Chapter 16: Construction

A. INTRODUCTION

This chapter describes construction plans for the Proposed Action and assesses the potential for construction-period impacts. Construction stages and activities are described and followed by the types of impacts likely to occur during construction. The assessment also describes methods that may be employed to minimize construction-related impacts. Because the project site is in Lower Manhattan, where major reconstruction projects are currently under way, an overview of those reconstruction projects nearest the esplanade is provided. Potential overlaps where cumulative impacts may occur are also considered.

As of the time of preparation of this Final Environmental Impact Statement (FEIS), detailed plans for construction have not been developed. The construction methodologies and activities described in this chapter are based on conceptual approaches that will be refined as project design and engineering progress. Some of the construction methods that are currently projected may change as the design is developed. Further, construction associated with the Proposed Action would be coordinated with other construction work taking place in the area through the Lower Manhattan Construction Command Center (LMCCC). Working with LMCCC and the Environmental Protection Commitments (EPCs) of the Lower Manhattan Development Corporation (LMDC), any potential adverse impacts of construction for the Proposed Action would be minimized to greatest extent possible. Based on the conceptual approach presented in this chapter, it is not expected that construction of the Proposed Action would result in any significant adverse impacts other than the potential temporary traffic and air quality impacts described below.

B. CONSTRUCTION AND REBUILDING IN LOWER MANHATTAN

The major Lower Manhattan recovery projects are now in construction. They include the World Trade Center (WTC) Memorial and Redevelopment Plan, the Route 9A Promenade south of Albany Street to Battery Park, the permanent WTC PATH Terminal, the Fulton Street Transit Center one block east of the WTC site, Route 9A Reconstruction, and the new South Ferry Terminal near the southern tip of Manhattan (and the Battery Maritime Building [BMB] at the southern end of the project site).

Taken together temporally and spatially, the demolition and construction activities of these projects are affecting everyday activities for residents, workers, and visitors in Lower Manhattan. Their ongoing construction activities will overlap with construction for the Proposed Action. However, except for the new South Ferry Terminal and the Fulton Street Transit Center, those activities are some distance from South Street and the East River Esplanade. Further, by comparison with these major recovery projects, the anticipated construction activities for the Proposed Action are of a far smaller scale.

The sponsors of the major recovery projects—LMDC, Port Authority of New York and New Jersey, the Metropolitan Transportation Authority, and the New York State Department of Transportation—have committed to implementing measures to reduce the potential effects of the construction efforts. LMCCC has been created jointly by the City and the State to ensure that construction of all projects in Lower Manhattan moves forward expeditiously while minimizing impacts on the community.

LMCCC also reviews and guides the construction of privately sponsored construction south of Canal Street, which includes projects near the esplanade, such as the residential tower and public school project proposed for the New York University Downtown (Beekman) Hospital site and a second Gold Street residential building on Maiden Lane, as well as a number of office-to-residential conversions.

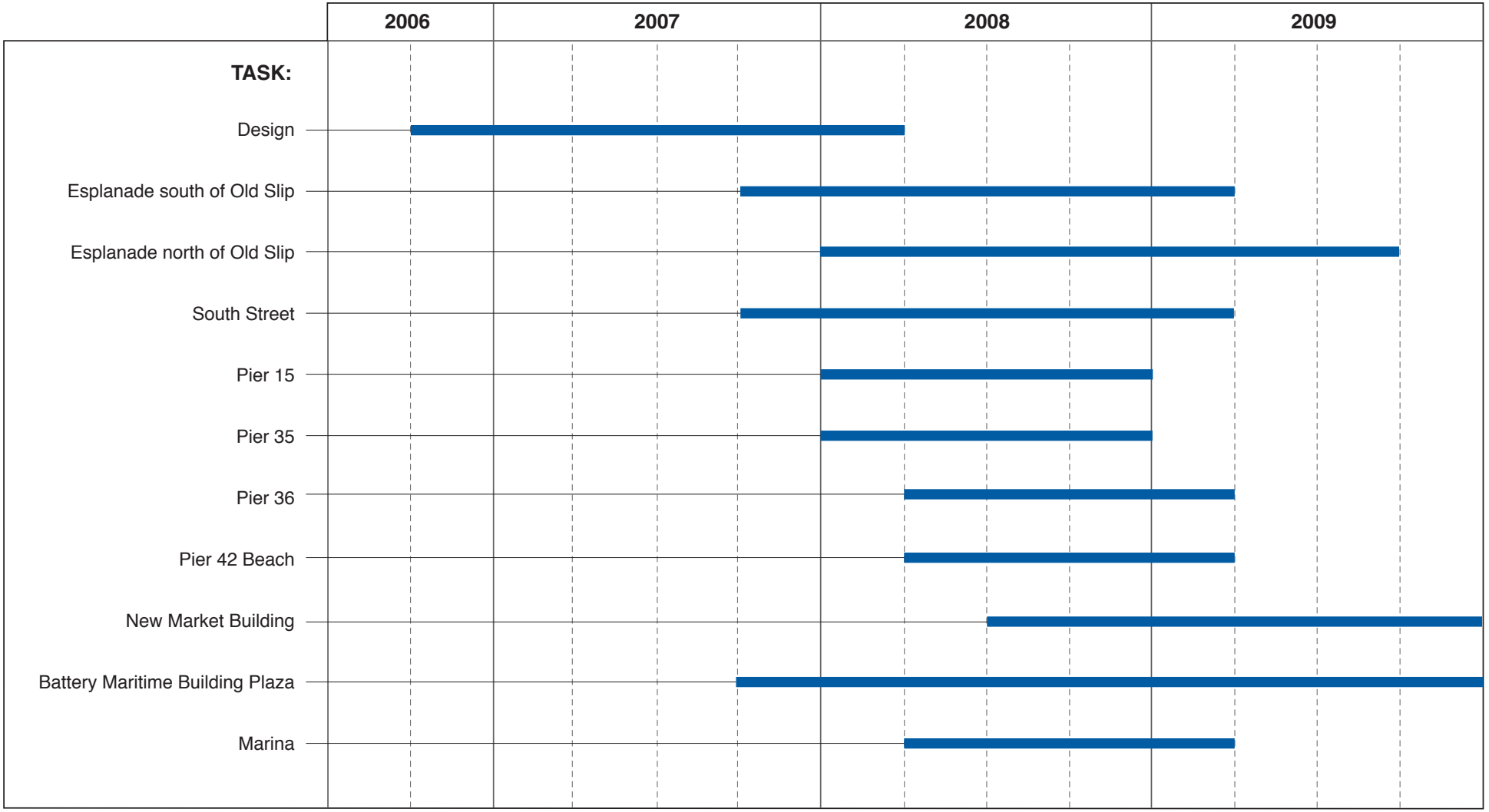
C. CONSTRUCTION STAGES AND ACTIVITIES

As currently contemplated, construction of the Proposed Action would begin in 2007 and be completed by the end of 2009 (see Figure 16-1). Construction of a typical office or residential building in Lower Manhattan would generally involve three phases: (1) excavation, foundation, and below-grade construction; (2) erection of the superstructure, usually in steel and/or concrete; and (3) interior construction and finishing. Construction of most of the Proposed Action—the esplanade and the pavilions—would generally be less intensive, requiring little or no excavation and erecting only small structures with no more that 150,000 square feet (sf), for a total of 190,000 sf (including 40,000 sf at the New Market Building) of interior space. However, the in-water construction at Piers 15, 35, and 42, and the New Market Building pier would involve more complex construction methods, and, in particular, the extension of the Battery Park Underpass (BPU) would include excavation and heavy construction. As this is a waterfront project, it is generally expected that, to the extent practical, construction would be undertaken from the water. Various equipment and machinery would be used, including barges, pile drivers, truck- and barge-mounted cranes, backhoes, loaders, dump trucks, fork lifts, vans, and other equipment.

ESPLANADE AREA AND PAVILIONS

Construction of the esplanade and the pavilions is expected to take about 18 months. To minimize construction disruption along the length of the esplanade and to facilitate the logistics, construction of the esplanade may be divided into two segments: BMB to Old Slip/Pier 11, and Old Slip to Montgomery Street. As shown in Figure 16-1, construction of the portion of the esplanade north of Old Slip would begin first, followed by construction of the portion of the esplanade south of Old Slip to the BMB.

The esplanade from the BMB to Old Slip would be widened with a new, approximately 15- to 25-foot-wide structure built out over the water. The new esplanade area is expected to be an independent structure on pilings. It is currently contemplated that the new overwater esplanade structure would pull away from the existing bulkhead line between the BMB and Pier 6, creating an archipelago with gaps where the historic bulkhead structure would be visible. Excavation required for construction of the esplanade (inland of the bulkhead) would be minimal (i.e., less than five feet in depth). From Old Slip to Montgomery Street excavation required for construction of the project—including the narrowing of South Street—would be minimal (i.e., less than five feet in depth). The construction of this outboard esplanade structure is expected to occur in two phases. The archipelago and the portion of the esplanade south of Pier 6 would be



Construction Timeline
Figure 16-1

constructed concurrently with the BMB Plaza (see below) and the relocation of the entrance to the BPU, provided that funding is made available for this project in a timely fashion. The construction of the portion of the esplanade north of Pier 6 to Old Slip would follow. Vehicular access to the heliport on Pier 6 would be maintained throughout construction, as would pedestrian access to the ferry terminal at Pier 11.

Utility work on the upland area would be followed by construction on the upland area. Upland construction site work includes paving, stonework, and landscaping. The esplanade would be paved in sections using asphalt pavers. During construction, the esplanade would remain open and ramps would allow passage for pedestrians.

Pavilions would be constructed between Pine and Clinton Streets beneath the elevated Franklin D. Roosevelt (FDR) Drive structure. The pavilions would typically be constructed on concrete slab footings to a depth of not more than three feet, including utilities. Work on the pavilions would include installation of electrical, mechanical and plumbing infrastructure, erection of the structure, and interior finishes.

SOUTH STREET

In the future without the Proposed Action, construction would occur on the portion of South Street south of the Brooklyn Bridge, as the roadway and sidewalk in this area would be reconstructed in its current configuration. Under the Proposed Action, South Street would be narrowed and reconfigured. Reconstruction of South Street is anticipated to take 18 months and would be coordinated with work on the esplanade and with the construction of the New York City Department of Parks and Recreation (DPR)'s improvements to the adjacent slips. Excavation for the narrowing of South Street is expected to be minimal. However, there may be exceptions if existing sewer outfalls need to be relocated, if utilities that have exceeded their life cycle need to be replaced, and if transformer vaults need to be replaced. Work on the portion of South Street south of the Brooklyn Bridge could be conducted at night, if warranted, to maintain traffic and pedestrian flows.

PIER 15

Reconstruction of Pier 15 is anticipated to take 12 months. Work is expected to begin with the cutting of existing piles two feet below the mud line and dredging of the area surrounding the pier so that the *Wavertree* and another ship can be moored there in the future. Next, rebuilding of the pier would begin with the driving of new piles and installation of the deck. Once the pier structure decks are installed, work on the pier building can commence. Reconstruction of the pier would require placement of temporary and permanent utilities as well as maintenance of the existing outfall. Equipment used during reconstruction of Pier 15 would include barges, pile drivers, and barge-mounted cranes.

NEW MARKET BUILDING PIER AND MARINA

It is expected that the existing New Market Building would be demolished and the pier would be reconstructed. The existing pier would be removed, new piles would be driven, and a new deck would be installed. A new structure would be built on the reconstructed pier. Work on the new building would include installation of electrical, mechanical and plumbing infrastructure, erection of the structure and its façade, and interior finishing. A prefabricated floating dock would be put in place with minimal on-site construction. Wave attenuators would be installed around the marina. A breakwater structure extending from the edge of the New Market Building

pier parallel to the shoreline would be constructed on piles. Work at the New Market Building pier and marina is expected to take 18 months.

PIER 35

The relieving platform on the upland portion of Pier 35 would be replaced. A new two-level pier structure would be created. Overall construction is expected to take 12 months.

PIER 36

At the north end of Pier 36, a public waterfront open space would be created. Work is expected to take 12 months.

PIER 42

Creation of the beach, cove, and small craft launch area at Pier 42 is expected to take about 12 months. The existing pier shed on Pier 42 would be demolished over a period of about two months, and the pier deck and piles would be reinforced as necessary to support the proposed beach. Pile driving may be required for reinforcement of the pier. While excavation and in-ground construction are not expected to be required generally, it may be necessary to provide new utility connections to comfort stations or a maintenance structure. A pier drainage system would also be installed. Sand would be imported and placed atop the pier to create a beach.

At the south end of Pier 42, existing decking and piles would be removed to create the proposed cove. At the north end of Pier 42, protected open water area with a small craft launch area would be created. A portion of the pier may be removed and a breakwater surrounding the cove would be constructed.

BATTERY MARITIME BUILDING PLAZA

Construction of the BMB Plaza, which would include extension of the BPU, is the most complex construction effort being contemplated as part of the Proposed Action, and it is expected to last approximately 27 months. Equipment used during construction of the BMB Plaza would include back hoes, pile drivers, concrete trucks, and hole ramps.

The area in front of the BMB that is proposed as the location of the pedestrian plaza would require only minimal excavation (i.e., excavation of less than five feet in depth) and repaving. However, the roadway rising from the BPU to grade would require extensive excavation to depress the roadway south of Vietnam Veterans Plaza. This shift would affect about 350 feet of roadway. Above the depressed roadway a new structure would be built to create a plaza that would extend northeast to Broad Street. During construction, it is expected that half of the BPU would remain in use and that two traffic lanes, one allowing movement in each direction, would be available during construction. However, depending on the method of construction that is used, it is also possible that all traffic might be diverted from the BPU for a period of up to 18 to 24 months.

The shifting of the underpass and construction of the plaza is expected to occur in three overlapping phases: relocation of utilities, demolition and excavation, and construction of the roadway tunnel structure. The relocation of utilities is expected to occur over a period of approximately six months and would include construction of a new sewer overflow chamber north of the proposed ramp up to grade, construction of the sewer overflow pipes to this

location, relocation of the One New York Plaza intake and outflow pipes, and bridging of the interceptor sewer. Next, the roadway surface would be demolished and excavated.

Extension of the BPU would require dewatering of the area to be excavated and installation of a dewatering system for the duration of construction. It may also require resizing and/or rehabilitating the existing vent plant, which is located at the southeast corner of Peter Minuit Plaza. The demolition and excavation phase of construction is expected to last 9 to 15 months depending on how it is sequenced. Spoils generated by excavation of the tunnel could be removed by truck or by barge given the proximity of the site to the East River waterfront. It is expected that approximately 5 to 10 construction vehicles per day would typically travel to and from the site during this phase.

Construction and paving of the roadway structure would occur over about 10 to 12 months. Construction for relatively shallow tunnels frequently uses the cut and cover method, in which a trench is excavated and braced, column foundations placed, steel columns and roof beams installed, concrete walls and roof placed and waterproofed, and the excavation and tunnel back filled. During this phase, it is expected that approximately 5 to 10 construction vehicles per day will typically travel to and from the site, though during some periods the number could be as high as 15 vehicles, while at other times there would be none.

Creation of the plaza would occur over a period of up to 9 months. This could begin as soon as the deck is in place in front of the BMB and would overlap with the construction activities described above.

Access to the BMB and vicinity for ferry service to Governors Island will be maintained during construction of the BMB Plaza.

D. PROBABLE IMPACTS OF THE PROPOSED ACTION

As with most development in New York City, construction of the Proposed Action may be disruptive to the surrounding area for limited periods of time throughout the construction period. 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 project 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 27 months. Construction would not alter surrounding land uses, although certain types of activities would be intrusive to adjacent residences and community facilities. Land uses on the blocks adjacent to the site that are particularly sensitive to construction activities include residential buildings in the South Street Seaport area, Chinatown, and the Lower East Side, as well as P.S. 137 at Montgomery Street and Verizon Field, partially under the Manhattan Bridge.

During certain construction activities, such as demolition, excavation, pile driving (for Pier 15, the New Market Building pier, and Piers 35 and 42), paving, and construction of the pavilion exteriors, outdoor areas including adjacent areas of the esplanade may be less attractive for use. However, as described above, to the extent practical, work would be staged from the water and then from the new or reinforced piers.

Construction activities would be similar to construction activities taking place in Hudson River Park. The hours of construction would be regulated by the New York City Noise Code and the Department of Buildings. Furthermore, the City would work with the neighboring sensitive uses to minimize disruption of their activities to the extent practicable. Other changes, such as esplanade and pier 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—expenditures made by suppliers, construction workers, and other employees involved in the direct activity. Construction of the proposed project would create direct benefits resulting 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 project would also contribute to increased tax revenues for the City and State, including corporate taxes, personal income taxes, business taxes, City and State sales taxes, etc.

Construction of the project would directly create about 1,131 person-years of employment (a person-year is the equivalent of one person working full-time for a year). Total direct and generated employment from construction of the development is estimated at 1,749 person-years in New York City and 2,145 person-years in the broader New York State economy.

The direct wages and salaries during the construction period associated with the development of all elements of the Proposed Action are estimated at $72.91 million. Total direct and generated wages and salaries resulting in New York City from construction of the proposed development are estimated at $108.96 million. In the broader New York State economy, total direct and generated wages and salaries from construction of the total development are estimated at $130.96 million.

The total construction cost for the Proposed Action is estimated at approximately $227.5 million. Based on the U.S. Bureau of Economic Analysis's Regional Input-Output Modeling System (RIMS II) model for New York City and State, the total economic activity, including indirect expenditures (those generated by the direct expenditures), that would result from construction of the development is estimated at $433.40 million in New York State, of which $334.43 million would occur in New York City.

OPEN SPACE

The project site measures approximately 17 acres, including the areas where Pier 15 would be rebuilt and where the esplanade would be extended over the water south and west of Old Slip. Of this, approximately 11.38 acres are accessible to the public. During construction, the area accessible to the public would be reduced. However, the City intends to keep portions of the esplanade area open for as long as practicable during this period. Thus, the impacts on local open space users would be minimized. Overall, in combination with open space users' continued ability to use nearby open spaces (including Battery Park, Vietnam Veterans Plaza, and Verizon Field) and the limited time during which access to portions of the esplanade would be impaired, construction of the Proposed Action would not result in significant adverse impacts on open space.

HISTORIC RESOURCES

ARCHAEOLOGICAL RESOURCES

As described in Chapter 6, "Historic Resources," there are a number of areas within the archaeological Area of Potential Effect (APE) for which additional research will need to be conducted in order to fully understand documented disturbance and the potential for historic-period archaeological sensitivity to still exist. Thus, there is the potential that the project could have adverse effects on historic-period archaeological resources. Phase 1A(s) will be prepared for the APE, with the exception of two areas. The esplanade area that is outside of the pavilions would experience minimal disturbance (i.e., less than two feet in depth). South Street north of the Brooklyn Bridge would be repaved with the Proposed Action; however, this repaving would affect only the top one to two feet of the roadbed. Therefore, Phase 1A(s) will not be prepared for these areas. The Phase 1A will include an analysis of the potential for riverbottom remains to exist in the in-water areas that would be affected by the proposed project. These areas include: Pier 15, the proposed New Market Building pier marina, and the widened esplanade between Broad Street and Old Slip, beyond the existing bulkhead, where new pile driving would be required; the end of the New Market Building pier, where a breakwater could be constructed; and the area around Pier 15, which could require dredging to dock ships at this location in the future.

To avoid the potential for adverse effects, based on the conclusions of the Phase 1A(s), and in consultation with the New York State Historic Preservation Office (SHPO) and the New York City Landmarks Preservation Commission (LPC), a suitable treatment plan would be devised for any areas of potential sensitivity. The treatment plan could include monitoring or field testing, depending on the nature of the potential resources identified and the extent of construction that would take place in specific locations. The preparation of any research not completed as part of the EIS, as well as the preparation of the treatment plan, are part of the Programmatic Agreement that is being developed between LMDC and SHPO.

ARCHITECTURAL RESOURCES

As described in Chapter 6, the project site includes a portion of the South Street Seaport Historic District and Extension. It is also within 90 feet of a number of other known and potential architectural resources, including the BMB, the former First Precinct Police Station, and the American Sugar Refining Company buildings. To avoid physical damage to these architectural resources, a construction protection plan would be developed in consultation with SHPO and LPC. With this measure in place, it is unlikely that there would be any adverse physical impacts on architectural resources.

The East River bulkhead within the project site has been identified as a historic resource. Expansion of the esplanade on a new independent structure over the water between the BMB and the heliport on Pier 6 would obscure existing views of the bulkhead; however, the bulkhead structure itself would not be altered and would be visible from the archipelago structure. In addition, the original granite bulkhead would remain visible at other locations within the project area. The minor new attachments to the bulkhead that could be required at Pier 15 and the New Market Building pier would be constructed in a sensitive manner in order to remove as little of remaining original granite construction that still exists in these areas. The bulkhead is already largely obscured by the pier complex in these areas, and therefore no visual access would be lost by the construction of the Proposed Action. At Pier 42, the creation of a cove would allow for

visual access to the bulkhead. It is possible that the reinforcement of Pier 42 would not require any changes to the bulkhead in this area; however, if necessary, the new attachments would be constructed in a sensitive manner in order to remove as little as possible of the remaining original granite construction. The bulkhead is currently not visible behind Piers 35, 36, and 42, and therefore no visual access would be lost by the construction of the Proposed Action in these areas.

HAZARDOUS MATERIALS

Development at the project site would involve demolition of the New Market Building and at least portions of its pier, Pier 35, portions of Pier 42, and the shed on Pier 42, as well as minor excavation for repaving and construction of the pavilions under the FDR Drive structure. Absent appropriate controls, this could result in increases in exposure for the community and construction workers to contaminants. There is also a potential for adverse hazardous materials impacts during construction activities resulting from the presence of unknown underground storage tanks, lead-based paint, and asbestos-containing materials. However, it is anticipated that impacts would be avoided by performing construction activities in accordance with the protocol discussed in detail in Chapter 10, "Hazardous Materials." With the implementation of the measures described in Chapter 10, no significant adverse impacts related to hazardous materials would be expected to occur as a result of the demolition and construction activities for the Proposed Action.

TRAFFIC AND TRANSPORTATION

Construction of the project would generate trips from workers traveling to and from the site, as well as from the movement of materials and equipment, and removal of construction waste. The number of workers and vehicles that would be on site for each construction stage was estimated based on the proposed project's preliminary construction schedule. The highest number of workers and vehicles coming to and from the site would occur during mid 2009 because there would be multiple stages of overlapping construction work at that time. 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 significant adverse impacts on surrounding streets.

While the esplanade and piers could be constructed from barges, construction of the BMB Plaza would involve trucks to remove soil during excavation and to carry supplies to and from the site. Up to approximately 10 to 15 trucks per day (for materials delivery and removal of debris/scrap from construction operations) are anticipated during various stages of construction. Truck movements would be spread throughout the day and would generally occur between the hours of 7:00 AM and 4:30 PM, depending on the stage of construction. 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.

Due to its proximity to the East River, some of the construction activity for the plaza could also be staged from the water. As noted above, as much of the work as practical for the other portions of the project would be undertaken from the water side. It should be noted that no workers

would be allowed to drive to the site; only supervisors and necessary vehicles would be permitted on the site during the construction period. However, delivery trips for this project may exacerbate congested conditions that would occur in the area due to a combination of normal traffic flow and construction of other projects in the area. To the extent that there would be any disruption in traffic flow from construction of the proposed project, the changes would generally be minor, except in the case of the BMB Plaza as discussed above. The possible closure of the BPU could result in temporary significant adverse impacts with respect to traffic circulation during the construction period. However, in order to avoid or mitigate such impacts to the extent practical, the City would coordinate construction with the LMCCC.

STREET LANE AND SIDEWALK CLOSURES

Lane and/or sidewalk closures associated with construction of the Proposed Action would be limited to South Street and the roadway from the BPU and the elevated FDR Drive. It is expected that one lane of South Street would be closed during reconstruction. As described above, a portion of the FDR Drive would be closed in front of the entrance to the BPU. While it is expected that traffic would continue to flow in both directions during construction, a portion of the tunnel may have to be closed for part of the approximately 27-month construction period. During this period, some traffic may be diverted from the BPU.

Material storage areas would be located on the project site, large portions of which are underutilized if not totally unused. Therefore, they would not necessitate any lane closures. Other than during reconstruction of South Street and the roadway between the BPU and the FDR Drive, no rerouting of traffic is anticipated, and, as mentioned above, moving lanes of traffic are expected to be available at all times. During reconstruction of South Street and the roadway between the BPU, it is expected that one moving lane of traffic in each direction would be provided, but, as described above, it is possible that all traffic through the underpass could be rerouted during a period of construction.

AIR QUALITY

Described in greater detail below, the possible impacts on local air quality during construction of the proposed project include:

- Direct emissions: diesel exhaust from nonroad engines and fugitive dust (particulate matter) emissions from demolition and excavation; and
- Indirect emissions: mobile-source emissions, including particulate matter, nitrogen oxides, and carbon monoxide (CO) emissions from construction-related vehicles and from any changes in background traffic due to the addition of construction vehicles.

Pier reconstruction operations would be staged from barges, located to the east or south of any publicly accessible locations. The land-based activity would be spread out along the entire project from Peter Minuit Plaza on the south to Montgomery Street on the north—approximately two miles—and would include mostly minor construction activities. Although the entire duration of the Proposed Action construction would be approximately three years, construction at all locations other than the BMB Plaza would take place for much shorter periods, extending up to 18 months at most. The BMB Plaza is estimated to be completed in about 27 months and would include the construction of an extension for the BPU.

DIRECT EMISSIONS

The relatively small scale of most of the construction activities, the short duration and temporary nature of the activities, and the distribution of activities over a large area at a large distance from publicly accessible areas would minimize the impact of any construction-related emissions from the sites. Some larger scale construction could take place to construct an extension to the BPU to enable the construction of the BMB Plaza. There are no residences or other sensitive land uses immediately adjacent to that site.

Construction documents would include the EPCs utilized by LMDC for minimizing construction impacts on air quality for all of the construction activities related to the Proposed Action. The EPCs, which are the same measures used to minimize emissions from all of the large-scale Lower Manhattan recovery projects, include the use of ultra-low-sulfur diesel (ULSD) for all nonroad construction engines, and the application of tailpipe emissions reduction technologies which significantly reduce the emission of particulate matter, such as diesel particle filters (DPF) and diesel oxidation catalysts (DOC), to all engines with a power output of 50 horsepower or greater. These commitments would be implemented via construction contracts and enforced by LMCCC. This would not apply to tugboat engines, which would occasionally supply and remove materials to and from the site, but would apply to any construction engines utilized on the barges, such as cranes or generators. The City will investigate using marine operators that have upgraded their equipment with low emission engines. The use of tugboats is estimated at a total of 42 trips over an 18-month period.

Although the Proposed Action involves relatively little demolition and excavation, these activities would be conducted with the care mandated by the site's proximity to active uses. All 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 of the above emissions reduction and dust control programs, no significant adverse air quality impacts from on-site emissions would be expected.

INDIRECT EMISSIONS

Indirect emissions from construction would be from on-road mobile sources. Mobile-source emissions are emissions of air pollutants from motor vehicles, referred to as mobile sources. During construction, the Proposed Action may increase such emissions as a result of: (1) trucks delivering construction materials and removing debris; (2) workers' private vehicles; and (3) disruptions in traffic near the construction site.

Local 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.

The construction of the Proposed Action would not induce a significant volume of on-road vehicle trips. As described above, only supervisors' and necessary vehicles would be permitted on the site during construction. Normal maximum traffic volume is expected to be approximately 5 to 10 construction vehicle trips per day depending on the phase and location of construction activity. This level of activity is much lower than the 100-vehicle trip threshold (for CO) or 21-truck equivalent trip threshold (for particulate matter) employed by the New York City Department of Environmental Protection (DEP) for analysis of mobile sources in this location.

As described above under "Traffic and Transportation," the construction of all segments of the Proposed Action other than the BMB Plaza would not be expected to have a significant impact on traffic conditions. During the construction of the BPU extension for the BMB Plaza, closure of a portion of the tunnel may be necessary for part of the 27-month construction period. Some traffic may be diverted from the BPU during this time. Temporary significant adverse impacts on traffic and ensuing temporary significant adverse impacts on air quality cannot be ruled out during that period. However, as described above, construction associated with the Proposed Action would be coordinated with other construction work taking place in the area through LMCCC, and any potential adverse impacts of construction for the Proposed Action would be minimized to the greatest extent possible.

CONCLUSIONS

Temporary significant adverse impacts on air quality due to changes in traffic conditions cannot be ruled out during the construction of the BPU extension for the BMB Plaza should closure or partial closure of the tunnel be necessary. Any potential adverse impacts from this closure would be minimized to the greatest extent practicable through coordination of construction activities with LMCCC. Overall, construction of all other segments of the Proposed Action is not expected to have a significant adverse impact on air quality.

NOISE

Potential effects on community noise levels during construction of the Proposed Action would include noise from construction equipment operation, 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 given in Table 16-1. 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, paving breakers, and pile drivers.

Construction noise is regulated by the New York City Noise Control Code and by U.S. Environmental Protection Agency (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 7:00 AM and 6:00 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.

Table 16-1
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.

Construction of the Proposed Action would require the use of an assortment of light, medium, and heavy equipment which generate noise. Impacts on community noise levels during construction are regulated by the New York City Noise Control Code and EPA noise emission standards for construction equipment. In addition, project construction would adhere to the EPCs utilized by LMDC for minimizing construction impacts on noise in all LMDC-funded construction contracts.

E. CUMULATIVE IMPACTS

The Proposed Action would be located in the area south of Canal Street and its construction would be within the jurisdiction of LMCCC. The purpose of LMCCC is to coordinate construction activities to minimize or avoid impacts on the surrounding area, and as such, the construction of the Proposed Action would be coordinated with other ongoing work. As noted above, all construction documents would specify adherence to the EPCs utilized by LMDC for minimizing construction impacts on air quality and noise during construction.

As identified above, the two closest major recovery projects are the Fulton Street Transit Center and the South Ferry Terminal. The Fulton Street Transit Center is centered on Broadway between Maiden Lane and Ann Street where construction is now taking place. However, it also includes improvements to the portion of the station along William Street between Ann and John Streets, six blocks west of South Street. Though construction on this project may overlap with the Proposed Action, given its distance from South Street, there are unlikely to be any overlapping or cumulative impacts with the Proposed Action. Construction of a planned mixed-use development at the site of the NYU Downtown Hospital on Beekman Street just north and west of Gold Street will overlap with the construction of the Proposed Action. This development, which will contain 220 residential condominiums as well as retail space, a school, and an ambulatory care facility, is under way. Construction will be completed by the end of 2009. However, because this project is approximately six blocks away from the site of the Proposed Action and because construction is expected to be well under way in advance of the Proposed Action, it will not likely result in cumulative construction impacts. As shown in Figure 16-1, most of the construction for the East River Esplanade and Piers Project is expected to take place in 2008 and 2009. By this time, much of the heavy construction on the NYU Downtown Hospital site will have been completed.

However, construction of the South Ferry Terminal subway station is going on immediately northwest of the location of the proposed BMB Plaza, and construction associated with the Proposed Action may overlap with the final stages of the subway station's construction. However, movement of materials during the finishing stages of the South Ferry station's construction would take place underground via train and is therefore not likely to cause overlapping or cumulative impacts with the Proposed Action.

Construction of the Proposed Action would also overlap with DPR's planned East River Waterfront Access Projects, which will include improvements to Peck, Catherine, Rutgers, and Montgomery Slips and the upland portion of Pier 42. On the upland portion of Pier 42, an improved pedestrian and bike path would be created to connect the existing East River waterfront esplanade to East River Park. Construction of this East River connector may be coordinated with the construction of the Proposed Action's beach on Pier 42.

It is expected that there would be no significant adverse cumulative impacts due to construction associated with the Proposed Action. ✷