Chapter 18: Construction

A. INTRODUCTION

This chapter summarizes the anticipated construction activities for the proposed Boricua Village and future Courtlandt Corners projects as well as other future development expected to occur in the Melrose Commons Urban Renewal Area (URA) as a result of the proposed and future actions (see Figures 1-1 and 1-2 in Chapter 1, "Project Description"). Further, it assesses the potential for construction-period impacts, describes construction stages and activities, and discusses the types of impacts likely to occur during construction. Methods that may be employed to minimize construction-related impacts will also be discussed.

B. CONSTRUCTION STAGES AND ACTIVITIES

Construction of the proposed Boricua Village and future Courtlandt Corners projects is expected to last approximately 30 months. Construction would generally involve four overlapping phases: demolition and site grading, foundation and below-grade construction, building structure construction, and interior construction and finishing. Each of these stages is described in more detail below.

On the Boricua Village site, work would likely begin with the college building and the residential buildings at the northern end of the site and then proceed south. Construction on the future Courtlandt Corners sites would begin with Courtlandt Corner South followed by Courtlandt Corner North, in two overlapping phases. Although the remaining future development sites in the Melrose Commons URA do not yet have specific development programs or constructions plans, it is expected that construction on the larger sites would be similar in nature and duration to that on the Boricua Village and future Courtlandt Corners sites. On the smaller sites, construction would likely be shorter in duration.

DEMOLITION OF EXISTING STRUCTURES AND SITE GRADING

Construction would begin with demolition of existing structures on the development sites and implementation of a Remedial Work Plan to address hazardous materials currently existing on the site. Demolition of existing buildings and environmental remediation on the Boricua Village and Courtland Corners sites, and grading of the sites, would occur over a period of approximately 6 months.

FOUNDATIONS AND BELOW-GRADE CONSTRUCTION

Excavation for the foundations and below-grade construction is expected to last approximately 6 months. Foundation work would typically include the use of bobcats, rockbreakers, loaders, pumps, motorized concrete buggies, concrete pumps, jack hammers, pneumatic compressors, and a variety of small, mostly hand-held tools, as well as dump trucks and concrete trucks. Excavated material would be disposed of off-site via trucks.

As both Boricua Village and Courtlandt Corners would use spread mat footing, no pile driving would occur. Blasting is not expected during the construction of either project. Utilities on the demapped portions of East 161st and East 162nd Streets on the Boricua Village site would be moved. During this phase of construction, there would be approximately 50 to 100 construction workers on the Boricua Village site and approximately 30 to 60 on the Courtlandt Corners site.

BUILDING SHELL AND CORE CONSTRUCTION

This stage of construction would last approximately 20 to 24 months. Construction of the exterior enclosure, or "shell," of the building would include construction of the building's framework (installation of beams and columns), floor decks, facade (exterior walls and cladding), and roof construction. These activities would require the use of tower cranes, compressors, personnel and material hoists, front-end loaders, concrete pumps, on-site bending jigs, welding machines, and a variety of hand-held tools, in addition to the delivery trucks bringing construction materials to the site. On average, this phase would require approximately 350 to 400 construction workers each day on the Boricua Village site and 80 to 160 workers on the Courtlandt Corners site.

Construction is expected to generate up to 20 or 30 truck trips per day on the Boricua Village site and 10 to 20 truck trips per day on the Courtlandt Corners site. Staging for the construction of the Boricua Village project would occur primarily on the project site, though some adjacent sidewalks would have bridges or staging areas over a period of 6 to 12 months. Construction staging for the Courtlandt Corners development would occur on the project site and on some adjacent sidewalks. It is anticipated that staging areas would include one eastbound lane on East 161st Street during the construction of Courtlandt Corner South and one westbound lane on East 161st Street during the construction of Courtlandt Corner North.

INTERIOR CONSTRUCTION AND FINISHING

This stage would include the construction of interior walls, installation of lighting fixtures and interior finishes (flooring, painting, etc.), as well as mechanical and electrical work, such as the installation of elevators. Interior construction for the development could be completed by the end of 2009. Mechanical and other interior work would last approximately 20 months and is anticipated to overlap with the shell and core construction phase. This activity would employ approximately 350 to 400 workers on the Boricua Village site and 80 to 160 workers on the Courtlandt Corners site, with a greater number of employees expected during phase overlaps. Equipment used during interior construction would include exterior hoists, pneumatic equipment, delivery trucks, and a variety of small hand-held tools.

TYPICAL CONSTRUCTION ACTIVITIES

Typical equipment used for excavation and pouring the foundation would include excavators, bulldozers, rockbreakers, backhoes, tractors, hammers, and concrete pumping trucks. Excavation of the foundation would be the first step after existing buildings on the site were cleared. The bulldozers would excavate the soil and load it onto trucks for transport and disposal. The trucks would remove any excavated material and construction debris. Then, concrete trucks would arrive at the site with pre-mixed concrete and pump it into the site to form the foundations and building walls. At the same time, infrastructure connections would be built. These include lines for water, sewer, stormwater, electricity, and telecommunications.

The construction equipment likely to be used during erection of the superstructure and framing would include cranes, compressors, derricks, hoists, bending jigs, and welding machines. During facade and roof construction, hoists and cranes would continue to be used. Trucks would remain in use for material supply and construction waste removal.

During construction of the core and shell, and during interior work, the greatest number of construction workers would be employed on site, and a wide variety of supplies would be delivered to the site. It is anticipated that the bulk of construction activities would take place Monday through Friday, although with special permits, some construction activities could occur on weekends. The permitted hours of construction regulated by the New York City Noise Code and the New York City Department of Buildings (DOB) apply in all areas of the City, and are reflected in the collective bargaining agreements with major construction trade unions. In the event that overtime work is required, appropriate work permits from DOB would be obtained. In accordance with City regulations, work would begin at 7 AM on weekdays, with some workers arriving to prepare work areas between 6-7 AM. Normally, work would end at 4 PM, unless overtime is required and appropriately permitted. On weekdays and possibly on weekends, overtime may be required beyond the normal work day to complete some time-sensitive tasks.

C. THE FUTURE WITH THE PROPOSED AND FUTURE ACTIONS

As with most development in New York City, construction of the proposed projects may be disruptive to the surrounding area for periods of time. The following analyses describe temporary effects on land use, historic resources, hazardous materials, traffic and transportation, air quality, and noise, as well as the economic benefits associated with the construction.

LAND USE

Construction of the projects would cause some disruptions to activities in the surrounding area. However, these disruptions would be temporary in nature, with overall construction anticipated to last approximately 30 months. Construction would not alter surrounding land uses, although certain types of activities would be intrusive to adjacent residences and community facilities. Land uses adjacent to the sites that would be developed include residences, open space, retail and offices, and a day care center.

Certain construction activities, such as excavation and exterior construction, may be disruptive to these uses. In later stages of the projects' construction, when work would take place within the building shell, effects on the surrounding uses would be substantially reduced. There may be some inconvenience associated with construction of the projects, and construction hours would coincide with the hours of operation of the day care center along East 161st Street between Melrose and Elton Avenues, which is adjacent to URA site 53. However, construction activities would be similar to those at other sites in New York City, and the hours of construction would be regulated by the New York City Noise Code and DOB. Other changes, such as sidewalk closures, would also be apparent to people living and working in the surrounding area, but the implementation of a construction management plan would minimize the effects of these closures.

ECONOMIC BENEFITS

The economic effects of major construction projects are typically estimated based on direct benefits (the value of site improvements as measured by construction-related labor, materials

and services, and indirect benefits), and expenditures made by suppliers, construction workers, and other employees involved in the direct activity.

Construction resulting from the proposed and future actions would create direct benefits from expenditures on labor, materials, and services, and indirect benefits created by expenditures made by material suppliers, construction workers, and others involved in the project. Construction of the projects would also contribute to increased tax revenues for the City and State, including corporate taxes, personal income taxes, business taxes, and City and State sales taxes.

HISTORIC RESOURCES

ARCHITECTURAL RESOURCES

As described in Chapter 7, "Historic Resources," the proposed Boricua Village development would require the demolition of the Bronx Municipal Court – Second District building, a building that is eligible for designation as a New York City Landmark but is in a state of advanced disrepair. The demolition of this structure would constitute a significant adverse impact on historic resources. Therefore, the feasibility of reusing and incorporating this historic building into the proposed project rather than demolishing it was evaluated. It was concluded that the adaptive reuse of the Bronx Municipal Court – Second District building as part of Boricua College is not feasible and could not be accomplished without significant adverse impacts on this historic resource (see Chapter 21, "Alternatives"). LPC concurred with this conclusion and requested that Historic American Buildings Survey (HABS) level archival documentation be prepared as partial mitigation. This documentation has been prepared and was accepted by LPC on March 30, 2007.

Chapter 7, "Historic Resources," also describes four additional architectural resources located within 90 feet of the Boricua Village and Courtlandt Corners development sites or other sites in the Melrose Commons URA that would be developed as a result of the proposed and future actions. The southern end of the Boricua Village site is located across East 161st Street from the former Bronx Borough Courthouse at a distance of approximately 90 feet. The former YMCA building is also located approximately 90 feet from the Boricua Village site. To avoid adverse construction-related physical impacts to these buildings, the developer of the Boricua Village project would, in consultation with LPC and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), develop and implement a *Construction Protection Plan* for the Bronx Borough Courthouse and the former YMCA building. The plan would comply with the Department of Building's *Technical Policy and Procedure Notice #10/88*, regarding procedures for the avoidance of damage to historic structures resulting from nearby construction.

The proposed Courtlandt Corners site is located within 90 feet of the comfort station in Railroad Park. In order to avoid inadvertent construction-related damage to this architectural resource, the developer of the Courtlandt Corners project would, in consultation with LPC and OPRHP, develop and implement a *Construction Protection Plan.*

New construction on URA parcel 53, located adjacent to the Melrose Theater, could also cause inadvertent construction-related damage to this potential resource. Therefore, HPD would, as above, also develop and implement a *Construction Protection Plan* to avoid any physical impacts to the theater.

With these measures in place, it is unlikely that there would be any adverse physical impacts on these architectural resources. The remaining architectural resources identified in the study area are located beyond 90 feet of the project site, outside the range of potential construction-related damage described in DOB *Technical Policy and Procedure Notice #10/88* concerning procedures for avoidance of damage to historic structures from adjacent construction. Thus, construction-related impacts to these architectural resources would not be a concern.

ARCHAEOLOGICAL RESOURCES

As described in Chapter 7, "Historic Resources," Lots 10, 11, 37, and 50 of Block 2367 possess archaeological sensitivity and OPRHP has indicated that Phase 1B archaeological testing of these areas is warranted. Therefore, a Phase 1B archaeological field testing plan has been developed and was accepted by OPRHP on March 19, 2007. The field testing would be implemented in consultation with OPRHP prior to any project related subsurface activities occurring on the site. The results of the field testing would be submitted to OPRHP for review and approval. With these measures, there would be no significant adverse impacts to potential archaeological historic resources on these lots. The remaining future development sites have been determined not to be sensitive for significant historic period archaeological resources, and therefore there would be no adverse impacts to archaeological resources with the proposed and future actions.

HAZARDOUS MATERIALS

As discussed in Chapter 10, "Hazardous Materials," a comprehensive asbestos survey of all structures would be conducted prior to any demolition activities and would include the sampling of all suspect materials to confirm the presence or absence of asbestos. Based on the findings of the survey, the identified asbestos-containing materials (ACMs) would be removed and disposed of in accordance with all federal, state, and local regulations. Any demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation. All remaining petroleum storage tanks (and any identified associated areas of contaminated soil) on the development sites would be removed and properly disposed of in accordance with applicable requirements. Subsurface soil and groundwater testing would be conducted prior to construction to investigate areas where known or potential adverse environmental conditions were identified by the Phase I studies. All material that needs to be disposed of (e.g., miscellaneous debris, tires, contaminated soil and excess fill) would be disposed of off-site in accordance with applicable federal, state, and local requirements.

TRAFFIC AND TRANSPORTATION

Construction of the proposed projects would generate trips from workers traveling to and from the sites as well as from the movement of materials and equipment and the removal of construction waste. Workers would typically arrive before the AM peak period and depart before the PM peak hour and would not represent a substantial increment during peak travel periods. Construction worker travel would be primarily by public transportation, with a smaller percentage by private auto. Therefore, vehicle trips associated with construction workers would not be likely to have any extended significant adverse impacts on surrounding streets. Up to 30 trucks trips per day (for materials delivery and removal of debris/scrap from construction operations) are expected to be generated on the Boricua Village site and up to 20 truck trips would be generated each day on the Courtlandt Corners site. During the interior construction and

finishing stage, it is likely that there would be fewer large trucks and a greater number of smaller delivery vehicles. Wherever possible, the scheduling of deliveries and other construction activities would take place during off-peak travel hours. As a result of the anticipated future levels of traffic and scheduling measures to avoid peak periods, significant interruptions of traffic would not be expected during the construction period. While truck staging for the Courtlandt Corners project is expected on part of East 161st Street, it is expected that moving lanes of traffic would be available at all times. To the extent that there would be any disruption in traffic flow from construction of the proposed project, the changes would be temporary.

STREET LANE AND SIDEWALK CLOSURES

There could be various lane and/or sidewalk closures associated with the projects' construction activities. It is currently anticipated that some sidewalks immediately adjacent to the Boricua Village and Courtlandt Corners sites would be closed for portions of the construction period. Pedestrians would either walk on the opposite side of the street or in a sectioned-off portion of the street. Lane closures are expected on East 161st Street during the construction of Courtlandt Corners. Material storage areas would be located on the project sites. Truck movements would be spread throughout the day and would generally occur between the hours of 7 AM and 4 PM, depending on the stage of construction. No rerouting of traffic is anticipated and moving some lanes for traffic are expected to be available at all times.

AIR QUALITY

As described in greater detail below, the potential issues of concern regarding local air quality during construction of the proposed project include:

- Fugitive dust (particulate) emissions from demolition; and
- Mobile-source emissions, including hydrocarbons, nitrogen oxide, and carbon monoxide emissions.

FUGITIVE EMISSIONS

Actual quantities of fugitive dust depend on the extent and nature of the excavation operations, the type of equipment employed, the physical characteristics of the underlying soil, the speed at which construction vehicles are operated, and the type of fugitive dust control methods employed. The U.S. Environmental Protection Agency (EPA) has suggested, in general, an overall emission rate of about 1.2 tons of particulate/acre/month of active construction from all phases of land-clearing operations with no fugitive dust control measures. However, this is a national estimate and actual emissions would vary widely depending on many factors, including the intensity and type of land-clearing operations. Much of the fugitive dust generated by construction activities consists of relatively large-sized particles, which are expected to settle within a short distance from the construction site and not significantly affect the buildings or people nearby.

For these projects, excavation and construction would be conducted with the care mandated by the site's proximity to active uses. Appropriate fugitive dust control measures—including watering of exposed areas and dust covers for trucks—would be employed. 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. As a result, no significant adverse air quality impacts from fugitive dust emissions are expected.

MOBILE-SOURCE EMISSIONS

Mobile-source emissions are emissions of air pollutants from motorized vehicles, known as "mobile sources." During construction, such emissions may result from: (1) trucks delivering construction materials and removing debris, (2) workers' private vehicles, (3) disruptions in traffic near the construction site, and (4) construction equipment.

Localized increases in mobile-source emissions would be minimized by incorporating traffic maintenance requirements into the construction contract documents to ensure that:

- Construction requiring temporary street closings for the relocation of utilities and for other purposes in heavily traveled areas would be performed, to the maximum extent possible, during off-peak hours;
- The existing number of traffic lanes would be maintained to the maximum extent possible; and
- Idling of delivery trucks or other equipment would not be permitted during periods when they are being unloaded or are not in active use.

NOISE

Potential effects on community noise levels during construction of the projects would include noise from construction equipment operation and noise from construction vehicles and delivery vehicles traveling to and from the site. The level of impact of these noise sources depends on the noise characteristics of the equipment and activities involved, the construction schedule, and the location of potentially sensitive noise receptors.

Noise levels at a given location depend on the kind and number of pieces of construction equipment being operated, as well as the distance from the construction site. Typical noise levels of construction equipment that may be employed during the construction process are presented in Table 18-1. Noise levels caused by construction activities would vary widely, depending on the phase and location of construction.

Increased noise levels caused by construction activities can be expected to be greatest during the early phases of construction. It is anticipated that the most significant noise source associated with the construction equipment would be jackhammers, and paving breakers.

Construction noise is regulated by the New York City Noise Control Code and by EPA noise emission standards for construction equipment. These local and federal requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise emissions standards; that, except under special circumstances, construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction material be handled and transported in such a manner as not to create unnecessary noise. These regulations would be followed. In addition, appropriate low-noise emission level equipment and operational procedures would be used, when practicable. Any noise impacts would be temporary and short term.

Table 18-1
Typical Noise Emission Levels for Construction Equipment

Equipment Item	Noise Level at 50 Feet (dBA)
Air compressor	81
Asphalt spreader (paver)	89
Asphalt truck	88
Backhoe	85
Bulldozer	87
Compactor	80
Concrete plant	83
Concrete spreader	89
Concrete mixer	85
Concrete vibrator	76
Crane (derrick)	76
Delivery truck	88
Diamond saw	90
Dredge	88
Dump truck	88
Front-end loader	84
Gas-driven vibro-compactor	76
Hoist	76
Jackhammer (paving breaker)	88
Line drill	98
Motor crane	93
Pile driver/extractor	101
Pump	76
Roller	80
Shovel	82
Truck	88
Vibratory pile driver/extractor	89

Notes:

1 Wood, E.W. and A.R. Thompson, Sound Level Survey, Concrete Batch Plant; Limerick Generating Station, Bolt Beranek and Newman Inc., Report 2825, Cambridge, MA, May 1974.

2 New York State Department of Environmental Conservation, Construction Noise Survey, Report No. NC-P2, Albany, NY, April 1974.

3 F.B. Foster Company, Foster Vibro Driver/Extractors, Electric Series Brochure, W-925-10-75-5M.

Source: Patterson, W.N., R.A. Ely, and S.M. Swanson, Regulation of Construction Activity Noise, Bolt Beranek and Newman, Inc., Report 2887, for the Environmental Protection Agency, Washington, D.C., November 1974, except for notated items.