)					
#[1]	Sub-Group	Location	Land Use	Block & Lot	# Floors	Bldg 1	Bldg 2	Bldg 3	Bldg 4	Bldg 5 (Residential)	Bldg 5 (School)
2	NW	Building 2	Mixed-Use & Open Space	Project Site		100	-	-	-	-	-
3	W	Building 3	Mixed-Use & Open Space			200	60	-	-	-	60
4	N E	Building 4	Mixed-Use			230 -	65 -	70 100	- -	- -	75 75
5	W N E	Building 5	Residential			800 750 -	300 250 -	300 85 300	- - -	- - -	- 0 100
6		25-40 Shore Boulevard	Residential & Open Space	905, 7501	23	580	320	85	420	360	220
7		26-03 9th Street 26-05 9th Street	Residential	904, 5 904, 4	3 2.5	680	320	85	320	210	90
8		26-07 9th Street 26-09 9th Street 26-11 9th Street 26-13 9th Street 26-15 9th Street	Residential	904, 2 904, 1 903, 27 903, 26 903, 25	2.5 2.5 2.5 2.5 2.5	700	320	90	320	180	85
9		26-17 9th Street 26-19 9th Street 26-21 9th Street	Residential	903, 24 903, 22 903, 20	2.5 2.5 2.5	720	440	190	320	160	65
10		26-45 9th Street	Residential	903, 7	8	800	500	360	330	170	220
11		9-15 27th Avenue 9-17 27th Avenue 9-23 27th Avenue 9-29 27th Avenue	Mixed-Use Mixed-Use Residential Residential	903, 7502 903, 1501 903, 3 903, 1	4 4 2 2	940	650	500	460	310	360
12		26-28 12th Street 26-22 12th Street 26-18 12th Street 26-14 12th Street 26-12 12th Street 26-10 12th Street 26-6 12th Street	Residential	903, 43 903, 41 903, 39 903, 37 903, 36 903, 35 903, 34	2.5 2.5 2.5 2.5 2 2 3	840	530	320	480	320	260
13		26-2 12th Street 25-72 12th Street 25-66 12th Street 25-54 12th Street	Residential Residential Residential Mixed-Use	903, 33 903, 30 904, 21 904, 7501	3 2 5 3	760	480	250	480	320	250
14		12-10 Astoria Park South	Residential	900, 34	6	900	770	560	890	840	740
15		25-34B 14th Street 25-34A 14th Street 25-34 14th Street 25-30B 14th Street 25-30A 14th Street 25-30 14th Street 25-28 14th Street 25-26 14th Street 25-24 14th Street 25-22 14th Street	Residential	900, 148 900, 147 900, 146 900, 46 900, 44 900, 43 900, 42 900, 41 900, 40 900, 39	2 2 2 3 3 3 2 2 2 2	970	770	540	800	700	590
16		25-41 12th Street 25-47 12th Street 29-49 12th Street 25-51 21th Street 12-01 26th Avenue 12-03 26th Avenue 12-05 26th Avenue	Residential	900, 16 900, 15 900, 14 900, 13 900, 12 900, 10 900, 9	3 2.75 2.75 3 3 3 3	870	650	420	640	510	450
17		27-02 12th Street	Residential	510, 53	2	1,000	840	700	630	480	550
18		9-16 27th Avenue	Church	510, 6	2	1,000	770	670	570	430	510
19		9-06 27th Avenue 9-02 27th Avenue	Residential	510, 46 510, 44	3 3	950	710	650	480	370	500
20		810 27th Avenue	Residential	510-20	8	800	650	640	360	320	480
21		28-05 8th Street 28-07 8th Street 28-09 8th Street 8-01 Astoria Boulevard	Residential Residential Mixed-Use Mixed-Use	509, 33 509, 32 509, 31 509, 30	2 2 2 3	1,000	1,000	1,000	750	700	850
22		8-15 27th Avenue	Residential	908, 1	6	640	400	330	160	40	170

Table 19-10 (cont'd): Sensitive Receptor Groups and Distance to Construction Sites

23		26-14 9th Street 26-16 9th Street 26-18 9th Street 26-20 9th Street 26-22 9th Street 26-24 9th Street 26-26 9th Street	Reside ntial	908, 33 908, 34 908, 35 908, 36 908, 38 908, 138 908, 139	3 3 3 3 3 3 3	550	240	160	150	0	0
24		4-37 27th Avenue 4-35 27th Avenue 4-33 27th Avenue 4-31 27th Avenue 4-29 27th Avenue 4-27 27th Avenue	Residential	909, 55 909, 56 909, 57 909, 58 909, 59 909, 60	3 3 3 3 3 3	600	480	480	180	170	330
25		4-21 27th Avenue	Residential	909, 1	15	470	470	500	200	250	400
27		26-18 4th Street	Residential	910, 39	3	230	230	550	300	500	510
28		3-10 26th Avenue 3-08 26th Avenue 3-06 26th Avenue 3-04 26th Avenue 26-11 3rd Street	Residential	910, 22 910, 21 910, 20 910, 19 910, 16	2.5 2.5 2.5 2.5 2	170	170	600	400	600	610
29		26-15 3rd Street 26-19 3rd Street	Residential	910. 14 910, 13	3 3	270	270	650	400	600	610
30		26-31 3rd Street 26-33 3rd Street	Residential	910, 8 910, 7	2 2	400	400	700	440	630	700
31		26-18 3rd Street 26-24 3rd Street	Residential	914, 25 914, 28	1 2	380	380	780	560	750	750
53	A B C D	Astoria Houses Building 1	Residential		7	- 1,000 1,000 -	- 1,000 1,000 -	- 1,000 1,000 -	- 760 830 -	- 720 790 -	- 890 960 -
54	A B C D	Astoria Houses Building 2	Residential		7	- 950 1,000 -	- 860 930 -	- 870 940 -	- 590 660 -	- 550 620 -	- 720 790 -
56	A B C D	Astoria Houses Building 3	Residential	490, 101	7	720 760 860 -	640 640 750 -	680 660 760 -	380 380 490 -	380 350 460 -	540 520 600 -
57	A B C D	Astoria Houses Building 4	Residential		7	650 680 - -	640 640 - -	700 690 - -	400 390 - -	480 460 - -	620 600 - -
N7A		Halletts Point Building 7A	New residential construction		13	650	640	800	520	630	750
N7B		Halletts Point Building 7B	New residential construction		14	650	640	800	470	580	700

Notes:
[1] Refer to Figure 19-5.
26-02 4th Street, which was previously occupied by a rehabilitation center, has since relocated. As the building is vacant and is located in a manufacturing zone and there are no known or anticipated plans for its future redevelopment with sensitive uses (i.e., residential or community facility uses), it is not considered a sensitive receptor and, therefore, is not included in the analysis.
This table has been updated for the FEIS.

Construction Noise Analysis Results

Mobile Source Analysis (Off Site)

As discussed above, both peak 2022 (Q4) construction traffic and 2023 operational traffic would represent a substantial increase in traffic volumes over the No-Action conditions. As such, increased noise levels comparable or slightly less than those identified in Chapter 16, "Noise," are anticipated during the construction traffic peak period (2022 [Q4]). As such, no significant adverse mobile source noise impacts are anticipated during the peak construction traffic period..

On-Site Equipment Analysis

On-Site Equipment Screening

Using the methodology described above, the peak noise levels for all receptor groups over the nine-year construction period were determined and are summarized in Table 19-11.

As indicated in Table 19-11, the on-site equipment noise screening analysis indicated that construction noise levels could exceed the CEQR impact criteria at four of the analyzed receptor sites, including two existing sensitive receptors (receptor groups 22 and 23) and two project site buildings (the north façade of Building 4 and the west façade of Building 3). No receptors would exceed the impact criteria of an 18 dBA increase for over twelve months or a cumulative noise level of 85 dBA during any one construction phase. However, the construction noise impact analysis is based on the timeline prepared by the Applicant and presented earlier in the chapter. Additional potential significant adverse impacts could occur at other locations if the anticipated equipment usage or construction phasing were to change.

Due to construction of Building 2, the on-site equipment noise screening analysis indicated that the west façade of proposed Building 3, which would be completed and fully occupied during Building 2's construction, could experience exterior noise level increases of over three dBA for 195 consecutive weeks. Exterior noise levels along the northern façade of Building 4, which would also be completed and fully occupied during Building 2's construction, could also increase by over three dBA for an estimated 182 weeks.

The on-site equipment noise screening analysis also indicated that receptor sites 22 and 23, which are existing buildings located to the south of proposed Buildings 4 and 5, could experience significant adverse construction-related noise impacts during Phase 1 of Astoria Cove's construction, with peak noise levels expected in the fourth quarter of 2015. Receptor site 22 is a mid-rise (six-story) residential building at 8-15 26th Avenue with 128 units. Receptor site 23 comprises seven three-story multi-family residential buildings along 9th Street (26-14 9th Street through 26-26 9th Street), with a combined 25 residential units. Exterior noise levels at both receptor sites would increase by more than three dBA from existing conditions for 117 consecutive weeks.

In addition, the on-site equipment noise screening analysis indicated that noise levels at the Shore Towers waterfront esplanade (receptor group 6) would exceed the CEQR-recommended open space noise level of 55 dBA during periods of the proposed project's construction, as under the full build conditions (see Chapter 16, "Noise).

On-Site Equipment CadnaA Modeling

Subsequent to the DEIS, a refined noise analysis using the CadnaA computer program was undertaken. The purpose of this refined analysis was to more precisely calculate the magnitude of elevated noise levels during the peak construction quarters for each receptor building, regardless of whether they were projected to experience impacts during the screening analysis for the DEIS. The quarters selected for analysis were based on the worst case month within the quarter, as follows:

- Building 5 - 4th Quarter 2015
- Building 4 - 4th Quarter 2015
- Building 3 - 2nd Quarter 2017
- Building 2 - 3rd Quarter 2019

- Building 1 - 3rd Quarter 2021
- School - 3rd Quarter 2022

Table 19-11: Construction Equipment Noise Level Increments

Receptor Group[1]	CEQR Impact Criteria[2]			Impact Criterion > 18 dBA	Impact Criterion > 85 dBA
	Range > 3 dBA	Duration (Weeks)	Most Consecutive Weeks	Duration (Weeks)	Duration (Weeks)
2NW	15.2	91	91	0	0
2SE	11.8	52	52	0	0
3W	18.2	195	195	13	0
4N	17.9	273	182	0	0
4E	13.4	143	91	0	0
5E	11.3	117	65	0	0
5N	18.9	234	91	26	0
5W	9.9	156	65	0	0
6*	15.9	299	91	0	0
7	14.1	286	91	0	0
8	13.9	286	91	0	0
9	12.4	260	65	0	0
10	9.8	221	65	0	0
11*	5.0	39	39	0	0
12*	2.4	0	0	0	0
13*	6.5	104	39	0	0
14*	4.2	13	13	0	0
15*	6.2	39	39	0	0
16	6.2	65	65	0	0
17	0.3	0	0	0	0
18	0.4	0	0	0	0
19	0.5	0	0	0	0
20	1.8	0	0	0	0
21	2.5	0	0	0	0
22	19.0	169	117	26	0
23	20.5	338	117	26	0
24	12.7	130	65	0	0
25	11.4	208	65	0	0
27	1.9	0	0	0	0
28**	15.1	182	78	0	0
29**	11.6	117	65	0	0
30**	3.0	26	13	0	0
31**	6.0	39	26	0	0
53B	0.4	0	0	0	0
53C	0.4	0	0	0	0
54B	0.6	0	0	0	0
54C	0.5	0	0	0	0
56A	1.8	0	0	0	0
56B	0.8	0	0	0	0
56C	0.5	0	0	0	0
57A	1.5	0	0	0	0
57B	1.6	0	0	0	0
N7A	2.6	0	0	0	0
N7B	2.9	0	0	0	0

Source: Sandstone Environmental Associates (SEA)
Notes:
[1] Refer to Figure 19-5.
[2] Increase of three dBA over two years or more signifies an impact at the majority of receptor locations. At receptors with a *, the impact criterion is four dBA. At receptors with a **, the impact criterion is five dBA.
This table has been updated for the FEIS.

Although Building 1 and the School overlap construction time periods, they were analyzed separately. This was done for two reasons: first the peak noise construction quarters did not overlap; and second the construction occurs at the opposite ends of the overall site. Thus, the peak construction quarter of Building 1 occurs at the west end of the site when there is no construction activity at the school. Then the school's peak, at the east end of the site, occurs later during a quieter phase of Building 1 that would be barely audible at the receptors adjacent to the school. This was then used to confirm the uration of the elevated noise levels at the receptor groups. As described in greater detail below, the CadnaA analysis showed that the screening analysis procedure included in the DEIS and summarized above was appropriately conservative, and that the conclusions about the duration of the construction noise were valid as a worst-case analysis.

A comparison of the CadnaA results with respect to the DEIS analysis are presented in Tables 19-13a to e. A summary of the noise level increment results of the screening analysis and those of the CadnaA modeling is shown in Table 19-12.

Table 19-12: Comparison of On-Site Construction Equipment Noise Level Increments

Receptor Group[1]	CEQR Impact Criteria[2]						Impact Criterion > 18 dBA		Impact Criterion > 85 dBA	
	Range > 3 dBA		Duration (Weeks)		Most Consecutive Weeks		Duration (Weeks)		Duration (Weeks)	
	Screening	CadnaA	Screening	CadnaA	Screening	CadnaA	Screening	CadnaA	Screening	CadnaA
2NW[4]	15.2	20.5	91	104	91	91	0	52	0	0
2SE	11.8	11.6	52	52	52	52	0	0	0	0
3W[3]	18.2	17.6	195	156	195	65	13	0	0	0
4N[3]	17.9	18.6	273	195	182	78	0	26	0	0
4E	13.4	12.1	143	117	91	91	0	0	0	0
5E	11.3	17.1	117	117	65	65	0	0	0	0
5N	18.9	16.0	234	247	91	91	26	0	0	0
5W	9.9	13.7	156	91	65	65	0	0	0	0
6*	15.9	13.8	299	208	91	91	0	0	0	0
7	14.1	9.3	286	169	91	65	0	0	0	0
8	13.9	9.4	286	195	91	65	0	0	0	0
9	12.4	7.7	260	104	65	52	0	0	0	0
10	9.8	7.6	221	156	65	65	0	0	0	0
22	19.0	15.7	169	286	117	78	26	0	0	0
23	20.5	13.7	338	221	117	65	26	0	0	0
24	12.7	6.6	130	78	65	65	0	0	0	0
25	11.4	11.8	208	247	65	65	0	0	0	0
27	1.9	0.5	0	0	0	0	0	0	0	0
28**	15.1	8.2	117	117	78	65	0	0	0	0
29**	11.6	4.4	117	0	65	0	0	0	0	0

Source: Sandstone Environmental Associates (SEA)
Notes:
[1] Refer to Figure 19-5.
[2] Increase of three dBA over two years or more signifies an impact at the majority of receptor locations. At receptors with a *, the impact criterion is four dBA. At receptors with a **, the impact criterion is five dBA.
[3] Modeled with 25 dBA of window/wall attenuation.
[4] Modeled with 26 dBA of window/wall attenuation.
This table is new to the FEIS.

As indicated in Table 19-12, should the proposed project be developed and constructed as conservatively presented in this analysis, and with the provision of 26 dBA of attenuation along the northwest façade of Building 2, and 25 dBA of attenuation on the west façade of Building 3 and the north façade of Building 4, no significant adverse noise impacts are expected to occur during construction. At existing nearby residential buildings and occupied project site building, interior noise levels would, during some time periods (i.e., the periods when exterior $L_{10(1)}$ noise levels due to construction would be greater than the low- to mid-70s dBA range), exceed the CEQR acceptable interior noise level criteria for residential uses of 45 dBA $L_{10(1)}$. Such exceedances may be intrusive, but would occur for less than 24 consecutive months and therefore would not represent a significant adverse impact at these project site buildings, pursuant to CEQR impact criteria.

While noise levels at the Shore Towers waterfront esplanade and the project site open space would exceed the CEQR-recommended open space noise level of 55 dBA during certain periods of the proposed project's construction, as under the full build conditions (see Chapter 16, "Noise"), noise levels in many parks and open space areas located near heavily trafficked roadways and/or construction sites throughout the City experience comparable and sometimes higher noise levels.

Rodent Control

Construction contracts for the proposed project would include provisions for a rodent (mouse and rat) control program. Before the start of construction of any of the proposed buildings, construction contractors would survey and bait the appropriate areas and provide for proper site sanitation. During the construction phase, as necessary, the contractors would carry out a maintenance program in a manner that avoids hazards to persons, domestic animals, and non-target wildlife. Coordination would be maintained with the appropriate public agencies.