A. INTRODUCTION

This chapter summarizes a conceptual construction scenario for the proposed Willets Point Development Plan and considers the potential for adverse impacts during construction. The construction phasing and schedule for the proposed Plan is described, 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. Because the proposed convention center would require more workers and materials to construct than residential buildings, this chapter analyzes the development scenario of the proposed Plan with the convention center.

B. PRINCIPAL CONCLUSIONS

The construction of the proposed Plan would take place from 2009 to 2017. Because the Willets Point Development District is isolated from the surrounding neighborhoods, no significant adverse impacts related to land use, neighborhood character, or community facilities are expected.

The construction would entail the demolition of the former Empire Millwork Corporation Building. Demolition of this historic resource would constitute a significant adverse impact on architectural resources. Measures to fully or partially mitigate this adverse impact would be explored, as discussed in Chapter 23, "Mitigation."

The preparation and enforcement of a Health and Safety Plan (HASP) is expected to prevent any significant adverse impacts from hazardous materials.

Traffic from construction would be substantially less than traffic generated by the full operation of the proposed Plan at most intersections, with the exception of the intersection of College Point Boulevard at Roosevelt Avenue, 126th Street at Roosevelt Avenue, and 126th Street at 24th Avenue. These intersections would experience slightly higher traffic volumes due to limited availability of direct highway access to the District, as the new access ramps to/from the Van Wyck Expressway would not yet be constructed. Impacts at the study locations could be mitigated with the early implementation of measures discussed in Chapter 23. However, unmitigatable impacts would occur at some of the same locations identified as having unmitigatable impacts during operation of the proposed Plan.

Air pollutant emissions from construction equipment and trucks would be reduced to the extent practicable by the enforcement of Local Law 77 of 2005, which requires all City-sponsored construction to reduce construction-related emissions of diesel particulate matter (DPM) by using the best available technology (BAT) to control emissions, and which applies to this project, and other additional measures listed below. The District is large, and much of it is well-removed from publicly accessible locations where people would be expected to be present for extended durations. Although the majority of the construction would not affect the public, residents and workers in some of the buildings completed early in the Plan would be located adjacent to construction sites during construction of the later buildings. The measures below address both the emissions levels, and the location of sources relative to such receptor locations, so as to ensure that significant impacts on air quality during construction would not occur.

For noise impact determination purposes, significant adverse impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *City Environmental Quality Review (CEQR) Technical Manual* for two consecutive years or more. While increases exceeding the CEQR impact criteria for a shorter period of time may be noisy and intrusive, they are not considered to be significant adverse noise impacts. The District is large, and much of it is well-removed from any sensitive receptor. In addition, little night work is expected, and any exceedances of the CEQR criteria at sensitive locations would occur during the day. Therefore, no long-term significant adverse noise impacts are expected from construction activities.

C. DESCRIPTION OF CONSTRUCTION SCHEDULE AND ACTIVITIES

Construction of the proposed Plan would occur over a number of years, starting in mid-2009, with a complete build-out in 2017. A conceptual schedule of construction activities and general construction practices—including those associated with deliveries and access, hours of work, sidewalk and lane closures, staging and laydown, and construction parking—is described below. The final schedule and order of building construction could vary depending on the actual program proposed by the developer.

CONCEPTUAL CONSTRUCTION PHASING AND SCHEDULE

Figure 21-1 and Table 21-1 present a conceptual schedule of construction for the District. Figure 21-2 represents visually the conceptual construction sequence. Site preparation is expected to start in mid-2009, and the first two years would be focused on preparing the site for construction of buildings.

The first remediation and site preparation tasks would be identification of hazardous materials and asbestos abatement, followed by demolition of the existing buildings and remediation of contaminated soils and groundwater. As the remediation progresses, the site would be graded and the ground level raised by up to seven feet so that the roads and first floor of buildings would be above the 100-year floodplain. After the grading, piles would be driven to support the buildings and utilities. Layers of the underlying soils consist of uncontrolled fill that could settle at different rates in different locations under the new loads imposed by the buildings. The piles would prevent damage to the buildings, roads, and utilities caused by differential settling. As part of the site preparation, utility lines would be installed. A sanitary sewer system would replace the existing septic fields and cesspools. A new sewage pumping station would be constructed to handle the additional flows generated by the proposed Plan, and a new force main would be installed.

Construction on Buildings A-1 and A-2 would begin in 2011. Building A-1 would be completed in approximately two years. Building A-2 is expected to take about 18 months to construct. Construction on Buildings A-3 and A-10 would begin in the middle of 2011, and would take about 18 months to complete. At the beginning of 2012, construction on Buildings A-4 and A-9 would begin, and end in mid-2013. Buildings A-5 through A-8 would begin in mid-2012, and would be completed by the end of 2013. The new access road and ramps to the Van Wyck Expressway would be completed over approximately two years, starting in the fourth quarter of 2011 and ending in the third quarter of 2013. The agreement with the developer would stipulate that following approval of the Van Wyck Expressway ramps but prior to completion of ramp construction, buildings within the District would

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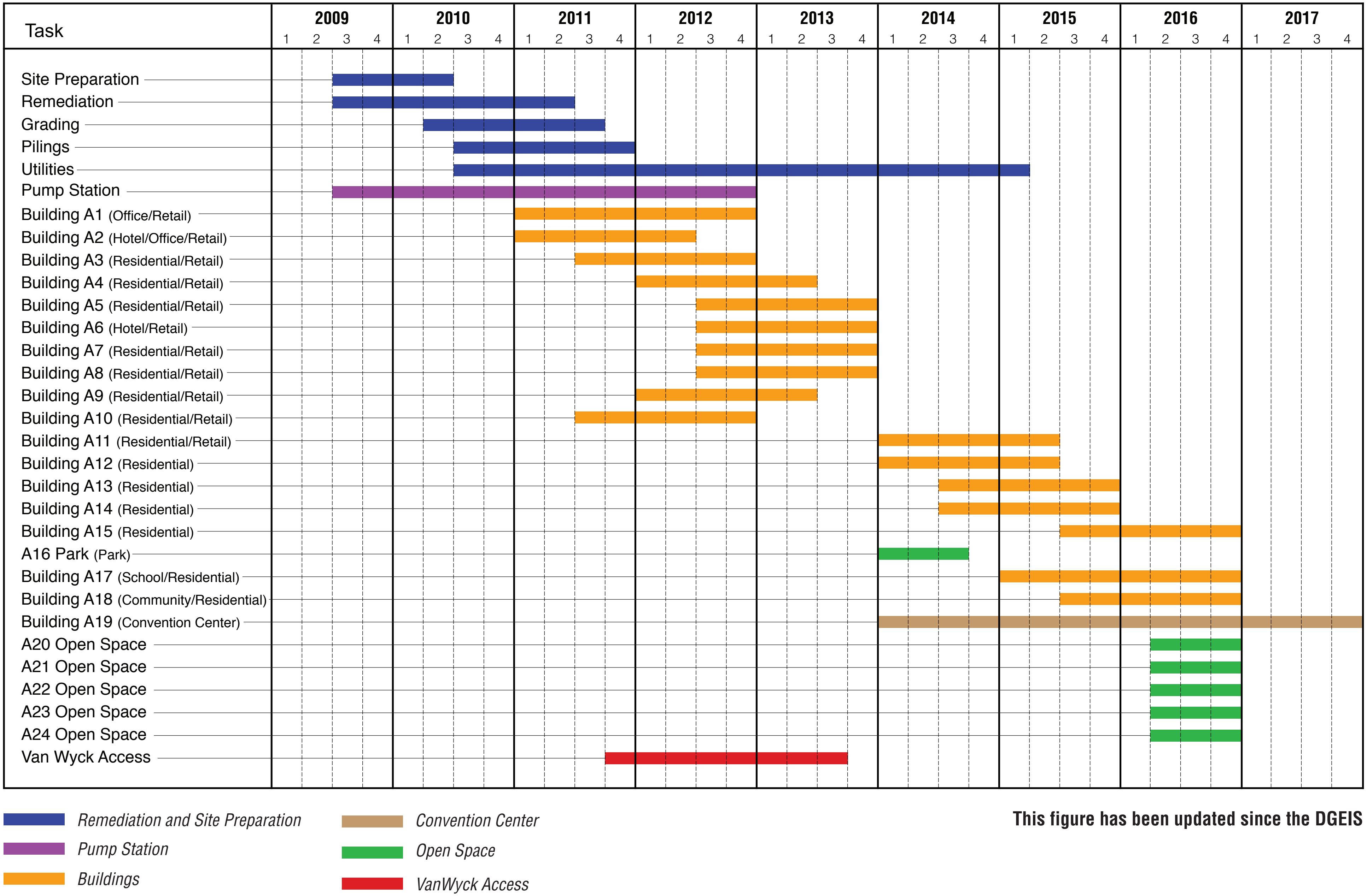

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Figure 21-1
Conceptual Construction Schedule

9.10.08

Retail	*Residential Rooftop Courtyard*	*Convention Center*
Office	*Hotel*	*Primary School, Community/Facility Use*
Housing	*Publicly Accessible Open Space*	*Parking*

This figure has been updated since the DGEIS

Figure 21-2
Conceptual Construction Sequence

not be occupied until completion of the Van Wyck Expressway improvements, unless it is demonstrated that earlier occupancy of the buildings would not result in significant adverse impacts that have not already been described in this Final Generic Environmental Impact Statement (FGEIS).

Table 21-1
Conceptual Construction Schedule

Task	Start Date	Finish Date	Months
Site Preparation	3Q 09	2Q 10	12
Remediation	3Q 09	2Q 11	24
Grading	2Q 10	3Q 11	18
Pilings	3Q 10	4Q 11	15
Utilities	3Q 10	1Q 15	57
Pump Station	3Q 09	4Q 12	42
Building A1 (Office/Retail)	1Q 11	4Q 12	24
Building A2 (Hotel/Office/Retail)	1Q 11	2Q 12	18
Building A3 (Residential/Retail)	3Q 11	4Q 12	18
Building A4 (Residential/Retail)	1Q 12	2Q 13	18
Building A5 (Residential/Retail)	3Q 12	4Q 13	18
Building A6 (Hotel/Retail)	3Q 12	4Q 13	18
Building A7 (Residential/Retail)	3Q 12	4Q 13	18
Building A8 (Residential/Retail)	3Q 12	4Q 13	18
Building A9 (Residential/Retail)	1Q 12	2Q 13	18
Building A10 (Residential/Retail)	3Q 11	4Q 12	18
Building A11 (Residential/Retail)	1Q 14	2Q 15	18
Building A12 (Residential)	1Q 14	2Q 15	18
Building A13 (Residential)	3Q 14	4Q 15	18
Building A14 (Residential)	3Q 14	4Q 15	18
Building A15 (Residential)	3Q 15	4Q 16	18
A16 (Park)	1Q 14	3Q 14	9
Building A17 (School/Residential)	1Q 15	4Q 16	24
Building A18 (Community/Residential)	3Q 15	4Q 16	18
Building A19 (Convention Center)	1Q 14	4Q 17	48
A20 Open Space	2Q 16	4Q 16	9
A21 Open Space	2Q 16	4Q 16	9
A22 Open Space	2Q 16	4Q 16	9
A23 Open Space	2Q 16	4Q 16	9
A24 Open Space	2Q 16	4Q 16	9
Van Wyck Access	4Q 11	3Q 13	24

Notes:
Start date is the first day of the quarter.
Finish date is last day of the quarter.

Construction of Buildings A-11, A-12, and Open Space A-16 would begin in 2014. The Open Space is expected to be completed by the end of the third quarter of 2014. Buildings A-11 and A-12 would take about 18 months to complete. Construction of the Convention Center (Building A-19) would start during the first quarter of 2014 and would take about four years to complete. The opening of the Convention Center is expected by the end of 2017. By the middle of 2014, construction of Buildings A-13 and A-14 would begin. These buildings would also take about 18 months to complete. Construction of Building A-17 (School) would begin at the start of 2015, and would be completed by the end of 2016. In mid-2015, construction would begin on Buildings A-15 and A-18 (Community Center), and would be completed by the end of 2016. Construction of Open Spaces A-20 through A-24 would begin in the second quarter of 2016 and would be completed at the end of 2016.

CONSTRUCTION ACTIVITIES

REMEDIATION AND SITE PREPARATION

Site Cleanup

Site cleanup would begin in mid-2009 and last for approximately one year. The purpose of this activity is to remove all loose materials, inventory potentially hazardous materials, and complete the detailed planning for demolition of the buildings and remediation of any contamination. The tasks associated with this activity would include:

- Installation of a site perimeter security fence;
- Removal of residual materials, loose debris, furniture, and garbage;
- Inventory and removal of small containers, drums, and loose items requiring special disposal, such as paints, pesticides, chemicals, strippers, thinners, oils, petroleum containers, car batteries, mercury containers, etc.;
- Inventory and restaging of all 55-gallon drums and large containers of liquid and solid waste in centralized drum storage area for consolidation, testing, classification and disposal;
- Inventory and sampling of all structures for asbestos remediation;
- Inventory, sampling, and removal of all light ballast equipment for disposal;
- Pumping out, cleaning, removing, and disposing of all above-ground tanks; and
- Pumping out, cleaning, excavating, removing, and sampling of soils around all known underground storage tanks.

About 200 workers are expected to be on-site during the cleanup. The equipment would include fork lifts, small trucks, barrel handlers, and various small tools. About 25 trucks per day are expected to enter and leave the site.

Demolition and Remediation

This stage of construction activities would start in mid-2009. It would continue for approximately 2 years and be completed mid-2011. The activities associated with this stage would include:

- Asbestos remediation of all building in the District;
- Demolition of buildings above ground, segregating materials for disposal/recycling;
- Breakup and removal of concrete floor slabs for recycling/disposal;
- Removal of the upper layer of soil where contamination has been identified;
- Stockpiling, sampling and classification of the soil for disposal,
- Excavation of areas of dry wells, floor drains, discharge points, and newly identified underground storage tanks, and sampling and remediation of these soils; and

- Treatment of groundwater (depending on the type and extent of groundwater contamination, this task could last throughout the construction period and into operation of the proposed Plan).

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 New York State Department of Labor (DOL)-licensed asbestos abatement contractor prior to building demolition. Asbestos abatement is strictly regulated by the New York City Department of Environmental Protection (DEP), DOL, the U.S. Environmental Protection Agency (EPA), and the U.S. Occupational Safety and Health Administration (OSHA) to protect the health and safety of construction workers and nearby residents and workers. Depending on the extent and type 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 buildings with ACMs would be isolated from 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, critical barriers, and caution tape. 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 completed and the work areas have passed a visual inspection and monitoring, if applicable, the general demolition work can begin. Depending on the amount of ACMs to be removed and project phasing, 10 to 20 workers can be on site, and about one or two truckloads of material can be removed per day. Demolition of buildings with the potential to disturb lead-based paint would be carried out in accordance with the applicable OSHA regulations.

Underground storage tanks would be removed and disposed of in accordance with federal, State and New York City regulations. If contaminated soil is excavated during the tank removal, it would be remediated according to the requirements of the New York State Department of Environmental Conservation (DEC) Spill Response and Remediation (Spills) program, and samples would be collected to ensure that all soil exceeding applicable guidance values is removed.

All disturbance of existing soils would be conducted in accordance with a Remedial Action Plan (RAP) approved by DEP and, if applicable, DEC, and would include a HASP. The HASP would detail measures to reduce the potential for exposure (e.g., dust control) and measures to identify and manage known contamination and unexpectedly encountered contamination. The HASP would include an air monitoring protocol and outline mitigation procedures to prevent unsafe exposure to contaminant vapors and particulates. In the event that soil containing petroleum or other compounds above state-approved cleanup levels is discovered during excavation activities, such soil would be segregated and disposed of in accordance with all applicable federal, State and local regulations and guidelines.

It is anticipated that soil containing VOCs exceeding the Restricted Residential Soil Cleanup Objectives (SCO) concentrations in Table 375-6.8b of 6 NYCRR Part 375 regulations would be removed from the site subsurface during tank removal and spill remediation activities in areas that are disturbed or excavated. However, if VOC-related contamination is present in groundwater and/or at depths that are impracticable to excavate, residual contamination could remain in the subsurface.

Any shallow soil with semivolatile organic compounds (SVOCs) and/or metals concentrations exceeding SCO concentrations would be capped by building foundations, asphalt/concrete paving, or clean fill for open space or landscaped areas. This construction activity would be required even if SVOCs or metals were not present.

The next step in general demolition is to remove any economically salvageable materials, and then large equipment is used to deconstruct the buildings. Typical demolition requires solid temporary walls around the building to prevent accidental dispersal of building materials into areas accessible to the general public. After the buildings are 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. Depending on the size of the building demolished, about 10 to 20 workers are expected to be at each building, and typically two to four truckloads of debris would be removed per day from each building.

Grading, Structure Piling

Grading and structure piling would begin in 2010 and continue for about 1½ years. The activities associated with this stage would include:

- Grading;
- Structure piling;
- Forming and pouring of grade beams;
- Grading of roadways and side slopes of roads;
- Additional filling as necessary;
- Installing piles in roadways where utilities would be located;
- Installing pile caps in roadway where necessary; and
- Redistributing excavated fill material to other areas.

The grading and filling would involve the use of bulldozers, graders, and compactors. Any contaminated soil that is removed would be disposed in accordance with all applicable regulations. The new fill would be compacted to minimize settlement in the upper layer of soil. The fill material that was used for purposes of the geotechnical evaluation included a low density material that is available and is designed to minimize settlement. In addition, the compressible layer beneath the District has already been put under pressure and settlement has occurred, which minimizes further settlement of that layer. However, because some layers of the underlying soils are composed of uncontrolled fill, the new fill and the loads imposed by the new structures could cause the underlying soil to compact. This compacting could be uneven, with certain locations settling more than other locations. To address this differential settling, piles would be used to support buildings, utility lines, and other structures that could be damaged. The piles would likely be installed by impact pile drivers. After the piles are driven, grade beams and saddles would be built. This work would involve building forms and pouring concrete. At any given time, 50 to 100 workers could be involved in the grading, filling, and pile driving.

INSTALLATION OF UTILITIES AND BUILDING FOUNDATION WITHIN THE DISTRICT

Utility work would start in mid 2010 and continue for approximately 5 years. Utility connections would be extended into each building lot as it is developed. The activities associated with this stage would include:

- Installation of passive and/or active venting systems beneath building foundations;
- Installation of vapor barriers under building footprints;
- Placement of fill on barriers and installation of all under-slab piping and utilities (for buildings under which stormwater retention basins or holding areas would be installed, utilities would be placed on top of the barrier layer);
- Pouring of floor slabs to seal all vapor systems;
- Roadway trenching along specific roads;
- Installation of utility connections to all buildings and piping placement on piles where required; and
- Connection of stormwater retention and holding areas to main roadway systems.

The passive venting system, if needed, would likely consist of a series of perforated pipes to capture any vapors arising from the underlying soils and to transport the vapors away from the buildings and enclosed spaces. A layer of plastic or fabric would be laid above the perforated pipes to prevent any vapors from entering the buildings that are not captured from rising. An active venting system has a blower connected to the perforated pipes. The blower lowers the air pressure under the building and actively draws the air and soil gas out for discharge into the atmosphere. Much of this work would be done by hand with small equipment to handle the perforated pipes and rolls of fabric.

Because the proposed Plan includes the construction of new streets, it is expected that the water lines, sewer lines, power lines, and telecommunications ducts would all be installed at the same time. The level of energy service consumed by the proposed development within the District would require new electrical transmission and distribution lines as well as telecommunication (telephone, cable, and fiber optic) lines at the same time the streets are constructed. The water and sewer lines would likely be placed directly onto the pile caps. For the electric and telecommunication lines, ducts would be laid on the pile caps, and then the lines would be installed in the openings in the ducts. After all the various utility lines are placed on the pile caps and the necessary ancillary items, such as manholes for access and fire hydrants, are installed, the trenches would be backfilled with soil and compacted.

Typically, about 100 feet of utility lines can be installed per day. Trenches in the streets would not be left open during non-working times, but would either be filled and patched, or covered with steel plates. This work typically involves the use of backhoes to excavate the trenches and place the backfill, and cranes to lift the utility lines into place. Flatbed delivery trucks are used to transport the lines and pipes to the site. Dump trucks would bring the bedding material and clean fill, if needed, to the work site. Asphalt trucks and rollers would be used to patch the streets.

Construction of the roadways would start after the infrastructure and utilities have been placed in the streetbed. The roads are graded, and then typically three to four layers of material are laid down to form the roadway. First a sub-base is placed and compacted, followed by the base layer, a binder layer, and finally the top layer of asphalt. On streets where traffic is expected to be light, the base layer may be omitted. At the same time, the curbs and sidewalks would be installed. Foundations for lights and traffic control devices would also be installed. The final work would be striping the streets and crosswalks.

Construction of the roads would involve graders, bulldozers, and compactors for the first three layers. Paving machines and rollers would be required to compact the asphalt. The materials would be brought to the site by trucks and immediately placed by the graders and bulldozers. The roller/compactor would be used after each layer has been placed. The asphalt would be brought by trucks and placed into the paving machine for spreading and compacting.

Construction of the sidewalks and installation of the curbs and roadside appurtenances would be more labor intensive than the road construction. Forms are placed by hand to shape the curbs, sidewalks and foundations for the street appurtenances. After reinforcing mesh is laid, concrete is poured from concrete trucks. The installation of the utilities would require about 10 to 20 workers and about five truck deliveries per day at each site where utility work is occurring. The construction of the roads would require about 50 to 75 workers and about 10 to 20 truck deliveries per day.

CONSTRUCTION OF THE BUILDINGS

Building construction would begin after all site cleanup and remediation is completed. Typical construction stages for residential and commercial buildings do not vary greatly, and each residential/retail building would be completed in approximately 18 months. The larger commercial buildings and school would take about 24 months to complete. The Convention Center, because of its specialized system, would take about 48 months to complete. Building construction would generally involve three phases: core and shell construction, exteriors, and interior finishing. The building structure and the interior finishing stages would overlap one another, as the upper parts of the structure would be under construction while finishing of the lower floors would be completed.

Core and Shell

In general, core and shell construction of a building would last approximately nine months and would include construction of the building's framework (installation of beams and columns), and floor decks. These activities would require the use of the tower crane, compressors, personnel and material hoists, concrete pumps, on-site reinforcing bar bending jigs, welding equipment, and a variety of hand-held tools, in addition to the delivery trucks that would bring construction materials to the site. Each day, about 100 to 150 workers and about 40 to 50 truck deliveries would be required for the construction of each building.

Exteriors

The exterior would likely be either concrete or steel and glass. In either case, the exterior is typically assembled off-site and trucked to the site. Either concrete planks or steel and glass sheets would be lifted by large cranes from the bed of the tractor trailers and secured into place on the face of the building. This type of construction would require about 50 workers per day and about five truck deliveries per day per building.

Interior Fit-out and Finishing

This stage would include the construction of interior partitions, installation of lighting fixtures, interior finishing (flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators. Mechanical and other interior work would overlap for four to six months with the tower building core and shell construction. This activity would employ the greatest number of construction workers—up to 200 to 300 per building during the active periods, and up to 400 workers per building during periods of maximum activity. In addition, anywhere from 25 to 75 truck deliveries would be expected per day at each building. Equipment used during interior construction would include exterior hoists, pneumatic equipment, delivery trucks, and a variety of small hand-held tools. However, this stage of construction is the quietest and does not generate fugitive dust.

OPEN SPACE AREAS AND OTHER SURFACES

During construction of the publicly accessible open spaces, top soil may be imported for installation of the grassy areas and landscaping. Concrete sidewalks would be poured, and street furniture, such as benches and tables, would be installed. Dump trucks would bring the soil to the site for spreading by hand. Trees with about a 3- to 4-inch caliper (diameter) and shrubs would be planted. For the active recreation areas, the ground surfaces would be installed, followed by the appropriate amenities (e.g., basketball hoops, volleyball nets, etc). The majority of this work would be done by hand. The construction of each park would take six to nine months. About 50 to 75 workers per day and about 10 to 20 truck deliveries per day would be expected at each site.

ACCESS ROAD AND VAN WYCK EXPRESSWAY RAMPS

A new access ramp from the northbound Van Wyck Expressway would be constructed off the existing Exit 13 ramp and would connect to the new street network within the District at the northeast corner. A new ramp to the southbound Van Wyck Expressway would connect the northeast corner of the District to the expressway mainline immediately south of the interchange with the Whitestone Expressway. The ramps would start at grade and rise on columns to the height of the elevated expressway.

To build the ramps, foundations would be excavated and built for the columns, which could be steel or concrete. Lines of columns would be installed and connected with steel girders. The roadway would be built on the girders. Typically, excavators would be used and the foundations formed by concrete. Cranes would be used to place the columns and girders. Cranes would also be used to place the plates on which the roadway is built. At any given time, up to 50 workers could be engaged in building the ramps and access roads. The number of truck deliveries varies with each activity and would range from 10 to 40 trucks per day for each work site.

SANITARY SEWER SYSTEM

The proposed Plan would include the development of a sanitary sewer system that would provide a new sanitary collection service to the area and eliminate the existing septic systems. Nearby areas, such as Shea Stadium, direct their sanitary sewage to the 37th Avenue Pump Station. However, sewage from the District would not be able to use this pump station because it does not have sufficient capacity. Therefore, a new pump station would be constructed either off- or on-site. New sanitary collection lines within the District would be connected to the City sewer system that conveys sanitary sewage to the Bowery Bay Water Pollution Control Plant (WPCP) for treatment.

Sewer construction work primarily is a “cut-and-cover” technique. A trench would be excavated in the street, and short piles may need to be driven through the bottom of the trench. Concrete cradles would be installed to hold the sewer pipe. The sewer pipe would be installed in short lengths and connected. The trench would then be backfilled and the pavement replaced. While the new sewers are being constructed, temporary flumes may have to be installed to handle the existing sewer flows. DEP regularly performs this task at sites throughout the City. About 20 to 40 workers would be needed to install the sewer line and to control traffic for any portions that are installed in public streets. Typical equipment includes backhoes, cranes, and front-end loaders. Trucks bring the sewer pipes to the construction, and depending on the suitability of the soil for re-use, trucks may be needed to cart off existing soils and bring suitable soil to the construction site.

Several routes are under consideration for the force main from the new pump station to the connections into the New York City sewer system. Four of the routes would involve constructing the new pump station in the District, and one route through the north boundary of Shea Stadium's parking lot would involve constructing the new pump station in the vicinity of the existing 37th Avenue Pump Station. The southern-most route would be south of and parallel to Roosevelt Avenue and then under 41st Avenue to the combined sewer at 108th Street. Two of the routes would cross through the parking lot for Shea Stadium and then run under either 39th or 37th Avenue to the combined sewer at 108th Street. A fourth route would extend to a new pump station located next to the existing 37th Avenue Pump Station and then to the combined sewer at 108th Street. The fifth possible route would be to the north and parallel to Northern Boulevard and connect into the New York City sewer system at 31st Drive.

For four of the options, the new pump station would be built within the District. One of the options would have the new pump station next to the existing 37th Avenue Pump Station. A water reclamation facility would obviate the need for a new pump station. The construction of a water reclamation facility would employ approximately the same number of workers and trucks. Depending on the construction activity under way at the time, anywhere from 20 to 50 workers could be employed during construction of the pump station. Excavators would be used to open the ground. Concrete would be used for the wet wells and the floor slabs. The pumps and control equipment would be brought on site by trucks and installed using cranes. After the expansion is built, it would be tested and then put into operation.

GENERAL CONSTRUCTION PRACTICES

Certain practices would be observed throughout the project. Each construction manager would designate a contact person for community relations throughout the construction period. This person would serve as the contact for the community to voice concerns about construction activities, and would be available to meet with the community to resolve concerns or problems.

The following describes typical construction practices in New York City. In certain instances, project practices may vary from those described below.

DELIVERIES AND ACCESS

Access to the construction sites would be controlled. The work areas would be fenced off, and limited access points for workers and trucks would be provided. Typically, worker vehicles would not be allowed into the construction area. Security guards and flaggers would be posted, and all persons and trucks would have to pass through security points. Workers or trucks without a need to be on the site would not be allowed entry. After work hours, the gates would be closed and locked. Unauthorized access would be prevented after work hours and during the weekend.

Material deliveries to the site would be controlled and scheduled. Unscheduled or haphazard deliveries would be minimized.

HOURS OF WORK

Construction activities for the buildings would take place in accordance with New York City laws and regulations, which allow construction activities to take place between 7:00 AM and 6:00 PM. Construction work would begin at 7:00 AM on weekdays, with most workers arriving between 6:00 AM and 7:00 AM. Typically, work would end at 3:30 PM, but could be extended until 6:00 PM for such tasks as finishing a concrete pour for a pad, or completing the bolting of a steel frame erected that day. Extended workday activities would not include all construction workers on site, but only those involved in the specific task. Extended workdays would occur during foundation and superstructure tasks, and limited extended workdays could occur during other tasks over the course of construction.

At limited times over the course of constructing a building, weekend work would be required. Weekend work requires a permit from the New York City Department of Buildings (DOB) and, in certain instances, approval of a noise mitigation plan from DEP under the City's Noise Code. The New York City Noise Control Code (Local Law 113 of 2005), effective July 1, 2007, limits construction (absent special circumstances as described below) to weekdays between the hours of 7:00 AM and 6:00 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6:00 PM and 7:00 AM and on weekends) may be permitted only to accommodate: (i) emergency conditions; (ii) public safety; (iii) construction projects by or on behalf of City agencies; (iv) construction activities with minimal noise impacts; and (v) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. In such cases, the numbers 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, beginning with worker arrival and site preparation at 7:00 AM, and ending with site cleanup at 5:00 PM.

A few tasks may have to be completed without interruption, and the work can extend past 6:00 PM. In certain situations, concrete must be poured continuously to form one structure without joints. This type of concrete pour is usually associated with foundations and structural slabs at grade, which would require a minimum of 12 hours or more to complete.

SIDEWALK AND LANE CLOSURES

No lane closures outside of the District are expected.

NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Table 21-2 presents the peak number of construction workers and delivery trucks expected for each quarter during the construction of the project. The number of workers and truck deliveries would peak during 2012, with a peak number of 2,625 workers per day and 608 deliveries per day in the fourth quarter. These numbers represent the highest number of workers and deliveries sustained over a several week period and may not reflect the single highest day.

STAGING AND LAYDOWN AREAS

During the early stages of construction, the laydown and staging areas could be on the unconstructed parcels, and not on the streets or already constructed parcels. Because of the density of the finished buildings, laydown areas would likely be on the curb lane of the local streets within the District. It is not expected that through streets would be used for material laydown. Materials that are needed during the day, such as reinforcing bars and prefabricated pieces, are usually delivered early in the day and are stored until needed. In certain cases, several days' worth of construction materials would be stored.

Table 21-2
Number of Construction Workers and Delivery Trucks (per day)

Year	2009				2010				2011				2012			
Quarter			3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers			300	400	350	375	375	375	475	675	750	1,200	1,600	2,150	1,900	2,625
Trucks			60	60	60	70	55	55	95	175	170	295	328	463	378	608

Year	2013				2014				2015				2016			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	1,675	2,575	1,550	1,300	275	575	900	1,475	1,375	1,750	1,100	1,200	1,200	1,850	1,550	1,425
Trucks	313	503	238	210	85	175	215	185	225	280	198	248	228	298	220	200

Year	2017				Project	
Quarter	1st	2nd	3rd	4th	Peak	Average
Workers	350	350	350	350	2,775	1,036
Trucks	50	50	50	50	608	195

Note: The number of construction workers and delivery trucks represent the highest number over a one to two week period and may not reflect the absolute peak day.

CONSTRUCTION WORKER PARKING

The construction activities would generate a maximum daily parking demand of 1,598 spaces in the fourth quarter of 2012. Parking would be managed within the District, and if necessary, supplemented by the existing parking areas adjacent to the District, which are available during non-game days.

D. EXISTING CONDITIONS

As described in Chapter 1, "Project Description," the Willets Point peninsula and surrounding area were used for the disposal of incinerator ash and garbage from around 1900 through the mid 1930s. During this time, approximately 50 million cubic yards of material filled the area with varying thickness of ash and waste. Following its period of use as a disposal site, the District was occupied by a dense cluster of industrial, automotive, manufacturing, and commercial businesses. As a result of this history, known or expected contaminants on the site include VOCs, SVOCs, polychlorinated biphenyls (PCBs), heavy metals, pesticides, herbicides and rodenticides, as well as asbestos and lead-based paint, based on the age of many of the buildings. Soil and groundwater have been impacted in varying degrees throughout the District. Recent subsurface sampling has been limited to the streets/sidewalks, as other areas are private property. Although this sampling did not identify evidence of substantial petroleum contamination in soil samples (the sampling results were consistent with those usually found in fill materials in New York City), groundwater sampling did indicate evidence of petroleum contamination, consistent with suspected releases from private properties within the District.

Auto-related services are the most prevalent use in the District, occupying approximately 80 percent of all lots in the District. These services consist of auto-body repair, auto glass, car washes and auto detailing, used and new auto part sales, tire sales, and vehicle towing. For the most part, these auto-related businesses occupy one-story garage buildings and Quonset-type structures, many of which contain multiple auto-related businesses. There are also a number of car junkyards in the District, which support auto salvage businesses. The District also contains several industrial uses, including warehousing and distribution, construction-related services and materials, and waste transfer and recycling, generally occupying larger lots. In addition to the auto-related and industrial uses, several commercial uses in the District cater to the existing businesses and employees in the area. The District is mostly isolated from the surrounding neighborhoods by several natural and man-made barriers.

E. THE FUTURE WITHOUT THE PROPOSED PLAN

The uses described above are expected to continue in the future without the proposed Plan. The existing contamination of the soil and groundwater is also expected to continue.

F. PROBABLE IMPACTS OF THE PROPOSED PLAN

The following analysis describes the overall temporary effects of construction on the relevant areas of concern: land use, socioeconomic conditions, community facilities and services, historic resources, hazardous materials, traffic and transportation, air quality, and noise.

LAND USE

Because the District is isolated from the surrounding uses by the Flushing River, the Whitestone Expressway, the Van Wyck Expressway, and Northern Boulevard, construction is expected to have no effects on the surrounding areas.

SOCIOECONOMIC CONDITIONS

Construction would create major direct benefits resulting from expenditures on labor, materials, and services, as well as substantial indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity (see Chapter 4, "Socioeconomic Conditions," for more details). Construction would also contribute to increased tax revenues for the City and State, including those from personal income taxes. There would be no significant adverse impacts on socioeconomic conditions due to construction.

COMMUNITY FACILITIES AND SERVICES

No community facilities are located within the District. Therefore, construction of the Plan would not have a significant adverse impact on community facilities. For the majority of the construction period, fewer construction workers are expected to be on-site than the current number of workers within the District. The police and fire departments, as well as hospitals, have sufficient resources for existing conditions and would have sufficient resources for the construction activities. Therefore, no significant adverse impacts on community services are expected from construction of the proposed Plan.

HISTORIC RESOURCES

In a letter dated February 2, 2007, the New York City Landmarks Preservation Commission (LPC) determined that the District is not sensitive for archaeological resources. In a letter dated November 19, 2007, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) confirmed that the District is not sensitive for archaeological resources.

It is anticipated that all existing buildings in the District would be demolished as part of the proposed Plan. As discussed in Chapter 8, “Historic Resources,” demolition of the former Empire Millwork Corporation Building as part of the proposed Plan would constitute a significant adverse impact on historic resources. Measures to fully or partially mitigate this adverse impact would be explored, as discussed in Chapter 23.

NATURAL RESOURCES

Construction of the proposed Plan would impact terrestrial resources from activities such as grading, land clearing, temporary access roads for construction vehicles, piling of debris near or within vacant areas, and noise. As streets and buildings are constructed, small areas of successional plant communities currently found in the District and the existing wildlife communities within their footprints would be lost. The wildlife species found in the District are common to urban areas, and the potential displacement of some individuals would not result in a significant adverse impact on the plant and wildlife community of the New York City region.

The District is more than 180 feet away from the nearest DEC-mapped tidal wetland and more than 165 feet away from the nearest U.S. Fish and Wildlife Services (USFWS) NWI-mapped wetland. Therefore, adverse impacts on DEC or USFWS mapped wetlands are not expected.

Construction of the new buildings would result in the removal or capping of contaminated soils and historic fill. As discussed in Chapter 12, “Hazardous Materials,” implementation of the measures during construction activities would minimize the potential for significant adverse impacts to groundwater quality.

Construction activities within the District have the potential to temporarily affect the water quality of Flushing Bay when stormwater is discharged. Stormwater generated during construction as well as operation of the proposed Plan would be discharged to Flushing Bay via connection to the two existing 60-inch outfalls at 126th and 127th Streets. No additional outfalls are expected to be constructed. The proposed Plan would comply with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Management Design Manual. Best management measures implemented during construction would include erosion and sediment control measures as part of a stormwater pollution prevention plan (SWPPP) and would minimize potential impacts on Flushing Bay associated with stormwater runoff. The SWPPP would comply with the Flushing Bay Comprehensive Watershed Plan, as described in Chapter 11, “Natural Resources,” and would take into account that Flushing Bay is an existing impaired waterbody.

HAZARDOUS MATERIALS

Construction of the proposed Plan would involve both demolition of all existing structures (some of which are believed to contain lead based paint, ACMs, and PCB-containing electrical components) and a variety of earthmoving/excavating activities that would encounter subsurface contamination (e.g., petroleum, solvents, etc.). E-designations would be placed on all privately-owned lots within the District. The E-designation would require that, prior to DOB issuing permits associated with redevelopment, the property owner conduct Phase I and Phase II Environmental Site Assessments (ESAs), and remediation where appropriate, to the satisfaction of DEP. As properties are acquired by the City, it is anticipated that a Restrictive Declaration would be placed on them, which would supersede the E-designation, but require implementation of the same measures. All remedial plans would be required to be submitted at a minimum to DEP for review and approval.

The presence of hazardous materials threatens human health only when exposure to those materials occurs; even then, a health risk requires both an exposure pathway to the contaminants and sufficient exposure to produce adverse health effects. To prevent such exposure and exposure pathways, the proposed Plan would include appropriate health and safety and investigative/remedial measures that would precede or govern both demolition and soil disturbance activities. These measures would be conducted in compliance with all applicable laws and regulations and would conform to appropriate engineering practices. Institutional controls, through an E-designation and subsequent Restrictive Declaration, to prevent future exposure during intrusive work and subsurface utility repairs would also be necessary. Measures would include:

- Procedures for pre-demolition removal of asbestos and appropriate management of lead based paint and PCB-containing equipment.
- Additional subsurface investigation, both to District sites and areas not yet investigated, to better characterize soils.
- Development of a HASP and Site Management Plan (SMP) for site remediation, excavation, and redevelopment that would include detailed procedures for managing both known contamination issues (e.g., tank removal, and soil and groundwater remediation of existing petroleum spills, excavation, and removal of existing septic tanks or fields, floor drains, and historic fill) and any unexpectedly encountered contamination issues. The HASP would also include procedures for avoiding the generation of dust that could affect the surrounding community, as well as the monitoring necessary to ensure that no such impacts occur.
- Requirements for vapor barriers and sub-slab venting systems in new buildings, where remaining subsurface contamination could otherwise lead to unacceptable exposure inside buildings, would be consistent with all applicable laws and regulations.
- Institutional controls, through an E-designation and subsequent Restrictive Declaration, to require implementation of the above measures and any necessary post-construction measures, e.g., implementation of health and safety procedures during subsurface utility repair.

With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to occur as a result of construction of the proposed Plan or the No Convention Center Scenario.

TRAFFIC AND PARKING

The construction of the proposed Plan, from 2009 to 2017, would generate construction worker and truck traffic. Because of the lengthy duration of these activities, an evaluation of construction sequencing and worker/truck projections was undertaken to assess the potential transportation-related impacts. As demonstrated below, the projected construction activities would yield considerably less traffic than projected for the proposed Plan. However, given the high traffic volume in the existing and No Build conditions, significant adverse traffic impacts could still occur at some of the study area locations during construction. Where impacts during construction may occur, measures recommended to mitigate impacts associated with the proposed Plan could be implemented early to aid in alleviating congested traffic conditions. However, where unmitigatable operational impacts are identified, e.g., at Roosevelt Avenue and College Point Boulevard, there is also the potential for such impacts to occur during construction. Furthermore, it is expected that parking and staging needs could be managed primarily within the District.

CONSTRUCTION TRAFFIC PROJECTIONS

Average daily construction worker and truck activities by quarter were projected for the full nine years of construction. These projections were further refined to account for worker modal splits and vehicle occupancy, and arrival and departure distribution.

Daily Workforce and Truck Deliveries

For a reasonable worst-case analysis of potential transportation-related impacts during construction, the daily workforce and truck trip projections in the peak quarter were used as the basis for estimating peak hour construction trips. Based on a schedule of commencing construction in the beginning of 2009, the combined construction worker and truck traffic peak would occur in the fourth quarter of 2012. The daily average numbers of construction workers and truck deliveries during this construction peak quarter were estimated at 2,625 workers and 608 truck deliveries per day. These estimates of construction activities are further discussed below.

Construction Worker Modal Splits

According to the U.S. Census reverse journey-to-work (RJTW) data, commuting to work via auto for construction and excavation occupations in the District and its surrounding areas, including part of Corona, East Elmhurst, and Flushing, is approximately 60 percent, with an average auto occupancy rate of 1.15. However, as discussed with the New York City Department of Transportation (NYCDOT), for a more conservative analysis, a higher auto share of 70 percent was assumed to project the numbers of vehicle trips generated by future construction workers in the District.

Peak Hour Construction Worker Vehicle and Truck Trips

Site activities would mostly take place during the typical construction shift of 7:00 AM to 3:00 PM. However, some construction tasks, such as foundation and superstructure work, would extend to 5:00 PM, requiring a portion of the construction workforce to remain for this extended shift. A nominal number of truck deliveries may also be expected during these later hours.

While construction truck trips would be made throughout the day (with more trips made during the early morning), and most trucks would remain in the area for short durations, construction worker travel would typically take place during the hours before and after the work shift. For analysis purposes, each worker vehicle was assumed to arrive in the morning and depart in the afternoon or early evening, whereas each truck delivery was assumed to result in two truck trips during the same hour. Furthermore, in accordance with the *CEQR Technical Manual*, each truck was assumed to have a PCE of 2. Hence, a truck delivery to the District would result in an equivalent of four vehicle trips (two entering and two exiting) during the same analysis hour.

The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. For construction workers, the majority (80 percent) of the arrival and departure trips would take place during the hour before and after each shift (6:00-7:00 AM for arrival and 3:00-4:00 PM for departure on a normal day shift, or 5:00-6:00 PM for days with extended shifts). For construction trucks, deliveries would occur throughout the day when the construction site is active. However, to avoid traffic congestion, construction truck deliveries would often peak during the hour before the regular day shift (25 percent of regular shift and 20 percent of extended shift), overlapping with construction worker arrival traffic. Based on these assumptions, the peak hour construction traffic was estimated for the entire construction period. The peak construction hourly trip projections for the fourth quarter of 2012 are summarized in Table 21-3. Construction activities would result in maximum combined auto and truck traffic of 1,557, 747, and 558 vehicle trips during the 6:00-7:00 AM, 3:00-4:00 PM, and 5:00-6:00 PM peak hours, respectively, during the fourth quarter of 2012, as shown in Table 21-4. Detailed projections of construction-related traffic are summarized in Appendix H, Construction Traffic.

Table 21-3
Peak Construction Trip Projections—Fourth Quarter of 2012

Hour	Construction Workers Trips				Construction Truck Trips		Total Vehicle-Trips		
	Worker-Trips		Auto-Trips						
	In	Out	In	Out	In	Out	In	Out	Total
6 AM - 7 AM	2,100	0	1,279	0	139	139	1,418	139	1,557
7 AM - 8 AM	525	0	319	0	61	61	380	61	441
8 AM - 9 AM	0	0	0	0	61	61	61	61	122
9 AM - 10 AM	0	0	0	0	61	61	61	61	122
10 AM - 11 AM	0	0	0	0	61	61	61	61	122
11- AM -12 PM	0	0	0	0	61	61	61	61	122
12 PM - 1 PM	0	0	0	0	61	61	61	61	122
1 PM - 2 PM	0	0	0	0	47	47	47	47	94
2 PM - 3 PM	0	148	0	90	30	30	30	120	150
3 PM - 4 PM	0	1,184	0	721	13	13	13	734	747
4 PM - 5 PM	0	263	0	159	13	13	13	172	185
5 PM - 6 PM	0	916	0	558	0	0	0	558	558
6 PM-7 PM	0	114	0	70	0	0	0	70	70
Day Total	**2,625**	**2,625**	**1,598**	**1,598**	**608**	**608**	**2,206**	**2,206**	**4,412**

Notes: Hourly construction worker and truck trips were derived from projected estimates of 2,625 workers and 608 trucks making two daily trips each (arrival and departure) in the fourth quarter of 2012. Numbers of construction worker vehicles were calculated using a 70-percent auto split with an auto-occupancy of 1.15.

Table 21-4
Comparison of Vehicle Trips—Construction and Operational

Construction (Fourth Quarter of 2012)				Operational (2017 Combined Proposed Plan and Lot B)			
Weekday Peak Period	In	Out	Total	Weekday Peak Period	In	Out	Total
AM Arrival Peak Hour 6 AM – 7 AM	1,418	139	1,557	AM Peak Hour 8 AM – 9 AM	2,154	1,531	3,685
PM Regular Departure Peak Hour 3 PM – 4 PM	13	734	747	Midday Peak Hour 1 PM – 2 PM	2,974	2,460	5,434
PM Extended Departure Peak Hour 5 PM – 6 PM	0	558	558	PM Peak Hour 5 PM – 6 PM	2,764	3,988	6,752

TRAFFIC

Vehicles generated by construction activities were assigned to the street network, and eight critical intersections for analysis were identified. These intersections were analyzed from 6:00-7:00 AM and 3:00-4:00 PM, which corresponds to the hours of maximum vehicular traffic generated by construction activities during the fourth quarter of 2012. The key study intersections were selected based on their close proximity to the District and are expected to experience higher construction traffic volumes as compared with outlying intersections. The key study intersections include:

- 126th Street and Northern Boulevard;
- 126th Street at 34th Avenue;
- 114th Street at Roosevelt Avenue;
- 126th Street at Roosevelt Avenue;
- College Point Boulevard at Roosevelt Avenue;
- College Point Boulevard at the Northern Boulevard service road;
- Boat Basin Road at World's Fair Marina Park; and
- 126th Street at 38th Avenue.

Construction Peak Traffic Volumes and Conditions – Existing

The 6:00-7:00 AM peak hour was selected as the AM peak hour of construction, as the number of projected construction trips are significantly higher (1,557 vehicles) as compared with the number of construction trips generated (approximately 120 to 145 vehicles) during the proposed Plan weekday non-game AM peak hour of 7:45-8:45 AM. The ATR volume comparison showed that 6:00-7:00 AM construction peak traffic volumes are 40 percent less than the typical 7:45-8:45 AM peak hour. Hence, the 6:00-7:00 AM volumes were calculated by decreasing the 7:45-8:45 AM volumes by 40 percent. The 3:00-4:00 PM peak hour was selected as the PM peak hour of analysis, as construction trips during this hour are higher as compared with the proposed Plan weekday non-game PM peak hour of 5:15-6:15 PM. Due to the negligible difference between the 3:00-4:00 PM and 5:15-6:15 PM street peak hour volumes, the 5:15-6:15 PM weekday non-game peak hour volumes were used for the PM construction peak hour analysis.

During the AM and PM construction peak hours, all key intersections currently operate at overall intersection levels of service mid-LOS D (45 seconds of delay) or better, with the exception of 114th Street at Roosevelt Avenue, which operates at overall unacceptable LOS D (greater than 45 seconds of delay) during the PM peak hour.

Construction Peak Traffic Volumes and Conditions – Future without Construction in 2012

The existing AM and PM volumes were increased to year 2012 using a background growth rate of 1 percent per year, or a 7.7 percent growth in overall traffic volumes. In addition, No Build conditions for the construction analysis account for traffic generated by approximately 85 No Build development sites, the one-way pairing of Main and Union Streets with contraflow bus lane improvements in downtown Flushing, and signal timing and/or geometric changes at select intersections as a result of NYCDOT's Safe Streets for Seniors initiative.

Including background traffic growth and traffic expected to be generated by the No Build developments, No Build volumes along Northern Boulevard in Downtown Flushing and North Corona would range from about 760 vehicles per hour (vph) and 2,705 vph per direction, while volumes along Northern Boulevard adjacent to the District would be approximately 790 vph to 1,835 vph per direction. Roosevelt Avenue volumes in Downtown Flushing and North Corona would be about 210 vph to 715 vph per direction and, nearer to the District, between 114th Street and College Point Boulevard, Roosevelt Avenue volumes would range between 495 vph and 850 vph per direction. College Point Boulevard volumes approaching Roosevelt Avenue would be about 820 vph to 1,075 vph in the northbound direction and 475 vph to 875 vph in the southbound direction. Volumes along 126th Street adjacent to the District would be approximately 180 vph to 505 vph.

Overall intersection levels of service would be at mid-LOS D for all intersections during the weekday AM peak construction hour and for four of the eight intersections during the weekday non-game PM peak construction hour. The intersections of 126th Street at 34th Avenue, Roosevelt Avenue at 114th Street and at College Point Boulevard, and Northern Boulevard at College Point Boulevard would operate at overall LOS E or F conditions during the weekday non-game PM peak construction hour.

Construction Peak Traffic Volumes and Conditions – Future with Construction in 2012

During the 6-7 AM peak hour, construction activities would generate 1,279 construction worker auto trips and 139 delivery (enter and exit) truck trips. During the PM peak hour, construction activities would generate 721 construction worker auto trips and 13 delivery truck trips. Auto trips were assigned along roadways leading to on-site parking facilities, and trucks were assigned to designated NYCDOT truck routes.

In 2012 with this construction phase, Northern Boulevard volumes can be expected to increase by about 5 to 35 vph per direction in Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the Willets Point Development District and Citi Field, Northern Boulevard volumes can be expected to increase by approximately 455 vph during the AM construction peak hour and 5 to 10 vph during the PM construction peak hour. Northern Boulevard volumes in the vicinity of 108th and 114th Streets can be expected to increase by about 80 vph per direction during the two peak hours. Roosevelt Avenue volumes can be expected to increase by about 5 to 15 vph per direction during the construction peak hours in Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the District, Roosevelt Avenue volumes can be expected to increase by approximately 5 to 315 vph per direction during the peak hours. Roosevelt Avenue volumes in the vicinity of 108th, 111th, and 114th Streets can be expected to increase by about 5 to 30 vph per direction during the peak hours analyzed. Volumes along 126th Street in the vicinity of 34th Avenue can be expected to increase by approximately 5 to 235 vph per direction during the peak hours. College Point Boulevard volumes near Roosevelt Avenue would increase by approximately 5 to 230 vph per direction during the two peak analysis hours.

The maximum vehicle trips generated by construction activities, in general, is substantially less than the vehicles trips generated by the proposed Plan (approximately 60 to 90 percent lower for the peak construction hours). It should be noted that although five out of the eight intersections would experience lower traffic volume increments during the construction peak hours, for specific movements at the intersections of Roosevelt Avenue at College Point Boulevard (northbound College Point Boulevard left turn movement), 126th Street at Roosevelt Avenue (westbound Roosevelt Avenue right turn movement), and 126th Street at 34th Avenue (westbound through movement), construction worker and truck volumes would be slightly higher than those identified in the Proposed Plan at these intersections. Slightly higher volumes at these intersections are the result of the No Build roadway network and limited direct highway connectivity to the District, as the new Van Wyck ramps would not yet be operational in 2012.

An evaluation of the eight key intersections shows that, despite volume increases to select movements, traffic operating conditions would be similar to that identified for the Proposed Plan. There would be significant adverse impacts at four intersections in the AM peak construction hour, including 126th Street at 34th Avenue, 126th Street at Roosevelt Avenue, College Point Boulevard at Roosevelt Avenue, and Boat Basin Road at World's Fair Marina, and significant adverse impacts would occur at all eight analysis intersections during the weekday PM peak construction hour. Where significant adverse impacts would occur during construction, measures recommended to mitigate impacts associated with the proposed Plan could be implemented early to aid in mitigating congested traffic conditions. For those intersections where unmitigatable significant adverse impacts would occur during construction (such as 126th Street at Roosevelt Avenue and College Point Boulevard at Roosevelt Avenue during the AM construction peak; 114th Street at Northern Boulevard, 126th Street at Northern Boulevard, 114th Street at Roosevelt Avenue, 126th Street at Roosevelt Avenue, and College Point Boulevard at Roosevelt Avenue during the PM construction peak), these intersections would continue to be unmitigatable, similar to the operation of the proposed Plan.

DELIVERIES

Construction trucks would be required to use NYCDOT-designated truck routes, including the Van Wyck Expressway, the Long Island Expressway (LIE), Northern Boulevard, Roosevelt Avenue, and College Point Boulevard. At the construction site, flaggers would manage the access and movements of trucks. Limited site deliveries may occur along the perimeters of the construction sites within delineated closed-off areas for concrete pour or steel delivery.

CURB LANE CLOSURES AND STAGING

Curb lanes and sidewalks within the District might be temporarily closed due to construction activities. Sidewalk protection or temporary sidewalks would be provided to maintain pedestrian access. Staging areas would be required from the start of foundation work until cranes and hoists are completely removed at the completion of the core and shell stage. Because the majority of construction activities would be accommodated on-site, construction trucks would be staged primarily within the District. Maintenance and protection of traffic plans would be developed for all anticipated curb lane and sidewalk closures.

PARKING

The construction activities would generate a maximum daily parking demand of 1,598 spaces in the fourth quarter of 2012. Parking would be managed within the District, and if necessary, supplemented by the existing parking areas adjacent to the District, which are available during non-game days at the future Citi Field.

TRANSIT AND PEDESTRIANS

As described below, construction activities are not expected to result in significant adverse transit and pedestrian impacts.

TRANSIT

With approximately 70 percent of the construction workers predicted to commute via auto, the remaining 30 percent would travel to and from the construction sites via transit. Based on the peak fourth quarter 2012 projections discussed above and summarized in Table 21-3, there would be approximately 630, 355, and 275 construction-related transit trips during the 6:00-7:00 AM, 3:00-4:00 PM, and 5:00-6:00 PM hours, respectively. The transit trip demand during the morning and afternoon construction shoulder peak hours would range from 34 to 158 trips. Distributed among the No. 7 subway line, and Q19, Q48, and Q66 bus routes near the construction sites, only nominal increases in transit demand would be experienced along each of those routes and at each of the transit access locations during hours within and outside of the typical commuter peak periods. Hence, no further evaluation of nearby transit services is required, and there would not be a potential for significant adverse transit impacts attributable to the projected construction worker transit trips.

PEDESTRIANS

For the same reasons discussed above, with respect to transit operations, a detailed pedestrian analysis to address the projected demand from the travel of construction workers to and from the District is also not warranted. Considering that these pedestrian trips would primarily occur outside of peak hours and be distributed among numerous sidewalks and crosswalks in the area, there would not be a potential for significant adverse pedestrian impacts attributable to the projected construction worker pedestrian trips. During construction, where temporary sidewalk closures are required, adequate protection or temporary sidewalks and appropriate signage would be provided in accordance with NYCDOT requirements.

AIR QUALITY

During construction of the proposed Plan, emissions from on-site construction equipment and on-road construction-related vehicles, and any congestion caused by construction traffic, have the potential to impact air quality.

In general, most construction engines are diesel-powered, and produce relatively high levels of nitrogen oxides (NO_X—nitrogen oxide, NO, and nitrogen dioxide, NO_2, combined) and particulate matter (PM). Construction activities also emit fugitive dust. Although diesel engines emit much lower levels of carbon monoxide (CO) than gasoline engines, the stationary nature of construction emissions and the large quantity of engines could lead to elevated CO concentrations, and impacts on traffic could increase mobile source-related emissions of CO as well. Therefore, the pollutants of concern for the construction period are NO_2, CO, particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), and particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$). Ultra-low-sulfur diesel (ULSD) is now readily available and can be used in almost any diesel engine; its use is mandated under Local Law 77 of 2003 for all projects sponsored by a New York City agency. All New York City-sponsored construction is required to meet the requirements of Local 77. Because the project sponsor is a New York City agency, the requirements of Local Law 77 would be enforced. Therefore, it is expected that all large construction equipment would use ULSD. Because of the use of ULSD, sulfur oxides (SO_x) emitted from those construction activities would be negligible and would not result in any significant sulfur dioxide (SO_2) impacts.

Construction activity in general, and large-scale construction in particular, has the potential to adversely affect air quality as a result of diesel emissions. The main component of diesel exhaust that has been identified as having an adverse effect on human health is fine PM. Overall, the proposed Plan is expected to significantly reduce potential DPM emissions by its compliance with the requirements of New York City Local Law 77 of 2003.

Local Law 77 requires that any diesel-powered nonroad construction vehicle with an engine power output of 50 horsepower or more that is owned by, operated by or on behalf of, or leased by a city agency be powered by ULSD and utilize the best available technology (BAT) for reducing the emission of pollutants; BAT is to be determined and published by the commissioner (DEP), and updated every six months or more frequently. In 2006, DEP published a BAT determination which defined BAT as diesel particle filters (DPF), where technologically feasible, and other technologies, which are less efficient at removing DPM, only where DPFs are not technologically feasible. Local Law 77 and the BAT determination require that all contracts include the BAT specifications process and documenting procedures.

To ensure that the construction would result in the lowest practicable DPM emissions, the following additional measures would be implemented:

- *Diesel Equipment Reduction*—The construction of the development sites would minimize the use of diesel engines and use electric engines operating on grid power instead, to the extent practicable. Construction contracts would specify the use of electric engines where practicable and ensure the distribution of power connections throughout the area as needed. Equipment that would use grid power instead of diesel engines would include, but may not be limited to, material hoists, water pumps, and compressors. This would also eliminate the continuous use of large generators, and reduce the use of small generators that would normally be needed for construction equipment. Forklifts would be either electric powered or natural gas to the extent practicable.
- *Best Available Tailpipe Emissions Reduction Technologies*—The construction contracts would specify that all nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract, such as concrete mixing and pumping trucks) would utilize the best available tailpipe technology for reducing DPM emissions, and include the BAT determination (the latest available from DEP). DPFs have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Although not currently explicitly specified in the BAT determination, controls may include active DPFs,[1] if necessary.
- *Use of Tier 2 or Newer Equipment*—In addition to the tailpipe controls commitments, the construction specifications would mandate the use of Tier 2[2] or later construction equipment for nonroad diesel engines with a power output rating of 50 hp or greater. The use of "newer" engines, such as Tier 2, is expected to reduce the likelihood of DPF plugging due to soot loading (i.e., clogging of DPF filters by accumulating particulate matter). The more recent the "Tier," the cleaner the engine for criteria pollutants, including PM. Therefore, restricting site access to equipment with lower tailpipe PM emission values would enhance the emissions reduction program and implementation of DPF systems as well

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[1] There are two types of DPFs currently in use: passive and active. Most DPFs currently in use are the "passive" type, which means that the heat from the exhaust is used to regenerate (burn off) the PM to eliminate the buildup of PM in the filter. Some engines do not maintain temperatures high enough for passive regeneration. In such cases, "active" DPFs can be used (i.e., DPFs that are heated either by an electrical connection from the engine, by plugging in during periods of inactivity, or by removal of the filter for external regeneration).

[2] The first federal regulations for new nonroad diesel engines were adopted in 1994, and signed by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. The Tier 1 through 3 standards regulate the EPA criteria pollutants, including particulate matter (PM), hydrocarbons (HC), oxides of nitrogen (NO_x) and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

as reduce maintenance frequency due to soot loading (i.e., less downtime for construction equipment to replace clogged DPF filters).

- *Source Location*—In order to reduce the resulting concentration increments at sensitive receptors, large emissions sources and activities, such as concrete trucks and pumps, would be located away from residential buildings, schools, playgrounds, and parks, to the extent practicable. To the extent practicable, large emission sources would not be located within 50 feet of such locations.
- *Dust Control*—Comprehensive 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 large construction sites. 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 resuspension of dust. All trucks hauling loose material would be equipped with tight fitting tailgates and covered prior to leaving the sites. In addition to regular cleaning by New York City, area roads would be cleaned as frequently as needed. Chutes would be used for material drops during demolition. An on-site vehicular speed limit of 5 mph would be imposed. Water sprays 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.
- *Illuminated Traffic Control Signals and Signs*—All illuminated traffic control signals and signs would be solar powered or connected to the electrical power grid.

All of the above measures would be implemented by detailed specifications to be included in the construction contracts, in addition to the requirements of Local Law 77. Additional measures would be taken to reduce pollutant emissions during construction of the proposed Plan in accordance with all applicable laws, regulations, and building codes, and included explicitly in the contract specifications. These include the restriction of on-site vehicle idle time to three minutes for all vehicles that are not using the engine to operate a loading, unloading, or processing device (e.g., concrete mixing trucks).

Under both State Environmental Quality Review Act (SEQRA) and CEQR regulations, the determination of the significance of impacts is based on an assessment of the predicted intensity, duration, geographic extent, and the number of people who would be affected by the predicted impacts. Guidelines for assessing potential impacts from NO_X, CO, and $PM_{2.5}$ are discussed in Chapter 19, "Air Quality." The District is large, and much of it is well removed from publicly accessible locations where people would be expected to be present for extended durations. Although the majority of the construction would not affect the public, residents and workers in some of the buildings completed early in the Plan would be located adjacent to construction sites during construction of the later buildings.

Due to the extensive emissions control program outlined above, the emissions levels during construction would be very low when compared with typical construction activity. For example, the Columbia University project proposed a similar state-of-the-art emissions reduction program for construction of the proposed campus in Manhattan[1] and detailed dispersion analyses from that projected construction concluded that there would be no significant adverse impacts on air quality during construction. Similarly, the detailed impact assessment for the Atlantic Yards Arena, a large construction project proposed in Brooklyn,[2] which would also include a similar robust emissions reduction program, concluded that there would be no significant adverse impacts on air quality during construction. In both cases, sensitive receptors immediately adjacent to the construction sites were analyzed.

As mentioned above, an important factor in pollutant dispersion, which determines the concentration increment at any given location due to emissions from a source such as a construction site, is the distance between that location and the specific sources emitting pollutants, such as an engine tailpipe. At times when the wind is blowing such that a location is downwind from a source, the pollutants will be carried downwind and mix with ambient air along the way, causing concentration increments to generally decrease with the distance from the source. Since the wind direction and other factors affecting dispersion change constantly, and since most sources on construction sites move around the site, this effect is most pronounced in short-term concentration averages (i.e., 24-hours or less) and in close proximity to sources that are relatively stationary on that time scale. For example, a large generator may be stationary on all time scales; a crawler crane may be located at a single location on a given day, but move throughout the site for the duration of a particular construction task. Therefore, in order to ensure that sensitive locations, such as residential windows, adjacent to the construction site are not adversely affected, special attention is given to sources near those areas. The focus would be on reducing engine emissions in those areas by locating emissions sources away from them as much as is practicable, as well as by minimizing the time such engines would operate there when necessary.

Based on the information presented above, construction activities associated with the proposed project would not cause new exceedance of the NAAQS for any pollutant, and would not significantly increase concentrations of $PM_{2.5}$ at any location adjacent to the project site or along the access routes leading to the project site. Therefore, construction activities for the proposed project would not result in any significant adverse air quality impacts.

NOISE

Impacts on community noise levels during construction of the proposed Plan can result from noise from construction equipment operation, and from construction vehicles and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), 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 and the location of the construction relative to receptor locations.

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[1] *FEIS for the Proposed Manhattanville In West Harlem Rezoning And Academic Mixed-Use Development*, CPC–NYCDCP, November 16, 2007.

[2] *Atlantic Yards Arena and Redevelopment Project FEIS*, ESDC, November 15, 2006.

A wide variety of measures can be used to minimize construction noise and reduce potential noise impacts. A noise mitigation plan is required as part of the New York City Noise Control Code, and would include:

- source controls;
- path controls; and
- receptor controls.

In terms of source controls (i.e., reducing noise levels at the source or during most sensitive time periods), the following measures for construction would be implemented:

- The contractors would utilize equipment that meets the sound level standards for equipment (specified in Subchapter 5 of the New York City Noise Control Code) from the start of construction activities and use a wide range of equipment, including construction trucks, which produce lower noise levels than typical construction equipment.
- Where feasible, the contractors could be required to use construction procedures and equipment (such as generators, concrete trucks, delivery trucks, and trailers) quieter than that required by the New York City Noise Control Code.
- As early in the construction period as practicable, diesel-powered equipment would be replaced with electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification).
- All contractors and subcontractors would be required to properly maintain their equipment and have quality mufflers installed.

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

- Noisy equipment, such as generators, cranes, trailers, concrete pumps, concrete trucks, and dump trucks, would be located away from and shielded from sensitive receptor locations, such as parks, residences, and institutions.
- Noise barriers would be utilized in consultation with DEP to provide shielding if noise complaints are received. Truck deliveries would take place behind these barriers.

For impact determination purposes, significant adverse noise impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *CEQR Technical Manual* for two consecutive years or more. The impact criteria are explained in detail in Chapter 20, “Noise.” While increases exceeding the CEQR impact criteria for one year or less may be noisy and intrusive, they are not considered to be significant adverse noise impacts because of their short duration. The District is large, and much of it is well removed from any sensitive receptor. The nearest residence is over 2,500 feet away from the project site, which would result in more than 30 dBA of attenuation. Furthermore, the site is surrounded by highways and busy roads (Van Wyck Expressway, Northern Boulevard, etc.) and the elevated No. 7 subway line, which makes the existing ambient noise levels relatively high. As a result, the additional construction noise is unlikely to raise noise levels in the area significantly. In addition, little night work is expected, and any exceedences of the CEQR criteria at sensitive locations would occur during day. Therefore, no long-term, significant adverse noise impacts are expected from construction activities.

RODENT CONTROL

Construction contracts would include provisions for a rodent (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 the construction phase, as necessary, the contractor would carry out a maintenance program. Coordination would be maintained with appropriate public agencies. Only EPA- and DEC-registered rodenticides would be permitted, and the contractor would be required to perform rodent control programs in a manner that avoids hazards to persons, domestic animals, and non-target wildlife. Therefore, construction of the proposed Plan would not result in any significant adverse impacts on rodent control. ✷