LOWER MANHATTAN DEVELOPMENT CORPORATION

World Trade Center Memorial and Redevelopment Plan

Record of Decision and Lead Agency Findings Statement

June 2004

RECORD OF DECISION AND LEAD AGENCY FINDINGS STATEMENT FOR THE WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PLAN IN THE BOROUGH OF MANHATTAN, NEW YORK COUNTY, NEW YORK

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1.0 DESCRIPTION OF THE PROJECT

1.1 Overview

This document is a Record of Decision (ROD) and Findings Statement for the World Trade Center Memorial and Redevelopment Plan prepared pursuant to the National Environmental Policy Act of 1969 and its implementing regulations (40 CFR Parts 1500-1508) (collectively, NEPA), Executive Order 11988 (Floodplain Management), Executive Order 12898 (Environmental Justice), the National Historic Preservation Act of 1966 and its implementing regulations (36 CFR Part 800) (collectively, NHPA), the New York State Environmental Quality Review Act (Article 8 of the New York State Environmental Conservation Law) and the regulations adopted pursuant thereto (6 NYCRR Part 617) (collectively, SEQRA), and all applicable laws, regulations, orders, and guidelines by the Lower Manhattan Development Corporation (LMDC), a subsidiary of the New York State Urban Development Corporation d/b/a Empire State Development Corporation (a political subdivision and public benefit corporation of the State of New York). As the recipient of United States Department of Housing and Urban Development (HUD) Community Development Block Grant funds appropriated for the World Trade Center disaster recovery and rebuilding efforts, LMDC acts, pursuant to 42 USC § 5304(g) and 24 CFR Part 58, as the responsible entity for compliance with NEPA, NHPA and such other laws, regulations, orders and guidelines identified therein. LMDC also acts under its authority as lead agency in accordance with SEQRA.

This ROD and Findings Statement draws upon facts and conclusions in the Final Generic Environmental Impact Statement (FGEIS) approved by LMDC, in cooperation with HUD and The Port Authority of New York and New Jersey (Port Authority), as well as comments thereon and related documents and submissions. This ROD and Findings Statement attests to the fact that LMDC has complied with all applicable procedural requirements, including those found in 40 CFR Parts 1500-1508, 24 CFR Part 58 and 6 NYCRR Part 617, in reviewing this matter, including, but not limited to:

- Designation of LMDC as lead agency;
- Preparation and approval of the Draft Scope for the Generic Environmental Impact Statement (Draft Scope) for public review and comment;
- Holding of public meetings on the Draft Scope;
- Receiving public comments on the Draft Scope;
- Preparation and approval of the Final Scope for the Generic Environmental Impact Statement (Final Scope);
- Preparation and approval of the Draft Generic Environmental Impact Statement (DGEIS) for public comment and review;
- Filing and distribution of the DGEIS and notices of completion and availability;
- Holding of public hearings on the DGEIS;
- Receiving public comments on the DGEIS within the prescribed period;
- Preparation and approval of the FGEIS for public comment and review;
- Filing and distribution of the FGEIS and notices of completion and availability; and

- Receiving public comments on the FGEIS within the prescribed period.

This ROD and Findings Statement also attests to the fact that LMDC has given due consideration to the Draft Scope, Final Scope, DGEIS and FGEIS prepared in conjunction with the World Trade Center Memorial and Redevelopment Plan (Plan) and the public comments submitted on the same. This ROD and Findings Statement is the final step in the NEPA and SEQRA processes for the Plan.

1.2 Project Purpose and Need

The effects of the terrorist attacks on September 11, 2001 were felt throughout the region and the country, leading to an outpouring of support for recovery efforts. In the aftermath of the attacks, the Twin Towers became a symbol of antiterrorist resolve. A widespread sentiment arose in the city, the state, and the nation for a rebuilding effort to restore the iconic center of Lower Manhattan's Financial District, and to honor those who died there on September 11, 2001 and on February 26, 1993. Efforts to rebuild the physical, financial, and emotional health of the nation and of Lower Manhattan continue to this day.

The impact caused by the disaster resulted in an overwhelming response from federal, state, and city agencies, and from individuals throughout the country who volunteered time, money, and resources to the rebuilding process. President George W. Bush declared Lower Manhattan a national disaster area, and $21 billion dollars was appropriated by the United States Congress to various government agencies to aid in the repair, restoration, and recovery efforts. Federal, state, and local government initiatives have since been established to provide financial assistance to Lower Manhattan, and policy initiatives such as the New York Liberty Bond Program have been enacted to assist in the financing of rebuilding and revitalization efforts. LMDC was allocated two grants totaling $2.783 billion that are administered through HUD's Community Development Block Grant program.

The need for reflection and emotional healing was also of paramount importance in the wake of the September 11 attacks. Victims' families, survivors, rescue workers, and other affected individuals called for a permanent Memorial. On March 11, 2002, six months after the attacks on the WTC, LMDC, the Port Authority, and New York City established an interim memorial in Battery Park. A temporary one-month memorial in lights, "Tribute in Light," was installed in Battery Park City.

A permanent Memorial will be created at the World Trade Center Site (WTC Site) to ensure that future generations never forget the people who died on September 11 in New York City, in Shanksville, Pennsylvania, and at the Pentagon, as well as those who died in the terrorist bombing of the WTC on February 26, 1993. Last year, LMDC conducted the WTC Site Memorial Competition that concluded in January 2004 with the competition jury's selection of the preferred Memorial design concept.

The rebuilding of the WTC Site as a mixed-use center of commerce, public space, and culture with a Memorial at its heart is the culmination of a two-year public dialogue. In addition to fulfilling the public purpose that evolved out of the events of September 11, the principles for rebuilding advance the goals of the New York State Urban Development Corporation Act (UDC

Act), the objectives of the LMDC, the mission of the Port Authority, and the goals articulated by the Governor and the Mayor: to remember and honor the victims of the terrorist attacks while revitalizing Lower Manhattan. Meeting the need for physical, financial, and emotional recovery efforts following the attacks on September 11, 2001 is the principal purpose of the Plan.

1.3 Description of the Selected Project

After considering a variety of alternatives, including a no-action alternative, LMDC has selected the "Proposed Action" as defined in the FGEIS along with the possible use of the "Northern Service Option" described below (hereafter referred to as the Selected Project). The Selected Project does not include the permanent WTC PATH Terminal being planned by the Port Authority.

1.3.1 Project Site

The Project Site includes the WTC Site and the Southern Site (see Attachment 1). The WTC Site is an approximately 16-acre parcel bounded by Liberty, Church, and Vesey Streets and Route 9A. The Southern Site comprises two adjacent blocks south of the WTC Site—one bounded by Liberty, Washington, Albany, and Greenwich Streets, and the other bounded by Liberty, Cedar, and Washington Streets and Route 9A—and portions of two streets: Liberty Street between those blocks and the WTC Site and Washington Street between Cedar and Liberty Streets.

1.3.2 Project Description

The Selected Project will provide for the construction on the Project Site of a WTC Memorial (Memorial), an interpretive museum (Memorial Center) and cultural facilities, up to approximately 10 million square feet of above-grade Class A office space with associated storage, mechanical, loading, below-grade parking, and other non-office space, up to 1 million square feet of retail space, a hotel with up to 800 rooms and up to 150,000 square feet of conference space, open space areas, and certain infrastructure improvements described in more detail below. The combined total of the retail and hotel facilities will not exceed 1.6 million square feet.

1.3.3 Site Plan

The planned street configuration will divide the WTC Site into four quadrants of unequal size. Specifically, Fulton Street will run east-west through the WTC Site, and Greenwich Street will run north-south through the WTC Site. The southwest quadrant will contain the approximately 5-acre Memorial based on the "Reflecting Absence" concept (described below), the Memorial Center relating the events of September 11 and containing some artifacts from the WTC Site, and other cultural institutions. The Memorial design features two recessed pools of water that recognize the footprints of the former Twin Towers. Visitors will descend to the pools (approximately 30 feet below grade) where victims' names will be inscribed. Portions of both the exposed slurry wall on the west side of the WTC Site and box-beam column bases at the lowest level of the structural bathtub will be accessible to the public. Pedestrian access to the Memorial will be provided on Greenwich, Fulton, and Liberty Streets and Route 9A.

Freedom Tower (Tower 1), the first tower to be built, will be located in the northwest corner of the Project Site. Freedom Tower will be the visual landmark of the Selected Project in New York City's skyline. It will have approximately 70 floors of office, mechanical, and functional space. A viewing platform will be located atop the building and above that will be a broadcast tower reaching at least 1,776 feet. Current plans call for the top of the structure to contain wind turbines, which will generate electricity to meet a portion of the building's energy demands. The performing arts center will be located to the east of Freedom Tower.

Tower 2, located east of the performing arts center, will have approximately 65 floors of offices, and its lobby will open onto both Fulton and Vesey Streets. Retail use in the base of Tower 2 may be an anchor retail tenant. Adjacent to Tower 2, it is anticipated that there will be an approximately 25 story hotel with up to 800 rooms, meeting rooms and function space.

Wedge of Light Plaza, located to the south of Tower 2, will lead to the permanent WTC PATH Terminal, the subway system and the Memorial. Wedge of Light Plaza will help create a strong connection from the open space surrounding St. Paul's Chapel to September 11 Place and the Memorial and cultural facilities, and from there westward to Route 9A. That plaza will be designed to be a lively space to accommodate a range of activities. Tower 3, with approximately 62 floors of offices above its retail base, will be separate from and to the south of the permanent WTC PATH Terminal building, allowing Dey Street to extend between Church and Greenwich Streets. Tower 4, with approximately 58 office floors above a retail base, will be separate from and to the south of Tower 3, allowing Cortlandt Street to extend between Church and Greenwich Streets. The site plan allows for the possible design and construction of Cortlandt and Dey Streets, and the Port Authority, LMDC and the City of New York will continue to discuss the final status of those streets.

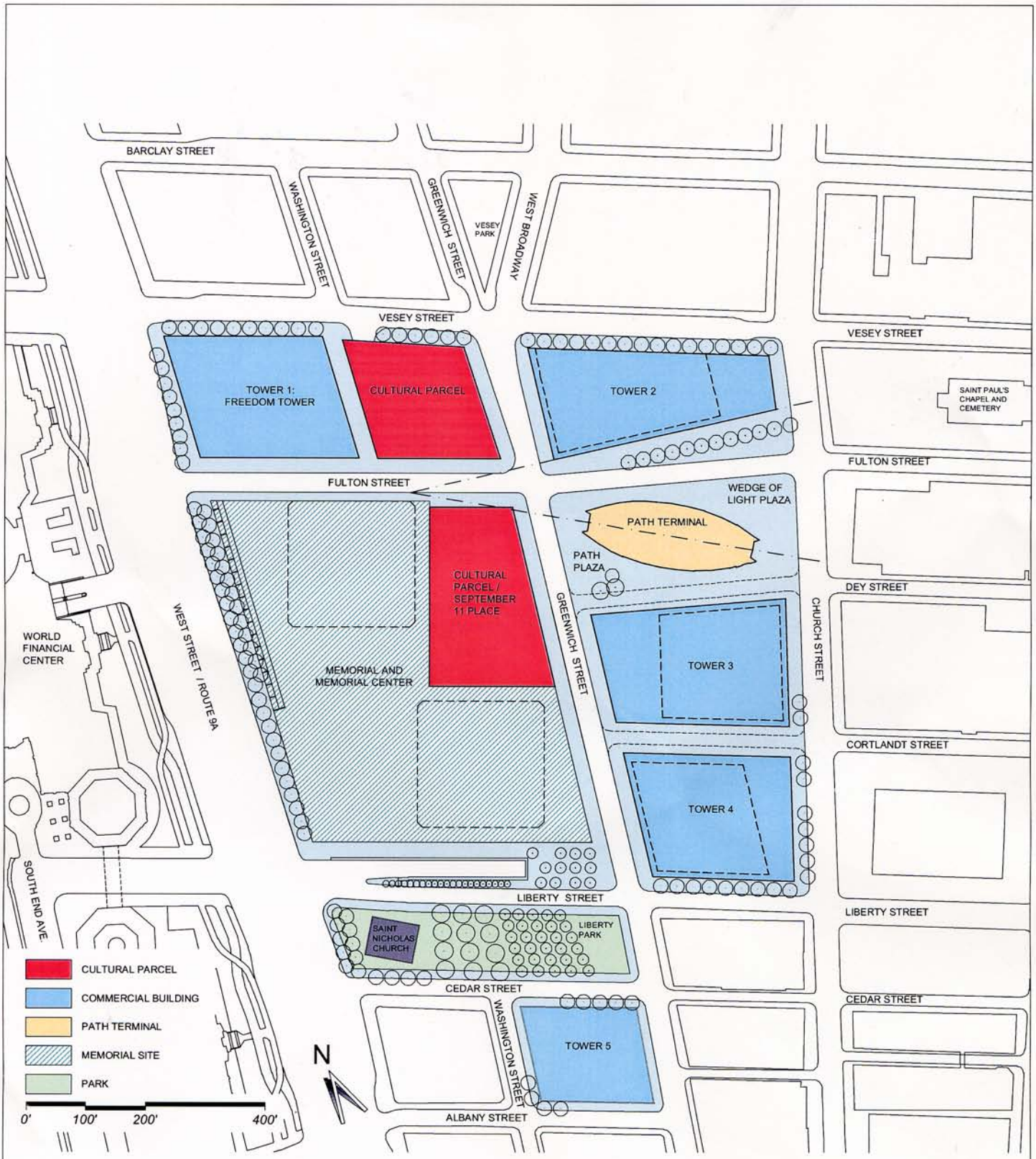
The Southern Site will be reconfigured to open Cedar Street between Greenwich and Washington Streets and close Washington Street between Liberty and Cedar Streets. This will allow the creation of a single large open space on the new block south of Liberty Street as well as construction of Tower 5. A new St. Nicholas Greek Orthodox Church will be constructed in the open space not far from its location on September 10, 2001. The Selected Project involves the deconstruction of the damaged building at 130 Liberty Street on the Southern Site.

LMDC and the Port Authority, in consultation with the City of New York and Silverstein Properties, are developing design guidelines for the commercial structures and open space that will be built as part of the Selected Project, as described in Section 1.3.7.

1.3.4 Below Grade

The Selected Project will expand the existing bathtub south to include the entire Southern Site. A new bathtub will be excavated on the east side of the WTC Site to allow more below-grade levels of development in that location.

Beneath the office towers and plazas and except in the Memorial area, the Selected Project will provide for retail uses on up to two below-grade concourse levels. Retail uses will enliven the pedestrian connection linking the permanent WTC PATH Terminal to the World Financial



WORLD TRADE CENTER
MEMORIAL AND REDEVELOPMENT PLAN

PROPOSED PROJECT SITE PLAN AS OF JUNE, 2004
ATTACHMENT 1

Center in Battery Park City on the west and the subway system on Church Street, and will provide connections to street-level retail and pedestrian activities.

Beneath the concourse levels will be one or two service levels above the bedrock. The upper service level will be adjacent to the PATH mezzanine, while the lower level will be adjacent to the PATH tracks and platforms. There will also be loading facilities (docks, stalls, and bins) for trucks beneath the new office towers. Parking for buses will be provided below grade at the Southern Site or at the WTC Site itself. Parking for up to 1,400 cars to accommodate building tenants will also be provided below grade. No parking is contemplated in the area of the site below the Memorial.

As part of the infrastructure for the Selected Project, the existing Hudson River pump station and its cooling water intake system below grade in Battery Park City will be reactivated to provide chilled water for air conditioning purposes, reducing the Selected Project's reliance on potable water from New York City.

1.3.5 Vehicular Circulation and Northern Service Option

By extending two streets through the WTC Site, the Selected Project will restore vehicular access both from north to south and from east to west, integrating the streets into the broader Lower Manhattan street network. Traffic will flow south from West Broadway and Greenwich Street in Tribeca through the Project Site on Greenwich Street to the area south of Liberty Street. Vehicular traffic will flow west on Fulton Street. Vesey Street will be one way with traffic flowing eastbound.

On the Southern Site, traffic will flow west on Cedar Street. With Washington Street eliminated north of Cedar Street, vehicles traveling north on Washington Street will turn left on Cedar Street to Route 9A.

Tour buses will be allowed to stop to discharge and pick up passengers along the west side of Greenwich Street in the WTC Site. Buses (without their passengers) will then proceed south on Greenwich Street, and turn right (west) on Cedar Street and right (north) on Route 9A and from there turn right into a ramp on Liberty Street on the WTC Site.

Although pedestrian traffic will dominate the ground level of the Project Site, safe and efficient vehicle access and mobility is important for goods movement, emergency vehicles, buses, taxis and for-hire vehicles. The Port Authority has adopted stringent criteria for vehicle security that all structures and spaces must meet. Vehicular approaches will be designed to include sufficient queuing space (to prevent back-ups), and vehicles arriving in the security screening area would be subjected to security procedures.

The Selected Project includes two alternatives for vehicle access to the Project Site. Under the first alternative, as described under the "Proposed Action" in the FGEIS, trucks and vans will enter the below-grade service levels of the site via the Liberty Street ramp. Automobiles belonging to building tenants will be allowed to enter and exit the WTC Site via a ramp on the south side of Vesey Street in the vicinity of Freedom Tower and proposed performing arts center. All vehicle types could exit the on-site service and parking areas via the Liberty or Vesey Street

ramps or via an exit ramp onto the northbound Route 9A median. The second alternative, the "Northern Service Option," is a refinement of the "At-Grade Loading Alternative" of the FGEIS and is fully described in Appendix A, *Technical Memorandum on Proposed Action with Northern Service Option*.

Under the Northern Service Option, service and parking access for Freedom Tower, the performing arts center, and approximately 75,000 square feet of retail space on the northwest quadrant of the WTC Site would be separate from the remainder of the Project Site's below-grade service and vehicular circulation network. As described in Appendix A, this Option includes two security screening variations. Access for trucks, vans and automobiles for these uses would be from Vesey Street in the vicinity of Freedom Tower and the performing arts center. There would be a truck service area with space for trucks to maneuver, three truck-sized elevators, an oversized freight elevator and space for unloading vans. The elevators would accommodate single-unit trucks. There would be a separate area for cars to enter the building, with space for cars to enter the building and three car elevators. Below grade, there would be docks for the trucks and up to 300 parking spaces for Freedom Tower tenants. For the first screening variation, all trucks or vans serving the Freedom Tower or the performing arts center or the associated retail would undergo a security check on Washington Street between Barclay and Vesey Streets before proceeding to the service entrance area on the WTC Site off Vesey Street. Under the second screening variation, trucks and vans would undergo security screening below-grade on the WTC Site, entering the site via the Liberty Street ramp. After screening, the trucks and vans would exit via the Liberty Street ramp and travel to the service area entrance on Vesey Street.

1.3.6 Memorial Mission Statement, Program, and Design

The search for a Memorial design has been the subject of extensive public dialogue.

Following the work of the Families Advisory Council, a dedicated drafting committee, and public comment in April 2003, the LMDC adopted the Memorial Mission Statement and Memorial Program. These principles were incorporated into the Competition Guidelines for the International World Trade Center Site Memorial Competition that was judged by an independent and distinguished jury. Over 4,000 entries were received and in November 2003, eight finalists were selected to further develop their Memorial design concepts. Their designs were placed on public exhibit in the Winter Garden at the World Financial Center starting on November 17. The eight design concepts are described in detail in Chapter 1, "Project Description," of the FGEIS.

In January 2004, LMDC announced that the competition jury had selected "Reflecting Absence" by Michael Arad and Peter Walker as the proposed design concept for the Memorial. In this design, a Memorial plaza will have clusters of trees and attractive landscaping at street level to encourage its integration into the urban fabric of Lower Manhattan. Amidst this surface will be two large "voids," occupied by pools of water, recognizing those lost on September 11, 2001, throughout the country. These pools, recessed approximately 30 feet below grade, will be circumscribed by curtains of water falling from the plaza level. Descending into the corridors surrounding either pool, visitors will find inscribed names of the victims of the attacks of September 11, 2001, and February 26, 1993. A chamber for public remembrance will connect these corridors.

Visitors will be given access to a portion of the western slurry wall and box beam column bases at the lowest level of the structural bathtub. A room with a monument to victims with unidentified remains will be located below the northern void and will incorporate a large opening to allow daylight to enter. The Memorial Center, to the west of the southern void, will house preserved artifacts from the attacks.

1.3.7 Site Design/Design Guidelines

Commercial Design Guidelines for the Selected Project are being prepared by LMDC and the Port Authority, in consultation with the City of New York and Silverstein Properties, to translate the vision of Memory Foundations, as described in Section 1.4, into a set of principles and standards that will guide the design of the open spaces and commercial projects. These guidelines will establish a framework for the development of the commercial and retail elements as well as the public open spaces, encouraging designers to be creative in the design for each component while defining the essential elements that will ensure that each part of the Selected Project contributes to the overall vision. A definitive set of guidelines will be adopted by LMDC and the Port Authority following approval of this ROD and Findings Statement.

1.3.8 Other Lower Manhattan Recovery Projects

Additional recovery projects are already under way in Lower Manhattan. Construction of the 7 WTC replacement building began by Silverstein Properties in the summer of 2002 and is expected to be completed in 2005. The Port Authority is planning a permanent WTC PATH Terminal for the WTC Site (construction on the terminal is expected to begin in late 2004 or early 2005). Other projects currently under consideration by other agencies, including the Metropolitan Transportation Authority New York City Transit (MTA/NYCT) and the New York State Department of Transportation (NYSDOT), are the Route 9A Reconstruction, the Fulton Street Transit Center, and the South Ferry Terminal Subway Station. These projects are independent of the Selected Project and are undergoing separate environmental reviews by the appropriate agencies. Governor Pataki's Immediate Action Plan is aimed at improving accessibility in and around Lower Manhattan and enhancing the quality of life in the area. LMDC is exploring various major public transit initiatives, such as ferry service linking Lower Manhattan, Midtown, Yonkers, and Haverstraw, as well as direct rail access from Lower Manhattan to Long Island and John F. Kennedy Airport.

1.3.9 Environmental Performance Commitments

LMDC and other Lower Manhattan recovery project sponsors (Port Authority, MTA/NYCT, and NYSDOT) agreed to a common set of Environmental Performance Commitments (EPCs). The EPCs represent the mutual stewardship of the agencies, and they are the product of extensive discussion and coordination among the agencies. Agencies that have participated in the process have co-signed the EPCs, thereby agreeing to implement the measures. As a result, the EPCs are considered to be policies enumerated by LMDC as part of its overall environmental principles and its guiding principles. (A copy of the EPCs is attached in Appendix B, "Environmental Analysis Framework and Performance Commitments.")

The EPCs address construction techniques, design elements, and operating procedures that will be implemented to lessen the potential for adverse environmental impacts from construction activities on matters of special concern including: air quality; noise and vibration; cultural and historic resources; access and circulation; economic effects; and environmental design. Specific commitments made by LMDC for the Selected Project in each of those five areas are outlined in Section 3.0.

Consistent with the environmental performance commitments made by the agencies funding and sponsoring major projects in Lower Manhattan, LMDC and Port Authority will participate in the ongoing coordination efforts that are expected to continue throughout the construction, including the Lower Manhattan Construction Coordination Group (LMCCG). (A copy of the Mission Statement for the LMCCG is attached as Appendix C).

LMDC and the Port Authority will also cooperate with the Lower Manhattan Construction Command Center (LMCCC) that will be created pursuant to Executive Orders of Governor Pataki and of Mayor Bloomberg in summer 2004, as announced in May 2004. The LMCCC will, among other things, enhance public information and minimize impacts on the community by facilitating construction coordination in Lower Manhattan.

LMDC and the Port Authority have made additional environmental performance commitments and will consider additional measures necessary to address cumulative effects as the environmental reviews of the other Lower Manhattan transportation recovery projects proceed.

1.3.10 Sustainable Design Guidelines

The EPCs represent only a portion of the commitment to green construction, green design, and sustainability principles. In addition to the EPCs, LMDC and the Port Authority will achieve improved environmental and sustainable attributes in the design, construction, and operation of the Selected Project through the *Sustainable Design Guidelines* for the WTC commercial and open spaces. Building on New York State Executive Order 111 and the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, the *Sustainable Design Guidelines* identify and describe the environmental and sustainable attributes for the commercial buildings and structures of the Selected Project. (The final version is included as Appendix D.[1]) The Memorial and cultural buildings will also meet appropriate sustainability measures in their design, construction, and operation with due consideration for their memorial and public purposes and the operational and financial constraints of the non-profit organizations that will operate them.

Developed in conjunction with LMDC, the Port Authority and Silverstein Properties, as the net lessee, the *Sustainable Design Guidelines* do not focus only on a specific building or project as do other sustainable guidelines. Instead, the *Sustainable Design Guidelines* address issues at both the regional and neighborhood scale, such as regional transportation systems and interface with surrounding neighborhoods, respectively. The *Sustainable Design Guidelines* require a

[1] "*Sustainable Design Guidelines*" were inadvertently referenced as "*Sustainable Development Guidelines*" in Chapter 18, "Natural Resources," of the FGEIS.

Comprehensive Resource Management Plan (SEQ-1), which takes into consideration the environment with various agreed upon plans for managing the site, the water and energy usage, materials management, indoor air quality and integrated pest operations. The *Sustainable Design Guidelines* also contain requirements for the following plans: Construction Environment Plan (SEQ-5); Construction IAQ Management Plan (IEQ-5), Construction Storm Water Pollution Prevention Plan (SEQ-6), Construction Waste Management Plan (MEQ-2), Use Existing Site Structures (SEQ-7) and Use of Undeveloped Parcels (SEQ-12).

Consistent with the guidelines, developers at the Project Site will: (1) exceed the requirements of Executive Order No. 111; (2) surpass state energy code by at least 20%; (3) achieve eligibility for LEED certification and strive to achieve eligibility at the "silver" level, and (4) maximize use of renewable energy supplied by the New York Power Authority. To those ends, part of the energy that will power the Freedom Tower is expected to be generated by wind generators built into the tower itself. The indoor environment will be designed to optimize the comfort, health, well being, and enhanced productivity of building occupants. As a result, the Project Site will be more attractive to tenants, more self-reliant, and over the long term, more economical to operate.

1.3.11 Safety and Security

The Selected Project will promote security upgrades and improved safety. An objective of the Selected Project is to create a safe and secure urban site, exceeding the criteria set forth by applicable building codes and safety regulations. A number of features will be included in the design to enhance and maximize the safety and security systems and procedures at the Project Site. The goal in safety and security design is to anticipate emergency conditions and to support preparedness through response plans and systems. The safety and security design elements that will be in place at the Project Site are discussed in Section 4.0 and will include standards that go beyond those generally utilized in commercial buildings, such as those voluntarily incorporated by Silverstein Properties for the reconstruction of 7 WTC.[2] The planning and design for the Project Site will form a security and protection plan to promote safe and secure development, occupancy and participation in a variety of uses planned for the Project Site.

1.4 Project History and Public Participation

1.4.1 Planning for Development

PRINCIPLES FOR REBUILDING

After an initial widespread public outreach effort, LMDC released its *Principles and Preliminary Blueprint for the Future of Lower Manhattan* (*Blueprint*) on April 9, 2002. This draft document presented planning concepts for a Memorial setting, traffic and transportation improvements, commercial and residential development, open space, and other principles to be considered in the formulation of a plan for the redevelopment of the WTC Site and surrounding area. LMDC and the Port Authority held a joint public hearing on the *Blueprint* on May 23, 2002, after considerable public outreach and distribution of the document. Over 1,000 people attended the

[2] These measures implemented in the 7 WTC Reconstruction Project are disclosed in *NYS Urban Development Corporation: 7 World Trade Center Reconstruction Project SEQRA Environmental Assessment Form and Supporting Analyses,* May 17, 2002.

public hearing, and comments were incorporated into a *Revised Blueprint* issued on June 5, 2002.

The principles of the *Revised Blueprint* emphasize the importance of the revitalization of Lower Manhattan and the WTC Site, and the simultaneous preservation of the site as a place of remembrance and memorial. They call for the restoration of transit services and of the street grid, and the elimination of Route 9A as a barrier between the Financial District and Battery Park City. Excellence and sustainability in new design and engineering (including "green building" technology) are also factors. Key principles of the Revised Blueprint also call for the revitalization and development of cultural facilities, retail/commercial opportunities, parks, historic resources, and residential spaces that will enhance and revive Lower Manhattan as a center of new financial, cultural, and community activity. As such, LMDC efforts are directed at more than physical construction projects, and the *Revised Blueprint* document guides agency policy decisions beyond the Memorial and redevelopment plans.

PRELIMINARY DESIGN CONCEPTS

The team of Beyer Blinder Belle Architects and Planners LLP and Parsons, Brinckerhoff, Quade and Douglas, Inc., was selected through a request for proposals process to conduct a study of options for the WTC Site, adjacent areas, and related transportation infrastructure. LMDC and the Port Authority released six initial concept plans guided by this study of options and by the *Revised Blueprint* to the public on July 16, 2002. Each of the six concept design plans included traffic and pedestrian patterns for the site and surrounding area, development of mixed-use retail and commercial space, and potential residential development south of Liberty Street. Each concept design included plans for Memorial sites, open space, and a significant skyline structure.

LMDC and the Port Authority conducted an extensive outreach program to solicit public comment on the six preliminary design concepts. On July 20 and July 22, 2002, the LMDC and The Port Authority sponsored interactive town hall meetings to discuss the concepts. The meetings, part of a series entitled *Listening to the City*, were held at the Jacob Javits Center in Midtown Manhattan, and were attended by over 4,500 people representing a diverse demographic and geographic population. Through September 30, 2002, LMDC received, categorized, and summarized over 10,000 public comments on the preliminary design concepts submitted via email, at public hearings, through public comment brochures, and by letter. LMDC released a report on the process in October 2002 entitled *The Public Dialogue: Phase I*.

The general consensus of both the *Listening to the City* series and the over 1,000 additional public comments received by LMDC at an exhibit located at Federal Hall revealed dissatisfaction with the six proposals. The public made clear a firm desire to see the Memorial planning and site planning more closely linked, and to create a new 24-hour downtown that mixes commerce, culture, and residences for all income levels. Public response also called for bold, innovative architecture that would restore the iconography of the lost skyline; re-establishment of the street grid, better pedestrian connections across Route 9A (between Battery Park City and points east); creation of an interconnected transportation hub; a reduction of commercial density on the site; potential for cultural/civic facilities; and open space. These common ideas and elements informed the next phase of planning for development.

INNOVATIVE DESIGN STUDY

In response to public sentiment, LMDC initiated an Innovative Design Study for the WTC Site through a Request for Qualifications for Innovative Designs for the World Trade Center issued in August 2002. To guide the design teams selected, LMDC synthesized the public input from the outreach campaign in a program document entitled *A Vision for Lower Manhattan: Context and Program for the Innovative Design Study* (*Vision for Lower Manhattan*). The program called for, among other elements, an appropriate setting for a memorial, a bold new skyline to rise in Lower Manhattan, better-connected Downtown neighborhoods, and a range of uses.

Through an open and competitive process, seven design teams were ultimately invited to participate: Foster and Partners; Meier Eisenman Gwathmey Holl; Petersen/Littenberg; Skidmore, Owings and Merrill Team; United Architects; Studio Daniel Libeskind; and the THINK team (Viñoly, Schwartz, Ban, Smith).

Nine designs by the teams were presented to the public in December 2002. Each of the nine designs featured a combination of commercial space, public space, and cultural facilities. Each design also included Memorial areas that incorporated the footprints of the Twin Towers and each contained one or more towers of significant height to restore the skyline.

PLANS IN PROGRESS

In coordination with the release of the nine designs to the public, LMDC launched *Plans in Progress*, one of the most ambitious public outreach campaigns ever undertaken. *Plans in Progress* included multiple ways for the public to view and comment on the nine design concepts, including the internet, several public hearings and a major exhibition at the Winter Garden in Battery Park City that drew over 100,000 people. LMDC utilized extensive print, mail, electronic, and direct distribution methods to publicize the hearings and solicit comment. LMDC conducted briefings on the nine design concepts with LMDC Advisory Councils, including residents, victims' families, and members of civic organizations and environmental conservation and historic preservation groups, and LMDC sent a mailing with *Plans in Progress* campaign and input information to more than 5,000 members of victims' families (including the 1993 families) and to every city, state, and federal elected official in New York State. LMDC also invited public comment through its website and through email, fax, and regular mail. LMDC staff reviewed in detail the over 13,000 public comments solicited through *Plans in Progress*. Results of the public outreach campaign were published by LMDC in March 2003 in a document entitled *The Public Dialogue: Innovative Design Study*.

SELECTION OF THE MEMORIAL AND REDEVELOPMENT PLAN

LMDC and the Port Authority evaluated each of the nine designs against a series of quantitative and qualitative factors, including the comprehensive record of public comment. LMDC and the Port Authority also conducted an extensive feasibility analysis of each design. The agencies based the evaluation on numerous factors including: Memorial setting, program, parcels/street pattern, public response, vision, connectivity, phasing, public realm, private development, and cost.

Although all of the designs had positive elements, LMDC and the Port Authority determined that two of the design concepts best satisfied the selection criteria—Studio Daniel Libeskind's Memory Foundations and the THINK team's World Cultural Center. Ninety-two percent of the public comments received by LMDC gave Memory Foundations a positive rating. Popular elements of the design included its approach to restoring the skyline, and its use of the slurry wall and bathtub area for the Memorial. There was favorable response to the open space and parks, particularly Wedge of Light Plaza. Ninety percent of the comments received were also favorable toward the THINK World Cultural Center. Many responded favorably to its approach to restoring the skyline and its inclusion of cultural and civic facilities. There was positive interest in the Memorial context and setting, though some concern about its feasibility.

Based on further refinements and evaluation by LMDC, the Port Authority, and other government officials, Governor Pataki and Mayor Bloomberg announced on February 27, 2003, that Studio Daniel Libeskind's Memory Foundations had been selected as the basis for the redevelopment plan. The selection team noted that the Memory Foundations design best reconciled the need to preserve the setting and remember those whose lives were lost with the need to rebuild what was lost and bring vitality back to the area. The World Cultural Center Design submitted by the THINK team was analyzed as an alternative in the FGEIS (see Section 2.0 below).

Following the selection of Memory Foundations, LMDC, together with the Port Authority, entered into agreements with Studio Daniel Libeskind to refine the design concept; to serve as the architect consultant for overall redevelopment of the WTC Site; and to develop design guidelines for future commercial development and related open space at the WTC Site in coordination with the Port Authority, LMDC and Silverstein Properties.

Based on comments received during the scoping process from the public, the LMDC Advisory Councils, and other concerned parties, as well as on engineering considerations, LMDC, the Port Authority, and Studio Daniel Libeskind continued to refine the Plan concept to include the Southern Site and possibly Site 26 in Battery Park City. The purpose of this refinement was to explore locating the bus parking off of the WTC Site, to reduce the density of office towers on the WTC Site, and to increase open space. In December 2003, the design for Freedom Tower was announced. This design modified the building footprint to accommodate the unique design and functions of Freedom Tower.

As described in Section 1.3.6, the Memorial Competition jury selected the Memorial design concept, "Reflecting Absence" in early January 2004. The selected design included an at-grade plaza with clusters of trees and attractive landscaping with two large "voids" occupied by pools of water. The cultural building parcels and Memorial Center were also relocated within the Memorial quadrant.

In late January 2004, after the Port Authority had unveiled its plan for the permanent WTC PATH Terminal designed by Santiago Calatrava, Tower 3 was moved south in order to provide a view corridor between it and the PATH Terminal.

Following the release of the DGEIS and receipt of comments on the DGEIS and GPP during and following the public hearings on February 18, 2004, LMDC continued to refine the Plan,

including the Memorial design, and the configuration of the Memorial Center and cultural buildings. LMDC also eliminated Site 26 as a possible location for the bus garage and proposed to acquire and undertake the clean-up and deconstruction of 130 Liberty Street on the Southern Site. During the preparation of the FGEIS, LMDC considered and analyzed several additional alternatives, including an At-Grade Loading Alternative intended to simplify the infrastructure requirements for Freedom Tower and the performing arts center. Following release of the FGEIS, LMDC has continued to refine this alternative as the Northern Service Option.

LMDC has also engaged in a parallel review process under Section 106 of the NHPA, as explained in more detail in Section 1.5. Through this process, LMDC has sought to avoid or minimize any potential for adverse effects to any historic resources on the Project Site. To that end, LMDC announced in April 2004 the formation of a Memorial Center Advisory Committee to guide the development of program elements and the curatorial mission of the Memorial Center. As part of its role, the Memorial Center Advisory Committee will assist LMDC in reviewing suggestions from consulting parties that participated in the Section 106 review process and other members of the public with respect to the display at the Memorial Center of artifacts removed from the WTC Site.

Based on the Memory Foundations concept, public input, selection of "Reflecting Absence" and other planning efforts, the refinements described above are all part of the Selected Project, as described in this ROD and Findings Statement.

1.4.2 Public Participation for Environmental Plan Review

The following actions have been taken pursuant to all applicable laws, regulations, orders and guidelines regarding the environmental review process:

June 17, 2003 - LMDC Board adopted the General Project Plan (GPP) pursuant to the Urban Development Corporation Act (UDC Act), approved the Lead Agency Declaration, made the NEPA Determination of Potentially Significant Impact, approved the Positive Declaration under SEQRA, approved the Draft Scope for the GEIS, and authorized the public hearing for the GPP and public meeting on the Draft Scope.

June 20, 2003 - LMDC posted on its website the Notice of Intent to prepare a GEIS under NEPA, the Positive Declaration under SEQRA, the Draft Scope for the GEIS, and Notice of LMDC Public Comment Meeting on Draft Scope. LMDC circulated copies of the Draft Scope to Cooperating/Involved Governmental Entities and made copies available to other governmental agencies, community organizations, businesses, and the public.

June 23-27, 2003 - LMDC published notices of intent to prepare a GEIS, announcing the public comment meetings and inviting public comments on the Draft Scope.

July 7, 2003 - The notice of intent to prepare a GEIS, announcing the public comment meetings and inviting public comments of the Draft Scope was also published in the *Federal Register* and *New York State Environmental Notice Bulletin* (*ENB*).

July 23, 2003 - LMDC held public comment meetings on the Draft Scope and presented an overview of its contents, including alternatives for analysis.

August 4, 2003 - Public comment period on the Draft Scope closed.

September 16, 2003 - In response to public comments and other considerations, LMDC Board approved the Amended GPP including the Southern Site and Battery Park City Site 26, as well as the Final Scope for the GEIS.

September 17, 2003 - LMDC posted the Final Scope and Amended GPP on its website and made copies available to government agencies, community organizations, businesses, and the public.

January 16, 2004 - LMDC published notices of the Amended GPP public hearings on February 18, 2004 and inviting public comment on the Amended GPP in the New York City Record and newspapers.

January 20, 2004 - LMDC Board approved the DGEIS.

January 22, 2004 - LMDC distributed the DGEIS, and posted the DGEIS on the LMDC website.

January 23-February 6, 2004 - LMDC published notices of availability of, announcing public hearings for and inviting public comment on the DGEIS.

January 23, 2004 - The notice of availability of, announcing public hearings for and inviting public comment on the DGEIS was also published by HUD in the *Federal Register*.

January 28, 2004 - The notice of availability of the DGEIS, announcing public hearings for and inviting public comment on the DGEIS was also published in the *ENB*.

January 30, 2004 - The notice of availability of the DGEIS was also published by EPA in the *Federal Register*.

February 18, 2004 - Public hearings were held in the afternoon and evening at Pace University to receive comment on the DGEIS and Amended GPP.

March 15, 2004- Public comment period on the DGEIS closed.

March 19, 2004 - Public comment period on the Amended GPP closed.

April 13, 2004 - LMDC Board approved the FGEIS.

April 15, 2004 - LMDC distributed the FGEIS.

April 16, 2004 - LMDC posted the FGEIS on the LMDC website, and published notices of completion and availability of and inviting public comment on FGEIS in the newspapers.

April 21, 2004 - The notice of completion and availability of and inviting public comment on the FGEIS was also published in the *ENB*.

April 23, 2004 - The notice of completion and availability of the FGEIS was also published by EPA in the *Federal Register*.

April 27, 2004 - The notice of completion and availability of and inviting public comment on FGEIS was also published by HUD in the *Federal Register*.

May 24, 2004 - Public comment period on the FGEIS closed.

This ROD and Findings Statement will be circulated and the notice of availability will be published in newspapers and the *Federal Register*.

The FGEIS and its supporting documentation are incorporated by reference into this ROD and Findings Statement. The DGEIS and FGEIS (along with this ROD and Findings Statement) are on file in the offices of LMDC at One Liberty Plaza, 20th Floor, New York, New York and are also available at the following locations:

Chatham Square Library
33 East Broadway
New York, NY 10007

New Amsterdam Library
9 Murray Street
New York, NY 10002

Hamilton Fish Library
415 East Houston Street
New York, NY 10002

Hudson Park Library
66 Leroy Street
New York, NY 10007

Humanities and Social Sciences Library
476 Fifth Avenue
New York, NY 10028

Manhattan Community Board #1
49-51 Chambers Street #715
New York, NY 10007

Manhattan Community Board #2
3 Washington Square Village
New York, NY 10012

Manhattan Community Board #3
59 East 4th Street
New York, NY 10003

Additional information on the Selected Project can be obtained on LMDC's website: www.RenewNYC.com in the "Planning, Design & Development" section, or by contacting William H. Kelley, Planning Project Manager, Lower Manhattan Development Corporation, One Liberty Plaza, 20th Floor, New York, NY 10006; Telephone: (212) 962-2300; Fax: (212) 962-2431; E-mail: wtcenvironmental@renewnyc.com.

1.5 Review under Section 106 of the National Historic Preservation Act

The NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. Due to the proximity to the WTC Site of their respective proposed undertakings, LMDC, the Federal Transit Administration (FTA), and Federal Highway Administration (FHWA) coordinated the Section 106 process in determining the eligibility of the

WTC Site. This coordinated process included jointly hosting meetings with the State Historic Preservation Officer (SHPO), in New York the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), and a broad range of consulting parties, including organizations representing preservation, civic, neighborhood, and family concerns, in order to receive their input. The coordinated process concluded on March 31, 2004 with the Coordinated Determination of National Register Eligibility for the WTC Site (Coordinated DOE) finding the entire WTC Site eligible for listing.

While the determination of eligibility of the WTC Site for listing in the National Register was a coordinated process, LMDC, FTA and FHWA are performing their own assessments of effects and identification of mitigation measures, as necessary. To that end, on February 9, 2004, LMDC released for comment the World Trade Center Memorial and Redevelopment Plan Proposed Finding of No Adverse Effect under Section 106 of the National Historic Preservation Act (Proposed Finding). LMDC hosted several meetings with the SHPO and a broad range of consulting parties in order to receive their input on the Proposed Finding. Substantial input was provided by the consulting parties.

After consideration of such comments and in consultation with the Advisory Council on Historic Preservation (ACHP) and the SHPO, LMDC released a draft Programmatic Agreement on March 25, 2004 that addressed specific commitments relating to remnants on the WTC Site, consideration of artifacts removed from the site, treatment of archaeological resources, and any potential adverse effects on historic resources. After consideration of public comments on the draft Programmatic Agreement and in consultation with ACHP and the SHPO, LMDC executed the World Trade Center Memorial and Redevelopment Plan Programmatic Agreement, dated April 22, 2004 (Programmatic Agreement). (A copy of the Programmatic Agreement is attached as Appendix E.) In so doing, LMDC satisfied its Section 106 responsibilities for all undertakings covered by the Programmatic Agreement. The Programmatic Agreement is intended to address any unanticipated or adverse effects on historic resources or properties that may occur as a result of the Selected Project's implementation and, in particular, to provide further opportunity for SHPO and the consulting parties to comment on plans for the Memorial and the Project Site as they are developed in order to avoid or minimize any potential for adverse effects to any historic resources on the Project Site. Consistent with the Programmatic Agreement, LMDC has continued to meet with the SHPO and the consulting parties to review the progress of the Selected Project as it relates to historic resources on the Project Site. The Programmatic Agreement also sets forth a review process for artifacts removed from the WTC Site and specifies procedures for treatment of archaeological resources.

In addition, LMDC also used the NEPA process, as outlined in Section 1.4, to provide additional opportunity for comment by the public, SHPO, ACHP and a broad range of consulting parties.

The execution and implementation of the Programmatic Agreement evidences LMDC's compliance with its Section 106 responsibilities under the NHPA and that it has afforded ACHP a reasonable opportunity to comment and that LMDC has taken into account the effects of the Selected Project on historic resources and properties. Further, LMDC has complied with its obligations under the New York State Historic Preservation Act (SHPA) through the Section 106

review process, which included consultation with the SHPO, and that LMDC is taking all feasible and prudent steps to avoid or mitigate any adverse impacts on historic properties.

1.6 Other Statutory Reviews

1.6.1 Review under the New York State Urban Development Corporation Act

Pursuant to the UDC Act, the Board of Directors of LMDC adopted the General Project Plan for the World Trade Center Memorial and Cultural Program (Memorial Program) on June 17, 2003. The General Project Plan was subsequently amended by the Board on September 16, 2003 to include the acquisition and development of the Southern Site (Amended GPP). The Memorial Program, for which construction is expected to begin on or before January 2005, includes the planning, selection, coordination and construction of a Memorial and Memorial Center, and the planning and possible construction of memorial-related improvements and cultural uses at the Project Site to complement the redevelopment by the Port Authority of commercial office space, retail space, conference center and hotel facilities, open space areas, a reconstructed church and certain infrastructure improvements at the Project Site (Redevelopment Program). These Programs together constitute a land use improvement and civic project for the redevelopment of the Project Site (through the Selected Project) to be implemented by LMDC and the Port Authority.

In addition to the milestones relating to the Amended GPP described in Section 1.4.2, a copy of the Amended GPP was distributed, as required by statute, on November 17, 2003. The Amended GPP and the findings required pursuant to Section 10 of the UDC Act were filed in the offices of the Clerks of the County and City of New York on December 16, 2003. At the public hearings on February 18, 2004 on the Amended GPP and DGEIS, LMDC presented an illustrative site plan and subsequently posted the plan on its website. LMDC has since modified the Amended GPP, and that Amended GPP will be submitted to the Board of Directors of LMDC on June 2, 2004 for affirmation in connection with the consideration of this ROD and Findings Statement.

1.6.2 Condemnation Proceedings Pursuant to the New York State Eminent Domain Procedure Law

Pursuant to the New York State Eminent Domain Procedure Law (EDPL) and Section 6 of the UDC Act, LMDC held a public hearing on May 18, 2004 concerning the proposed acquisition of a portion of the Southern Site commonly known as 130 Liberty Street. Notices of the hearing were distributed on May 3, 2004, and published in the *City Record* and a local newspaper on May 3 through May 7, 2004. A determination and findings concerning this acquisition was prepared following receipt of public comment and will be presented to the Board of Directors of LMDC for adoption on June 2, 2004. Prior to any acquisition of land, the LMDC will publish all required notices, and comply with any and all other provisions of the EDPL, UDC Act, or any other applicable provision of law.

1.6.3 Conformity Review under the Clean Air Act

The Clean Air Act (CAA) requires each federal agency to make a determination as to whether its federal action (i.e., issuance of a permit or funding assistance) conforms to the applicable State

Implementation Plan (SIP). A SIP is a state's plan on how it will meet the National Ambient Air Quality Standards (NAAQS) under the deadlines established by the CAA. The general conformity requirements in 40 CFR Part 93, Subpart B, apply to those federal actions that are located in a non-attainment or maintenance area, and that are not subject to transportation conformity requirements at 40 CFR Part 51, Subpart T, or Part 93, Subpart A, where the action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants (or precursors, in the case of ozone) at emission rates equal to or exceeding the prescribed rates at 40 CFR § 93.153(b), or where the action encompasses 10 percent or more of a non-attainment area's or maintenance area's total emissions inventory for that pollutant. In the case of New York City, the prescribed annual rates are 25 tons of volatile organic compounds (VOCs) or nitrogen oxides (NO_x), 100 tons of carbon monoxide (CO), and in New York County only, 100 tons of particulate matter sized 10 microns or less (PM_{10}).

LMDC determined that the total annual direct and indirect emissions of CO, VOCs and PM_{10} from the federally-funded portions of the Selected Project that could be applicable to the general conformity regulations are less than the rates prescribed in 40 CFR Part 93. Temporarily, during some of the construction years, annual NO_x emissions are predicted to exceed the prescribed rate of 25 tons per year; accordingly, LMDC concluded that a determination of conformity with the ozone SIP is required. On April 30, 2004, LMDC completed its draft conformity determination. Notice of the availability of the draft conformity determination, including the basis and presumptions of that determination, were published in a local newspaper and the *Federal Register* on May 7 and May 12, 2004, respectively. (A copy of the Draft Conformity Determination is attached as Appendix F.) The comment period on the draft conformity determination ends June 11, 2004. After consideration of comments received, LMDC will release a final conformity determination and thereafter request release of HUD funds.

1.6.4 Determinations on Floodplain Management

Executive Order 11988 requires federal agencies to consider alternatives to avoid adverse effects and incompatible development in the floodplain. 24 CFR Part 55, "Floodplain Management," establishes an eight step process to evaluate the potential effects of any action in the floodplain, including minimizing the proposed action's impact on floodplains and examining practicable alternatives. Article 36 of the Environmental Conservation Law (6 NYCRR Part 502, "Floodplain Management Criteria for State Projects") also requires an alternatives analysis and that any projects constructed within the flood hazard area be consistent with the need to minimize flood damage. Further, 6 NYCRR Part 502 requires that no project be undertaken unless it is shown that the cumulative effect of the proposed project, when combined with all existing development, will not cause any material flood damage to such existing development.

LMDC, through the issuance of the DGEIS and FGEIS, satisfied federal and state floodplain management requirements. The initial floodplain analysis was conducted in the DGEIS, which was distributed on January 22, 2004. On January 30, 2004, LMDC published the Notice of Early Public Review of Proposal in the 100-Year Floodplain inviting public comment. The Selected Project was re-evaluated in the FGEIS, which concluded that there would be no significant adverse impact from situating the Selected Project in the floodplain and that there is no practicable alternatives. On April 15, 2004 the FGEIS was distributed and starting on April 16, 2004, LMDC published a combined Notice of Completion and Availability of FGEIS and Notice

and Public Explanation of Proposed Activity in the 100-Year Floodplain in the newspapers, inviting public comment.

1.6.5 Coastal Zone Consistency Determination

The Coast Zone Management Act of 1972 (CZMA) delegates authority and responsibilities to individual states to determine compliance with both the CZMA and approved state management plans. The New York State Waterfront Revitalization and Coastal Resources Act of 1981 led to the creation of the Coastal Management Program (CMP), a program that established 44 state policies and designated five coastal zones, including one in New York City. The CMP also requires state agencies undertaking actions within the coastal zone to make a determination of consistency with state and local coastal area policies and file such determinations with the New York State Department of State (NYSDOS). For activities requiring federal agency funding or approval, NYSDOS reviews such activities for their consistency with the CMP or approved local waterfront revitalization program. New York City's Local Waterfront Revitalization Program contains 10 city specific policies. LMDC complied with the CZMA through the issuance of the FGEIS which demonstrates the Selected Project is consistent with all 10 city coastal zone policies and which also contains the completed Coastal Zone Consistency Form.[3]

1.6.6 Environmental Justice

Executive Order 12898 requires each federal agency to include environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. The Council on Environmental Quality issued guidance on how to address environmental justice issues in conjunction with NEPA. Guidance on environmental justice issued by the New York State Department of Environmental Conservation (NYSDEC) outlines similar goals and analysis considerations. LMDC complied with federal and state requirements through the environmental review process, which included a public outreach and participation program as outlined above and in Chapter 20, "Environmental Justice," of the FGEIS and the issuance of the DGEIS and FGEIS, both of which contained an environmental justice assessment.

1.7 Permits and Required Approvals

The Selected Project may require or involve, among others, the following regulatory agency notifications, actions, permits and/or approvals:

FEDERAL

Advisory Council on Historic Preservation (ACHP)— Ongoing participation under the Programmatic Agreement executed under Section 106 of National Historic Preservation Act

Department of Housing and Urban Development (HUD)—funding and action plan approval

[3] A draft version of the Coastal Zone Consistency Form was distributed with the DGEIS and a final version was distributed with the FGEIS.

Department of Transportation, Federal Aviation Administration (FAA)—review of building heights

Federal Communications Commission (FCC)—licensing of broadcast antenna

Department of Transportation, Federal Transit Administration (FTA)—possible funding and appropriate related reviews and approvals

Department of Transportation, Federal Highway Administration (FHWA)—possible approval of bus tunnel and truck access ramps and appropriate related reviews and approvals

Federal Emergency Management Agency (FEMA)—possible funding approval

BI-STATE

Port Authority of New York and New Jersey (Port Authority)—plan approval and implementation; possible acquisition of Southern Site

STATE

Lower Manhattan Development Corporation (LMDC)—general project plan approval and implementation; acquisition of the Southern Site; Coastal Zone Consistency determination

Empire State Development Corporation (ESDC)—possible acquisition of the Southern Site

Office of Parks Recreation and Historic Preservation (OPRHP)—review pursuant to State Historic Preservation Act and under the Programmatic Agreement executed under Section 106 of the National Historic Preservation Act

Department of State (NYSDOS)—Coastal Zone Consistency determination for certain federal activities; Coastal Zone Consistency review for state actions

Department of Environmental Conservation (NYSDEC)—possible stationary source and indirect source air permits; possible Phase II stormwater permit, State Pollutant Discharge Elimination System permit; possible protection of waters and tidal wetlands permits and water quality certifications

Department of Transportation (NYSDOT)—possible approvals for below-grade connections to Route 9A and related transportation approvals (with the New York Metropolitan Transportation Council)

NEW YORK CITY

New York City Planning Commission (NYCCPC)—Coastal Zone Consistency review

New York City Department of Transportation (NYCDOT)—review of possible signage, street signal timing and street direction changes

In addition, agreement, approval, or consent of the City of New York may be required for the transfer of the Southern Site to the Port Authority and other property transfers related to the Project Site.

1.8 Completion Dates

It is anticipated that the Selected Project will be constructed in several phases. The first phase, scheduled for completion by 2009, will include the Memorial, the Memorial Center, and cultural

buildings, the below-grade levels across the Project Site, Freedom Tower, up to 1 million square feet of retail, streets, and all the proposed open space. Remaining phases, principally the additional office towers and hotel, are expected to be completed by 2015.

2.0 ALTERNATIVES CONSIDERED

As described above, the Selected Project has been developed to: (1) create an appropriate memorial to honor the victims and heroes of September 11, 2001, and February 26, 1993, and provide opportunities for quiet reflection for all those touched by those tragic events; (2) restore the historic role of the WTC Site in the commercial life of the city, state, and nation; and (3) contribute to the growing residential, retail, and cultural vitality of Lower Manhattan. The Selected Project that emerged from LMDC's planning process—after unprecedented public involvement—seeks to realize these goals by combining the proposed Memorial and Memorial Center with commercial, cultural, open space, street, and infrastructure uses in a plan.

The Selected Project is not, however, the only option that was considered by LMDC. In addition to the extensive planning process described in Section 1.4, a broad range of alternatives to the Selected Project were described, analyzed and assessed in the DGEIS and FGEIS in terms of each alternative's ability to achieve the overall stated purpose and need. In addition, Battery Park City Site 26 was considered as a potential location for a below-grade bus parking garage and was evaluated as such in the DGEIS.

2.1 No Action Alternative

In the No Action Alternative, none of the proposed development would take place, and the WTC Site would be left in approximately its present condition after completion of the permanent WTC PATH Terminal and interim improvements. The Southern Site would not be redeveloped with office and open space uses as part of the Selected Project under this alternative. It is assumed that the Southern Site would be independently redeveloped with office uses.

Overall, with this alternative the WTC Site would remain substantially underutilized. A significant redevelopment opportunity for Lower Manhattan in general and the WTC Site in particular, would not be realized. Commercial space, employment, and open space and other amenities would not be restored to the area. Most importantly, the primary goal of creating a Memorial on the site would not be met. The history of the site and resources of the area would not be recognized, and providing no Memorial or redevelopment would result in a significant adverse impact to the neighborhood character of Lower Manhattan. This alternative would not respond as effectively as the Selected Project to the underlying purpose and need as set forth in Section 1.2. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.2 Restoration Alternative

The Restoration Alternative would restore the WTC Site substantially as it existed before September 11, 2001. Under this alternative, two towers approximating the original Twin Towers would be developed on the WTC Site. It is assumed that Southern Site would be redeveloped

independently. As with the other alternatives, the permanent WTC PATH Terminal and interim improvements would also be completed independently.

Like the Selected Project, this alternative would seek to avoid encroaching on the footprints of the former towers. In preserving the footprints, the two new towers would be shifted to the north and east of the site. As a result, not enough space would remain on the site to create open space comparable to Austin J. Tobin Plaza, and there would be significantly reduced open space ratios under this alternative as compared with the Selected Project. This alternative would not integrate design elements into the surrounding neighborhood. The Southern Site would be redeveloped without the mitigation measures incorporated into the Selected Project, which could result in potential adverse impacts on historic and archaeological resources under this alternative. This alternative would not respond as effectively as the Selected Project to the underlying purpose and need as set forth in Section 1.2. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.3 THINK World Cultural Center

The major design features of the World Cultural Center plan would be two open-lattice towers built around the footprints of the former towers. In each new tower, a memorial would be located toward the top of the latticework, with other cultural uses including a museum and performing arts center below. A series of pedestrian bridges would cross through the site, intersect between the two towers, and extend across Route 9A to Battery Park City. Commercial development would take place in office towers surrounding the memorial site. Fulton and Greenwich Streets would be reopened to pedestrian and vehicular traffic. The area south of Liberty Street would contain a mix of office, hotel, and retail uses.

An important difference between the Selected Project and this alternative is the use of the Southern Site along Liberty Street, which under this alternative would be developed with buildings instead of being converted into open space. No significant impacts to land use would be expected.

Preliminary estimates for this alternative have revealed a high cost for construction and infrastructure development. There are also issues of structural compatibility with the permanent WTC PATH Terminal. In addition, it is likely that the construction and operational costs for the cultural tenants of the towers would require subsidies. This alternative would not respond as effectively as the Selected Project to the underlying purpose and need as set forth in Section 1.2. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.4 Memorial Only Alternative

Under this alternative, development would be limited on the WTC Site to the Memorial as well as museum and open space uses. There would be no office, retail, non-Memorial cultural uses, or other such uses. Under this alternative, Greenwich and Fulton Streets would not be extended, and the Southern Site would not be included as part of the Project Site.

This alternative would fulfill part of the purpose and need through the creation of a Memorial occupying nearly the entire WTC Site (along with the independent permanent WTC PATH Terminal and other improvements). With this alternative, however, the WTC Site would not achieve the full purpose and need. It would not result in a significant redevelopment opportunity for Lower Manhattan in general and the WTC Site in particular, and would not restore commercial space, employment, and other amenities to the area. By not developing cultural, commercial, and community resources, it would fail to turn Lower Manhattan into the vibrant space that was called for in a significant amount of public response to the redevelopment plans. None of the other benefits identified for the Selected Project (described in Section 3.0) would be realized, but many of the same adverse impacts would result. This alternative would not respond as effectively as the Selected Project to the underlying purpose and need as set forth in Section 1.2. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.5 WTC Site Only Alternative

The WTC Site Only Alternative would locate the entire program on the 16-acre WTC Site; the Southern Site would not be included but could be redeveloped independently at some time in the future. Under this alternative, the WTC Site would include up to approximately 10 million square feet of commercial office space in four towers, as well as other uses.

The site plan would be similar to that of the Selected Project in that Towers 1 through 4 would be in approximately the same locations. However, to accommodate the ten million square feet of office use, each of the buildings under this alternative would be larger compared to those under the Selected Project.[4]

This alternative would have the same amount of open space on the WTC Site as the Selected Project; however, there would be no open space on the Southern Site. Compared to the Selected Project, this would result in less open space as well as fewer associated benefits to neighborhood character. Since the Southern Site would be developed by its respective owners under this alternative, without the mitigation measures incorporated into the Selected Project, potential adverse impacts could occur under this alternative to historic and archaeological resources.

By eliminating development of the Southern Site, there would also be less space available for infrastructure and tour bus parking amenities. The only development option for a tour bus parking facility on the WTC Site would encroach upon the Memorial, and possibly the footprints, or both. Alternatively, no bus parking at all could be included on the WTC Site. This alternative would not respond as effectively as the Selected Project to the underlying purpose and need as set forth in Section 1.2. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

[4] The DGEIS also examined this alternative with five towers.

2.6 Cogeneration Alternative

A cogeneration facility would be constructed on the Project Site under this alternative to serve as a source of energy for the Selected Project. Cogeneration involves the simultaneous production of both electric and thermal energy from a single source of fuel. Cogeneration is considered a more efficient use of power generated by fossil fuel than that available through reliance on local electric grids. A cogeneration facility would also add an increased level of reliability in the case of a local or regional power failure.

With the exception of the cogeneration facility, this alternative would have the same basic program elements and site design as the Selected Project. Therefore, its effects would be largely the same except in the technical areas of infrastructure, air quality, and noise. This alternative would result in increased air emissions and potentially increased noise levels. In addition, the facility would require space on the Project Site, thereby decreasing the amount of available space for other project components. If this alternative were to be pursued, it would be subject to further environmental assessment and permitting requirements.

2.7 Enhanced Green Construction Alternative

Many environmental management practices, construction practices, and design measures have been incorporated into the Selected Project. LMDC has sought to advance sustainable environmental excellence in design, construction and function of buildings and related infrastructure at the Project Site. The specific goals that have been identified include: to identify green building guidelines to be followed in redevelopment; to minimize energy consumption and air emissions resulting from energy consumption and traffic; to optimize water usage; to plan for efficient waste removal and movement of goods; and to provide quality open green space for public use and appreciation.

The *Sustainable Design Guidelines* for the Project Site establish a blueprint for sustainable design to be incorporated into the future structures and practices. The guidelines address the overall objectives for potential sustainable measures on the Project Site. These include air quality, energy conservation, water quality and conservation, material conservation, solar resource management, and construction practices.

Since many sustainable design measures have been incorporated into the Selected Project, including wind turbines proposed for Freedom Tower, this alternative considered the environmental benefits and costs of noteworthy measures and practices not already incorporated into the Selected Project as noted below. Although certain measures and practices presented in this alternative could have some additional environmental benefits as discussed below, LMDC believes that, for the reasons specified with respect to each alternative, they are either unlikely to be feasible for economic, technical or other reasons or would have other adverse environmental impacts that outweigh the benefits of the alternative.

2.7.1 Movement of Goods and Waste via PATH

Ways to enhance goods delivery and waste management have been examined by LMDC and the Port Authority. One consideration that the public has expressed interest in seeing is the handling of goods and waste by using the PATH lines that run under the WTC Site.

Due to the nature of PATH's construction and scheduling methods, however, attempting to create a mixed-use service incorporating waste removal with PATH's public transportation service would be costly and would diminish the capacity and attractiveness of PATH service. It would also eliminate the potential for necessary maintenance activities and would increase the risk of suspended passenger service.

Overall, the Port Authority/PATH does not consider the use of the PATH system for goods movement and waste removal to be in the public interest, and this alternative is not considered feasible for economic and technical reasons. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.7.2 Waterborne Goods and Waste Handling

Waterborne transportation is an alternative that might offer benefits in the form of reduced traffic congestion and improved air quality. However, the Project Site is not directly accessible by water for goods movement, and some form of access would need to be established. Suppliers or distributors sending goods to the site would also need such access. Waste transfer would require creation of a marine transfer station, which raises issues of compatibility with other waterfront land uses, odors, and conveyance of materials from the Project Site to the transfer station. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.7.3 Bio-Fuel and Composting

Through anaerobic digestion, waste can be broken down into a methane-rich gas and burned to generate electricity. Additional byproducts are water and compost. It is estimated that a bio-fuel plant would require approximately 100,000 square feet, would process 130 tons of waste and 800 gallons of water a day, and could generate 1 to 2 megawatt hours (MWh) of electricity. Although it would provide some benefits, given the severe space constraints of the site, this option has not been selected for implementation. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.7.4 Enhanced Cogeneration

As noted above, LMDC could explore the possibility of locating a cogeneration facility on the Project Site as project design continues. A full analysis of a 30-megawatt (MW) centralized cogeneration facility or smaller individualized generation plants was provided in the FGEIS. LMDC is also considering the possibility of the construction of a larger cogeneration facility on the Project Site, such as a facility that could provide up to 70 MW of clean power for all the uses under the Selected Project. While this alternative would have higher emissions than a smaller cogeneration facility, the emissions per kilowatt hour of electricity would likely be less. The

predicted impacts to ambient air quality from a 30 MW cogeneration facility are well below ambient air quality standards, significant impact levels and New York State and City interim guidance thresholds. Impacts from a 70 MW facility are likewise expected to be less than these thresholds. As stated above, if this alternative were to be pursued, it would be subject to further environmental assessment and permitting requirements.

2.8 Reduced Impact Alternative

A Reduced Impact Alternative would seek to reduce or vary the use, density, and timing of one or more major components of the Selected Project in order to reduce or avoid unmitigated significant environmental impacts, while still satisfying the overall purpose and need of the Selected Project. As the analyses in Chapter 13A, "Traffic and Parking," Chapter 13B, "Transit and Pedestrians," Chapter 21, "Construction Impacts," and Chapter 22, "Mitigation Measures," of the FGEIS make clear, the principal adverse environmental impacts of the Selected Project reflect (1) high background traffic levels in the vicinity of the Project Site in both 2009 and 2015; (2) the addition of a large number of visitor trips to the Memorial in both of these years; and (3) the cumulative effects of the Selected Project and other Lower Manhattan recovery projects during the 2006 peak year construction period.

Defining a Reduced Impact Alternative therefore presents a number of challenges. The Memorial and museum are fundamental to the goals of the Selected Project, but so are the office, retail, and cultural uses that seek to revitalize Lower Manhattan and contribute to the renewal of its neighborhoods. Commercial office space on the Project Site is approximately 15 percent below pre-September 11 levels because of the inclusion of the Southern Site within the Project Site. For this reason, a Reduced Impact Alternative might seek to reduce either the retail, hotel, and conference facility or cultural spaces within the Selected Project or to defer for a year or more construction in order to reduce noise and air quality impacts in 2006.

Preliminary analysis of potential traffic, noise and construction impacts from such an alternative indicated, however, that there would continue to be significant impacts in each of these areas, even with the substantial reduction of one or more of such uses. For example, the vehicular traffic generated with a 40 percent reduction of retail uses and a reduced hotel and conference facility would be only 5-10 percent lower than with the Selected Project and would likely produce about the same number of significant impacts as the Selected Project.

On balance, a Reduced Impact Alternative is unlikely to sufficiently reduce traffic and construction impacts to avoid or mitigate any of the Selected Project's significant environmental impacts. However, such an alternative could seriously affect the ability of the project to support retail and cultural uses and contribute to the revitalization of Lower Manhattan. Depending on market conditions, such an alternative would reduce the economic benefits to the state and city and would also reduce the employment opportunities in Lower Manhattan, compared with the Selected Project. Depending on the configuration of the remaining retail space, this alternative could reduce the opportunity for street-level retail on the Project Site. Construction of essential foundation components that are scheduled to occur in 2006 could not be deferred. Deferral of such construction beyond 2006 would only increase or prolong noise levels in subsequent years, when the Memorial is in operation, and could also delay or limit the ability of the Selected Project to contribute to the renewed economic vitality of Lower Manhattan. This alternative

would diminish rather than enhance the viability of other uses to enhance Lower Manhattan. This alternative would not respond as effectively as the Selected Project to the underlying purpose and need as set forth in Section 1.2. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

2.9 At-Grade Loading Alternative

With the At-Grade Loading Alternative, service and parking access for Freedom Tower, the performing arts center, and approximately 75,000 square feet of retail space on the northwest quadrant of the WTC Site would be separated from the remainder of the Project Site's below-grade service and vehicular circulation network. Access for trucks and vans as well as automobiles would be from Vesey Street. Truck elevators would transport trucks to below-grade loading areas. Similarly, passenger autos for Freedom Tower employees would use at-grade elevators to access below-grade parking. This alternative would require security screening at the east curb of Washington Street between Vesey and Barclay Streets or at another location.

This alternative would significantly reduce the amount of construction necessary, leading to reduced construction impacts, reduced costs and better phasing of the development of the Project Site. Because of these benefits, as discussed in Section 1.3, this alternative has been further refined and is incorporated as an option for vehicular access to the Project Site for the Selected Project. A detailed analysis and discussion of this alternative, now called the "Northern Service Option," is found at Appendix A.

2.10 Cooling Towers Alternative

Under this alternative, individual cooling towers with refrigeration plants would be constructed in each of the office towers and other principal structures of the Selected Project. Use of conventional cooling towers would replace the reactivation of the Hudson River pump station and its cooling water intake system (CWIS) that served the WTC complex prior to September 11. For most analysis areas examined in the FGEIS, this alternative would have impacts that would be substantially the same as those under the Selected Project. However, this alternative would avoid the potential adverse impacts on aquatic organisms of the CWIS described in Chapter 18, "Natural Resources," of the FGEIS. On the other hand, this alternative would forego the energy efficiency for which the CWIS was designed and would consume significantly greater quantities of potable water and electricity than the Selected Project. It would also require substantial amounts of space in each of the office towers and other principal structures of the Selected Project and would require the redesign of significant portions of Freedom Tower. Each of the cooling towers would require approximately 18,000 to 24,000 square feet of floor area and add approximately 30 to 50 feet to the height of each building. This could have significant adverse visual effects and would likely increase the adverse shadow impacts. On balance, the adverse aquatic impacts avoided by this alternative would not outweigh the significant energy efficiency benefits of the CWIS. This alternative would not respond as effectively as the Selected Project to the underlying purpose and need as set forth in Section 1.2. The Selected Project is therefore preferable as a means of achieving LMDC's overall goals and objectives and satisfying that purpose and need.

3.0 ENVIRONMENTAL IMPACTS

3.1 Methodology

Because of the unique historical circumstances, the complexity of the planning context, and the scale of the Plan, the FGEIS presented a range of potential conditions in order to provide a framework for depicting a full consideration of environmental impacts associated with the Plan and the proposed alternatives. Two reference conditions without the Plan were established: (i) the Project Site in its current condition, (Current Conditions Scenario), and (ii) the Project Site before September 11, 2001 (Pre-September 11 Scenario). In addition, two analysis years were evaluated in the FGEIS—2009 and 2015. Finally, potential construction impacts were examined, both individually and cumulatively with other Lower Manhattan transportation recovery projects, for the peak construction year of 2006. The following summarizes the methodology used in preparing the DGEIS and FGEIS.

3.1.1 Current Conditions Scenario

The Current Conditions Scenario was based on the Project Site and surrounding area in its 2003 conditions—the WTC Site vacant except for the temporary WTC PATH station and the No. 1/9 IRT subway lines and the Southern Site, including the former 130 Liberty Street building and plaza, also vacant. The Current Conditions Scenario was then modified to forecast a profile of the future analysis years of 2009 and 2015. This scenario accounted for anticipated construction and public initiatives in the larger study area along with background growth trends to depict a "future without the Proposed Action—Current Conditions Scenario" in which other expected development activity moves forward, but the Project Site remains in its current state. This framework was the basis for adding the overlay of development and activity associated with the Plan and formulating a depiction of the "future with the Proposed Action."

3.1.2 Pre-September 11 Scenario

The Pre-September 11 Scenario was based on a reasonable depiction of conditions that would have been expected in the study area absent the events of September 11—the development and activity that were present on the Project Site prior to September 11, 2001. This scenario was then adjusted to account for projects that had been initiated at that time and would likely have been completed by the 2009 and 2015 analysis years to depict a "future without the Proposed Action—Pre-September 11 Scenario." In most cases, this Pre-September 11 Scenario of the "future without the Proposed Action" was the primary benchmark against which expected impacts of the Plan and proposed alternatives were assessed. That is, impacts were generally identified by comparing the "future with the Proposed Action" to the Pre-September 11 Scenario of the "future without the Proposed Action."

3.1.3 Two Analysis Years

The analyses in the FGEIS evaluated a variety of services and resources accounting for future conditions with and without the Plan in two separate analysis years. The first analysis year, 2009, was chosen to represent a time frame in which the initial phases of the Plan will have been completed. In 2009, it is expected that the Memorial, the Memorial Center, cultural facilities,

Freedom Tower, retail uses, performing arts center, below-grade bus parking and service facilities and the open spaces will be completed. The concourse levels across the WTC Site are also expected to be developed as well as the two surface streets, Fulton and Greenwich Streets. The second year, 2015, was chosen for environmental analysis purposes as the time when full build-out (i.e., the construction of the four additional office towers and hotel) and full occupancy of the Plan may be reasonably anticipated.

3.1.4 Construction Analysis Period

In addition to the construction on the Project Site, a number of major transportation infrastructure projects in Lower Manhattan may be under construction, including the Route 9A Promenade south of Albany Street to Battery Park, the permanent WTC PATH Terminal on the WTC Site, the Fulton Street Transit Center a block east of the WTC Site, the new South Ferry subway terminal near the southern tip of Manhattan, and the Route 9A bypass immediately adjacent to the WTC Site on the west. These other projects are currently undergoing their own separate environmental reviews. Nonetheless, the construction impact analyses in the FGEIS presented both (1) the individual construction-period environmental impacts of the Plan in 2006 and (2) the environmental conditions resulting from the combined impacts in 2006 of the Plan and the other major Lower Manhattan projects discussed above. The analysis of the potential cumulative construction effects focused on five areas of potential concern during the construction period: air quality, access and circulation, cultural resources, noise and vibration, and economic effects.

3.2 Environmental Impacts of the Selected Project

LMDC has considered potential environmental impacts resulting from the Selected Project, as set forth in the FGEIS. Generally, LMDC identified adverse impacts in the FGEIS by comparing the "future with the Proposed Action" to the Pre-September 11 Scenario of the "future without the Proposed Action" in both 2009 and 2015. In some cases, however, where potential impacts arise directly from post-September 11 conditions (e.g., historic resources, hazardous materials or construction activities), the Current Conditions Scenario is used to frame the "future without the Proposed Action." Because the Selected Project incorporates the possible use of the Northern Service Option, the discussion below includes, where appropriate, reference to the potential effects of that Option. The Selected Project will not result in significant adverse environmental impacts beyond those previously identified and analyzed in the FGEIS. Mitigation measures for those areas where significant adverse environmental impacts might occur, as identified in the FGEIS, are fully addressed below.

3.2.1 Land Use and Public Policy

Based on the analysis in the FGEIS, LMDC finds that the Selected Project will not result in any significant adverse impacts to land use, land use trends, or public policy in the 2009 and 2015 analysis years; therefore, no mitigation is warranted.

As fully discussed in the FGEIS, as compared with the Pre-September 11 Scenario, the Selected Project will primarily replace many of the uses that existed before September 11, as well as add a Memorial and new cultural uses. These uses will be consistent with the uses that existed at the

Project Site prior to September 11, as well as those land uses and public policies expected in the future in the surrounding area. The Selected Project will also restore part of the street grid to reintegrate the WTC Site into the surrounding areas of Lower Manhattan and provide better east-west and north-south connections among the neighborhoods surrounding the WTC Site.

As compared to the Current Conditions Scenario, LMDC finds that the Selected Project will transform a large, mostly vacant site into a mixed-use center of cultural, commercial, and open space uses with a Memorial. LMDC has determined that the Selected Project will remove the post-disaster blighted conditions that currently exist at the Project Site, creating a critical mass of mixed-use development that will help to restore Lower Manhattan as a vibrant central business district that attracts and retains businesses, residents, and visitors. These new uses will be consistent with and supportive of the existing and future land uses in the surrounding Lower Manhattan business district, as well as those public policies established in response to the events of September 11.

3.2.2 Urban Design and Visual Resources

Based on the analysis in the FGEIS, LMDC finds that the Selected Project will not result in any significant adverse impacts to urban design or visual resources in the 2009 and 2015 analysis years and thus no mitigation is necessary. Indeed, LMDC is choosing the Selected Project because it is expected to significantly enhance the area's urban design and visual characteristics.

Compared with Pre-September 11 conditions, the Selected Project in 2009 will create new open spaces that will enliven the Project Site and surrounding area. The WTC Site will be divided into four blocks that will integrate better with the urban design of the neighborhood, compared with the superblock that existed prior to September 11. With retail bases complete, there will be more retail frontage on sidewalks than prior to September 11. Freedom Tower will replace the Twin Towers in the skyline, and will reintroduce a modern structure that will be one of the tallest in the United States.

In 2015, completion of the four other office towers will increase bulk along Church Street on the WTC Site and on the south end of the Southern Site. These towers will be in keeping with building uses, heights, and designs on the WTC Site and Southern Site prior to September 11, as well as buildings in the study area. These towers will block views across the WTC Site; however, these views were blocked by development on the Project Site prior to September 11.

Fulton and Greenwich Streets will be extended through the WTC Site, creating new view corridors to the west and east and north and south, respectively. LMDC expects that these street extensions will be beneficial to the neighborhood south of Liberty Street that was isolated by the superblock of the WTC and the lack of view corridors through the WTC Site. These streets will also relate better to the street patterns, block shapes, and streetscape of the study area. The height and design of buildings is similar to the tradition of modern development on the WTC Site, the Southern Site, and the study area.

If the Northern Service Option for vehicular access to the Project Site is used, trucks, vehicle elevators, and automobile parking garage access will become a part of the streetscape on Vesey, Washington, Barclay, and Greenwich Streets. In the first security screening variation under the

Northern Service Option (see Appendix A), trucks will be seen queuing on Washington Street for security checks before entering the truck elevators. Automobiles will also enter and exit the parking garage on Vesey Street. On the Project Site, sidewalks on Vesey Street will be interrupted by driveways and active vehicular movement. The second security screening variation will differ in that trucks bound for Freedom Tower, the performing arts center, and the approximately 75,000 square feet of retail space on the northwest quadrant of the WTC Site will undergo security screening below-grade on the WTC Site as described for the Proposed Action in the FGEIS. This second variation will introduce an active loading and service area to the streetscape along Vesey Street but there will be a reduced presence of truck queuing and security activities, particularly along Washington Street, as compared to the first security screening variation.

The FGEIS also examined the Selected Project's impact on urban design and visual resources under the Current Conditions Scenario and reached the same conclusions as found under the pre-September 11 Scenario. Namely, the Selected Project will create new open spaces that will enliven the Project Site and surrounding area, retail frontage along the sidewalks will increase pedestrian traffic, and the new street extensions through the WTC Site will create new view corridors to the study area that are currently blocked by construction in and around the WTC Site and which will relate better to the street patterns, block shapes, and streetscape of the study area.

3.2.3 Historic Resources

The Selected Project will memorialize the tragic events of September 11 while returning the commercial, open space and other uses that existed on the Project Site on that date and reintroducing streets that pre-existed the WTC. The Memorial has been designed to reflect the former presence of the Twin Towers and to provide access to portions of the west slurry wall and box-beam column bases outlining portions of the perimeters of the former Twin Towers. The Memorial Center will be a museum that will exhibit or incorporate significant artifacts from the former WTC.

Overall, LMDC finds that the Selected Project will serve to enhance the historic significance of the WTC Site and its role in the city's and the nation's consciousness. As discussed below, in implementing the Selected Project, LMDC and the Port Authority will undertake appropriate efforts to avoid, minimize or mitigate any such adverse effects or any unexpected adverse effects on historic resources or properties.

Section 4(f) of the Department of Transportation Act of 1966 requires the Secretary of Transportation to find that there is no feasible and prudent alternative to the use of land of an historic site of national or state or local significance and all possible planning has been undertaken to minimize harm to the 4(f) property prior to approval of a transportation program or project. Because the Selected Project does not require any funding by FTA at this time, Section 4(f) is not applicable. If, at some point in the future, FTA funding were proposed for any portion of the Selected Project that affects such historic resources, additional analysis and review under Section 4(f) would be required. For the reasons set forth in this ROD and Findings Statement, including the terms and conditions of the Programmatic Agreement, the Selected Project would appear to satisfy the requirements of Section 4(f).

Archaeological Resources

As noted in the FGEIS under both the Pre-September 11 and Current Conditions Scenarios, construction of the former Twin Towers and associated excavations on the west side of the WTC Site to create the existing bathtub have limited the potential for significant archaeological resources to exist in this area. However, the north and south portions of the WTC Site east of the No. 1/9 IRT subway and portions of the Southern Site may be potentially sensitive for archaeological resources, such as shaft features (such as privies, cisterns and wells) predating the 1850s as well as wharf and/or cribbing features. In order to identify any potential impacts to archaeological resources, the Port Authority will require an archaeologist to perform Phase IB investigations in those areas.

Architectural Resources

The WTC Site was determined eligible for listing on the National Register of Historic Places based on the events of September 11 and the subsequent rescue and recovery efforts.

The Selected Project is not anticipated to have significant adverse impacts on historic resources on the Project Site—namely the WTC Site itself—or elsewhere in the area of potential effect. However, the Selected Project could have adverse effects on some of the remaining elements at the WTC Site. LMDC has executed a Programmatic Agreement with the SHPO and the Advisory Council on Historic Preservation (ACHP) that will address any potential adverse effects on historic resources on the Project Site and allow for additional consultation with the SHPO and other consulting parties who participated in the Section 106 process on the adequacy of such plans in minimizing or mitigating any such potential effects.

Fulton Street and Greenwich Street will be extended through the WTC Site, restoring the street linkage between historic resources to the north and south of the WTC Site and historic resources east of Church Street with Route 9A. LMDC expects that these street extensions will be particularly beneficial to resources south of Liberty Street that were isolated by construction of the WTC superblock and that are now isolated by the restricted WTC Site.

New office towers will be constructed on the Project Site that will re-introduce tall, modern structures to this portion of the Lower Manhattan skyline. The towers will block views across the now largely open WTC Site to historic resources on the other side. In particular, views of the Barclay-Vesey Building and the Federal Office Building/U.S. Post Office from Church and Liberty Streets, and from the Winter Garden to St. Paul's Chapel and the former East River Savings Bank will be blocked. Views from the corner of Vesey and Church Streets and along Church Street to the Beard Building and 90 West Street will be blocked. Overall, LMDC finds that this change will not have an adverse effect, as the study area has historically been developed with tall, modern structures among smaller-scaled historic buildings. In addition, the Selected Project will be in keeping with the character of the Project Site and surrounding area, which were located in a densely developed urban setting.

The open spaces that are a part of the Selected Project will benefit certain historic resources. Liberty Park will greatly improve the setting of 90 West Street and the Beard Building. It will also generally improve the neighborhood for all the other historic resources south of the Project

Site. Farther north on the WTC Site, Wedge of Light Plaza will link the WTC Site to St. Paul's Chapel and other historic resources east of the WTC Site.

The increased traffic levels expected as a result of the Selected Project will have some effect on the setting of historic resources, but not to a degree that they will constitute an adverse effect on historic resources, since those resources are already located in heavily trafficked areas.

Mitigation

Archaeological Resources
As discussed above, based on the FGEIS, LMDC has determined that the northeast and southeast corners of the WTC Site as well as the portion of the Southern Site between Route 9A and Washington Street may be sensitive for historic period archaeological resources, including shaft features and wharf and/or cribbing features. To avoid or reduce to the extent practicable potential impacts on these resources, the Port Authority will require that a Phase IB investigation be performed. On the Southern Site, the Phase IB investigation will consist of archaeological monitoring during construction. As discussed in Section 1.5, LMDC has entered into a Programmatic Agreement that provides the SHPO and consulting parties with an opportunity to review and submit comments or recommendations on copies or summaries of any proposed plans for such further archaeological investigation (see Appendix E).

Architectural Resources
Because the Selected Project could have an adverse effect on a number of the remaining elements of the WTC that contribute to the WTC Site's historic significance, LMDC has entered into a Programmatic Agreement with the SHPO and the ACHP that includes specific commitments with respect to minimizing or mitigating, through reasonable and practicable steps, any potentially adverse effects to such remnants to the degree consistent with the overall Selected Project, sound engineering practices and relevant construction considerations. The Programmatic Agreement also includes procedures for consultation with the SHPO and those consulting parties who participated in the Section 106 process. In addition, the Programmatic Agreement sets forth procedures, which include consultation with the SHPO and comments by the consulting parties, to address any unanticipated adverse effects or unknown historic resources or properties discovered or identified during the Selected Project's implementation by LMDC, the Port Authority, or any of their contractors, beyond those identified in the FGEIS or the Programmatic Agreement. Further, in implementing the Selected Project, LMDC and the Port Authority have agreed to take appropriate efforts to avoid, minimize or mitigate adverse effects or any unexpected adverse effects on historic resources and properties through the implementation of the EPCs, as described in Section 1.3.9, and a Construction Protection Plan. As contemplated by the Programmatic Agreement, the Port Authority already has begun to document existing conditions and will maintain additional artifacts identified and removed from the WTC Site. In addition, LMDC and the Port Authority will work together on videographic documentation of the site.

3.2.4 Open Space

Based on the analysis in the FGEIS for the Pre-September 11 Scenario, LMDC finds that open space ratios will decrease compared with conditions without the Selected Project. However, the

accessibility, amenities, and comfortable human scale of the new WTC open spaces will be such that overall the Selected Project will not have a significant adverse impact on open spaces in the area in 2009 or 2015. LMDC has also determined that the Selected Project will not have a significant impact on pedestrian-level wind conditions. Therefore, no mitigation is required.

The Selected Project will return open space, as well as open space users, to the Project Site—including new workers and visitors to the Memorial, the Memorial Center, and the cultural facilities. Specifically, the Selected Project will provide approximately 5.62 acres of open space on the Project Site, compared with the 7.41 acres available before September 11. The 5.62 acres will include Liberty Park, Wedge of Light Plaza, PATH Plaza, September 11 Place, and the 2.87-acre publicly accessible open space of the Memorial (but not the two one-acre voids). Approximately 43,900 daily workers are expected to return to the Project Site plus an estimated 24,700 average daily visitors to the Memorial in the years following its opening and approximately 15,100 average daily visitors in later stabilized years. In addition, an estimated 3,600 average daily visitors are expected to use other amenities, such as the museum, cultural facilities, and observation deck. These workers and visitors will create demand for passive open spaces within a short walk of the Project Site.

As discussed in the FGEIS, the Selected Project will decrease the ratio of passive open space to a non-resident user population of 0.23 acres per 1,000 people to 0.22 acres per 1,000 people—a decrease of 6.25 percent. However, comparing the open spaces on the Project Site under the Selected Project with those that would have been there in the future without the Selected Project had the events of September 11 not occurred, it is clear that the Selected Project will provide spaces that will be substantially more accessible to the public than Tobin Plaza at the former WTC and the upper level plaza of 130 Liberty Street.

All of the Selected Project's open spaces will be at street level and immediately adjacent to sidewalks. They will be along Fulton and Liberty Streets on major east-west pedestrian paths. In particular, Liberty Park will extend open space into the densely developed neighborhood south of the WTC, and will be large enough to host the concerts and events formerly held on the WTC Plaza. Wedge of Light Plaza and PATH Plaza will open to Church Street, creating an open space link from September 11 Place to St. Paul's Chapel.

In addition to their accessibility, the open spaces will be designed specifically to be attractive, lively, and inviting. Liberty Park, September 11 Place, the PATH Plaza, and Wedge of Light Plaza will provide passive open space throughout the Project Site. The street levels of all buildings facing the open spaces and plazas will be lined with restaurants and shops. The spaces will have trees and other landscaping, benches and other seating, water features, and other amenities to create attractive places for workers, visitors, and residents to sit, eat, and enjoy the out-of-doors.

The Selected Project will also include the creation of a 4.87-acre Memorial in memory of the events that took place on February 26, 1993 and September 11, 2001—2.87 acres of which will be publicly accessible passive open space. The Memorial will be located in a field of trees interrupted by two large voids containing recessed pools. Located at street level, the landscaped plaza will encourage the daily use of this space. Because the plaza of the Memorial will be

publicly accessible, open to the sky, and encourage visitors to spend time out of doors, its 2.87 acres were included in the open space inventory in the FGEIS. The Memorial will act as the major open space on the Project Site and will be a new and unique open space in Lower Manhattan.

The FGEIS also examined potential open space impacts under the Current Conditions Scenario. LMDC has determined that the Selected Project, for both the Pre-September 11 and Current Conditions Scenarios, even with a decrease in open space ratios, will result in passive open space ratios that exceed the guidelines for both residential and non-residential user populations of the *CEQR Technical Manual* and will not result in any significant adverse impacts.

Regarding pedestrian-level wind conditions, the Selected Project is expected to result in conditions that are comparable to those that existed before September 11. Typically, pedestrian-level wind conditions will be in the comfortable range. However, during some limited time periods, particularly in the Liberty Park area and at building corner locations, uncomfortable conditions may occur, and activities like sitting, standing, and walking may be impeded. In addition, a few hours per year, particularly when high wind speed conditions occur in the New York City area, severe conditions — which may limit activities, produce difficult walking conditions, and, at times, pose potential safety problems that would limit access to some areas— may occur. As part of the final design activities for the Selected Project LMDC will conduct wind tunnel studies to examine measures to reduce undesirable wind effects.

3.2.5 Shadows

LMDC finds that the Selected Project will result in some open spaces receiving additional sunlight and some open spaces receiving additional shadow, compared with conditions prior to September 11. In the winter, Freedom Tower and Tower 2 will cast additional shadow on Washington Market Park, resulting in a significant adverse impact by increasing the coverage and duration in this season. In addition, the Selected Project will increase shadows in the evening on the open space areas along Church Street east of the WTC Site. Depending on the analysis day, any buildings over approximately 10 stories will have the potential to cause adverse impacts to the open spaces on the east side of Church Street. As discussed in the FGEIS and below, these significant shadow impacts are unavoidable.

Generally, the major difference when comparing shadow increments with the Selected Project to those produced by the Project Site prior to September 11 is the shift in the locations in incremental shadow. While both the Twin Towers and the Selected Project produce considerable shadows, the Twin Towers cast larger incremental shadow to the west and the Selected Project will cast larger shadow increments to the east. This will occur due to shifting the bulk of development to the east in order to reserve the southwest quadrant of the WTC Site for a Memorial.

Freedom Tower will cast shadows similar to those of the North Tower that stood prior to September 11, except that the North Tower was opaque, while the cable system at the upper levels of Freedom Tower will allow some light to pass. Tower 2, which at approximately 65 stories is located where the nine-story 5 WTC building stood, will cast incremental shadows on several of the open spaces in the area, including Washington Market Park, 7 WTC Plaza, and a

few of the open spaces northeast of the Project Site. Under the *CEQR Technical Manual*, the increment will cause a significant adverse impact to Washington Market Park in December. With the Selected Project, the bulk of the buildings are relocated on the east side of the WTC Site, where there were previously relatively short buildings, such that open spaces directly across Church Street will receive heavy afternoon to evening shadow. Depending on the analysis day, any buildings over approximately 10 stories will have the potential to cause adverse impacts to the open spaces on the east side of Church Street.

Further, the Selected Project will create incremental shadows on the open spaces to the west of the WTC Site in the early morning hours throughout the year. At this same time, these open spaces will receive sunlight in areas previously cast into shadow by the Twin Towers. From September through March, the Selected Project will cast mid-morning shadows onto the open spaces northwest of the Project Site in Battery Park City and midday shadows to the north falling on open spaces such as Washington Market Park and the playgrounds of PS 234. In the late spring to summer months shadows are shorter and will not reach these open spaces. From March through September, late afternoon to early evening shadows will be cast onto the open spaces such as City Hall Park, northeast of the Project Site, and the open spaces directly to the east of the Project Site, across Church Street, will receive shadow for most of the afternoon to evening. The Selected Project will cast additional shadows onto the already heavily shadowed open spaces directly to the east of the WTC and Southern Sites for 1½ to 3½ hours per day in late spring through summer, completely covering the open spaces in shadow.

The open spaces created by the Selected Project will receive incremental shadow from the buildings on the Project Site throughout the year. For most of the late spring through summer months, the proposed open spaces on the Project Site will receive full sun in the midday to early evening. The Memorial will receive incremental shadows from the base of Towers 3 and 4 during the morning throughout the year. For the spring to fall months, the Memorial area will receive ample sun in the early to mid-afternoon until shadows from existing buildings across Route 9A begin to cast shadow onto the WTC Site. Wedge of Light Plaza and the PATH Plaza will receive incremental shadows throughout the analysis day all year. Tower 2 and Tower 3 will cast shadow on Wedge of Light Plaza. Wedge of Light Plaza and the PATH Plaza will receive incremental shadows throughout the day in each analysis period but will receive sun from March through September in the early to mid-morning hours depending on the analysis day. The Memorial will receive shadows in the morning from the Selected Project throughout the year, as compared to shadows on the Tobin Plaza from the buildings of the WTC. However, under the Selected Project, in the spring to fall months, the Memorial will receive almost full sun for up to 3 hours in the middle of the day.

Since the Selected Project's open spaces have different layouts than the original open spaces of the WTC, shadows cast on these open spaces can not be directly compared to the shadows originally cast on the WTC open spaces.

The FGEIS also examined shadow impacts of the Selected Project under the Current Conditions Scenario. As discussed in the FGEIS, shadow increments are generally worse with the Selected Project compared to the Current Conditions Scenario since the only structures on-site are the temporary WTC PATH station entrance canopy and 130 Liberty Street. Similar to the Pre-

September 11 Scenario, the Selected Project will create incremental shadows on the open spaces to the west of the WTC Site in the early morning hours throughout the year. From September through March, the Selected Project will cast larger mid-morning shadows onto the open spaces northwest of the Project Site in Battery Park City, and midday shadows will be cast north falling on open spaces such as Washington Market Park and the playgrounds of PS 234. From March through September, late afternoon to early evening shadows will be cast onto the open spaces such as City Hall Park northeast of the Project Site, and the open spaces directly to the east of the Project Site, across Church Street, will receive shadow for most of the afternoon to evening.

Mitigation

In order to reserve the former footprints of the Twin Towers for the Memorial, the bulk of the commercial towers will be located on the eastern portion of the Project Site. While the addition of the Southern Site reduced the heights of the commercial buildings, and thus removed some shadow, the Selected Project will still result in significant shadow impacts as discussed above. Because LMDC is charged with creating a "critical mass" of mixed-use development to help restore Lower Manhattan as a vibrant central business district that attracts and retains businesses, residents, and visitors, LMDC has determined that the significant adverse shadows impacts discussed above and in the FGEIS are unavoidable. Given the prominence of the new buildings within the Manhattan office market, their exceptional accessibility, and state-of-the-art systems, the additional office space will make the area more attractive to retain existing and attract new businesses, and help to strengthen Lower Manhattan's reputation as a major international economic center.

3.2.6 Community Facilities

LMDC has determined that the Selected Project will not result in a significant adverse impact on community facilities and services in 2009 and 2015; therefore, no mitigation is necessary.

The Selected Project is expected to add an average of approximately 42,000 workers and visitors to the Project Site over the course of each day in 2009; approximately 28,000 of these people would be visitors. Because visitors are likely to spend a relatively short amount of time at the Project Site, far fewer than 42,000 people are expected to be at the Site during any given time. In 2015, with full development, an average of approximately 62,500 workers and visitors are expected to be at the Project Site over the course of each day. Because approximately 18,700 of these people would be visitors, the population on the Project Site at any given time is expected to be far less than 62,500. Prior to September 11, approximately 47,900 workers and visitors were present at the Project Site each day, among which there were only approximately 7,300 visitors. Therefore, the total number of workers and visitors at any given time is expected to be similar in both the future with and without the Selected Project.

Probable impacts of the Selected Project on specific community facilities and services are summarized below.

New York City Fire Department

The Selected Project will not have an adverse impact on the New York City Fire Department (FDNY) services or operations. FDNY does not anticipate that the Selected Project will have any adverse impacts on its level of service in the area surrounding the Project Site. The Selected Project will neither physically alter any station house nor alter operations of or access to or from any Engine or Ladder Company. (See also the discussion in Section 4.0 below.)

New York City Police Department

Although patrol and security on the WTC Site are not the responsibility of the New York City Police Department (NYPD), NYPD is responsible for patrolling and providing service to the area surrounding the WTC Site, as well as responding to emergency calls on the WTC Site. As NYPD continually evaluates its level of service and makes changes as they are deemed necessary, LMDC finds that no significant adverse impacts on the NYPD are expected as a result of the Selected Project.

Port Authority Police Department

The Port Authority Police Department (PAPD) is responsible for providing daily police service at the WTC Site. PAPD employees are trained both in police services as well as fire response. The Port Authority may propose to acquire some or all of the Southern Site. Accordingly, the PAPD may need more officers to patrol the site. However, this increased demand for officers is not considered a significant adverse impact. The PAPD will adjust its staffing levels and resources to provide sufficient policing of the area. In addition, private security will be provided by the Net Lessee.

Health Care Facilities

The Selected Project is expected to introduce approximately 62,500 workers and visitors to the Project Site each day by the year 2015. It can be reasonably expected that a percentage of these people might need health care services at some time. Because the demand for health care facilities from the Selected Project will be no greater than the demand for health care facilities that would have existed if the events of September 11 had not occurred, LMDC finds that the Selected Project will not have an adverse impact on health care facilities.

3.2.7 Socioeconomic Conditions

LMDC finds that the Selected Project will not result in significant adverse socioeconomic impacts. As intended, the Selected Project will eliminate the blighting effect of the vacant and excavated Project Site, and will produce substantial economic benefits during construction and operation of the new development, including direct and indirect employment, wages and salaries, business and sales tax, and total economic output (or demand for goods and services). Accordingly, no mitigation is required.

Based on the Pre-September 11 Scenario, the Selected Project will not result in significant direct or indirect residential displacement in either the 2009 or 2015 analysis year. To the contrary,

LMDC finds that the Selected Project will restore the office presence on the Project Site to levels comparable to what existed prior to September 11, while the additional retail and other amenities will promote a more vibrant overall presence. Lower Manhattan has long been a center of world finance and a major economic engine for the entire region, but it has more recently become the fastest-growing residential neighborhood in the city. The various amenities planned as part of the Selected Project reflect an existing and projected need from residents, rather than an effort to alter or accelerate trends in neighborhood character.

The Selected Project will not result in significant direct or indirect business displacement in either the 2009 or 2015 analysis year. By 2015, the Selected Project will reintroduce approximately 10 million square feet of office space to the Project Site, which is about 1.9 million square feet less office space than existed prior to September 11. This slightly reduced total square footage will not significantly affect long term rental rates for office space in Lower Manhattan, nor will it adversely alter existing economic patterns. The anticipated office presence will be consistent in scale and types of uses with conditions on the Project Site prior to September 11, and similar to existing buildings in the surrounding area.

In addition, the Selected Project will be consistent with, and would reflect the implementation of, New York City and State policy both before and since September 11 of strengthening Lower Manhattan as an office center. The new office space will accommodate the employment growth critical for sustaining Manhattan's role as a leading center of commerce and business. The Selected Project, coupled with existing financial incentives and other physical improvements planned for Lower Manhattan, represents a clear signal to commercial businesses that the city and state are committed to attracting and supporting new investments in Lower Manhattan.

There will be a greater amount of retail on the Project Site compared to pre-September 11 conditions (350,000 to 400,000 square feet in the former WTC mall, depending on occupancy), and a substantial portion of the new retail will be above ground, in up to the first three floors of the new office towers. This new street-level retail presence on the Project Site will better facilitate trips from the new retail to existing retail in the area surrounding the Project Site, and in Lower Manhattan more generally. In addition, the existing retail stores in Lower Manhattan will benefit from the increased visitation expected at the Memorial, the Memorial Center, and other places of interest on the Project Site, compared with visitation to the former WTC complex.

By 2015, the Selected Project will re-introduce a hotel to the Project Site, which will contain approximately 20 fewer rooms than the New York Marriott World Trade Center Hotel that existed on the site prior to September 11, but will have larger conference facilities. While the new hotel space would compete with existing hotels in Lower Manhattan, the substantial project-generated visitation to Lower Manhattan is expected to have a net benefit on existing hotels and will therefore not impair their economic viability.

The Selected Project will generate enormous economic and fiscal benefits during both the construction and operation of the development. Construction of the completed building program is expected to create about 50,830 person-years of direct construction employment in New York City, as well as an additional 45,698 person-years of indirect employment in New York City and State. Construction activity is expected to have a total effect on the local economy, measured as

economic output or demand for local industries, equal to about $15.75 billion in New York State, of which $12.06 billion would occur in New York City. LMDC and the Port Authority have existing policies regarding contracting and procurement of goods and services from minority, disadvantaged, and women-owned businesses, and LMDC and the Port Authority will implement these policies for the publicly funded portions of the Selected Project. These policies are expected to facilitate the distribution of direct jobs and economic benefits to minority, disadvantaged, and women-owned businesses. During operation, the on-site employment of the completed building program is estimated at approximately 39,412 to 40,553 full-time equivalent jobs, as well as an additional 56,057 full-time equivalent jobs generated indirectly in New York City and State. The total effect from the operation of the completed building program is estimated at $31.17 to $31.36 billion annually in New York State, of which $26.78 to $26.94 billion would occur in New York City. The Selected Project is estimated to generate non-property tax revenues estimated at approximately $1.17 to $1.19 billion annually. Overall, the Selected Project will restore the economic vitality of the Project Site and the corresponding economic and fiscal benefits to approximately the same levels that existed prior to September 11, or to even greater levels when accounting for the off-site spending by visitors to the site.

The FGEIS also examined potential socioeconomic impacts based on the Current Conditions Scenario and based on that assessment, LMDC finds that Selected Project will not result in significant direct or indirect residential displacement or business displacement in either the 2009 or 2015 analysis year. The substantial employment and visitation generated by the redevelopment of the Project Site will add to the consumer base of both existing retail in Lower Manhattan and the new retail space at the Project Site. In addition, the new retail space will generate the "critical mass" of retail required to capture much of the unrealized consumer spending in Lower Manhattan. Construction and operation of the Selected Project will result in significant economic benefits to New York State and City in a manner similar to the Pre-September 11 Scenario.

3.2.8 Neighborhood Character

Based on the analysis in the FGEIS, LMDC has determined that the Selected Project will result in overall benefits to neighborhood character in both 2009 and 2015. Accordingly, no mitigation is required.

The Selected Project, compared to pre-September 11 conditions, will result in a number of beneficial changes to neighborhood character. By replacing many of the uses that existed before September 11, adding new cultural uses, and creating new open spaces, the Selected Project will enliven the Project Site and surrounding area. Freedom Tower and the four additional office towers will create new elements of the skyline, while keeping with building uses, heights, and designs on the WTC Site and the Southern Site prior to September 11 as well as buildings throughout the study area. These towers will block some views across the WTC Site; however, these views were blocked by development on the Project Site prior to September 11.

The Memorial and the Memorial Center is expected to attract millions of visitors annually, substantially increasing pedestrian activity at the Project Site and on surrounding streets. The Memorial will be based on Michael Arad and Peter Walker's "Reflecting Absence" design concept. The Memorial plaza will be designed to be a meditative space, belonging both to the

city and to the Memorial. Located at street level, the Memorial grounds will become a living part of the fabric of the city. It will serve both to encourage visitors to spend contemplative, reflective time out of doors and to connect the communities which surround it. The Memorial, combined with the other open spaces at the Project Site, will improve pedestrian circulation within and across the WTC Site as compared to pre-September 11 conditions. While some sidewalks and crosswalks immediately adjacent to the WTC Site will be heavily congested during peak periods, this congestion will be comparable to pre-September 11 conditions, and will not adversely affect the overall character of the neighborhood.

While the amount of office space on the Project Site will be less than what existed prior to September 11, there will be additional retail and other amenities that will create a more vibrant presence. Large numbers of new workers and visitors will generate visits at other places of interest throughout Lower Manhattan, supporting area businesses and enlivening the streets and neighborhoods surrounding the Project Site.

The increased traffic levels expected throughout the area as a result of the Selected Project will have some effect on neighborhood character, but not to a degree that they constitute a significant adverse impact. This is primarily because most of the traffic impacts are expected to occur on streets already burdened with high levels of traffic, and mitigation measures have been identified to help relieve some of this congestion. The extension of Fulton and Greenwich Streets through the former superblock configuration of the WTC Site will restore that portion of Lower Manhattan's street grid, connecting areas north-to-south and east-to-west that will facilitate vehicular access within and around the site, as well as throughout Lower Manhattan.

With the use of the Northern Service Option, trucks, vehicles, elevators and automobile parking garage access will become a part of the streetscape on Vesey, Washington, Barclay and Greenwich streets. As discussed in Appendix A, with the first security screening variation, there will be a number of delivery vehicles on Washington Street undergoing their security checks; waiting trucks, security teams, and their inspection activities will be a visible presence, affecting the context of the Barclay-Vesey Building. Along Vesey Street in the vicinity of Freedom Tower and the performing arts center, there will be truck docks and elevators, as well as passenger vehicle queuing, inspection, and elevator areas. In general, the north side of the performing arts center building (and to a lesser degree the west façade) will have a less lively pedestrian level atmosphere than other components of the Selected Project and will not serve to activate the streetscape. The second screening variation will be the same as the first except that truck inspections will take place underground on the WTC Site rather than on Washington Street. This would lead to reduced effects on the context of the Barclay-Vesey Building, and no substantial change to Washington Street.

As also examined under the Current Conditions Scenario in the FGEIS, the Selected Project will undoubtedly result in substantial changes to the character of the Project Site and the surrounding neighborhoods compared to current conditions. This is one of LMDC's goals—to revitalize Lower Manhattan as a center of commercial, residential, and cultural activity to help make the area a lively environment, with a Memorial at its heart to honor and remember the victims of the attacks. The Selected Project—coupled with existing financial incentives and other physical improvements planned for Lower Manhattan—will constitute a clear signal to residents and

commercial businesses that the city and state are committed to attracting and supporting new investments in Lower Manhattan that, in turn, will help encourage a vibrant, bustling, and overall attractive area for the long term.

Overall, LMDC finds that under both the Pre-September 11 and Current Conditions Scenarios, substantial positive effects on neighborhood character at the Project Site and throughout the study area and all of Lower Manhattan are expected to result from the Selected Project.

3.2.9 Hazardous Materials

Based on the analysis in the FGEIS and LMDC's commitment to protect on-site workers and off-site residents and other pedestrians from exposures to hazardous materials during the construction period, LMDC has determined that the Selected Project will not result in any significant adverse impacts related to hazardous materials.

As discussed in the FGEIS, hazardous materials identified at the Project Site include polyaromatic-hydrocarbons (PAHs) and metals in soil, asbestos and dust from the events of September 11 that adhered to the surfaces of structures, and low concentrations of volatile organic compounds (VOCs) present in groundwater. Because LMDC and Port Authority will ensure that all hazardous materials are either abated, managed or remediated during construction, no significant adverse impacts are expected during either the construction or operational phases of the Selected Project. Construction measures, including the implementation of site-specific Health and Safety Plans (HASP), dust control measures, and contaminated soil and groundwater management plans, will be prepared and implemented prior to construction. During construction, hazardous materials on the Project Site will be managed or isolated to protect public health and the environment.

Prior to the acquisition of 130 Liberty Street, a characterization study that includes further testing for hazardous materials will be conducted at the site. Although it is not anticipated that the building contains structural asbestos containing material or hazardous concentrations of contaminants, materials within the building will be evaluated further and disposed of in accordance with all applicable federal, state, and local regulations. Based on that characterization study, a deconstruction plan will be developed and implemented, which will include site-specific protocols to be followed during the removal of any contaminated dust, debris, and materials from the interior of the building. This plan will be shared with EPA Region 2 and NYSDEC. Prior to commencing the deconstruction, LMDC will also hold an informational meeting with local residents and businesses to discuss the plan. LMDC is also committed to providing up-to-date website information on the deconstruction process. In addition, a site-specific HASP will also be implemented at all times.

3.2.10 Infrastructure

Based on the analysis in the FGEIS, LMDC concludes that the Selected Project incorporating the *Sustainable Design Guidelines* for commercial and open spaces will result in reduced infrastructure demand and usage for water supply and sanitary sewer generation, storm water runoff, and energy compared to pre-September 11 levels. The reduction in demand and uses is a function of both significantly less office development on the Project Site and the implementation

of the *Sustainable Design Guidelines*. In addition, LMDC will continue to explore feasible measures to reduce energy and resource demands for the Memorial, the Memorial Center, and cultural facilities as the design process proceeds.

Water Supply and Sewage Generation

In 2009, it is anticipated that the water usage and sewer generation for the Selected Project will be 417,174 gallons per day (gpd). In 2015, this number will increase to 1,037,024 gpd. In either case, in comparison to pre-September 11 demand, the Selected Project's need is smaller for both analysis years. As part of a Comprehensive Resource Management Plan required by the *Sustainable Design Guidelines*, a comprehensive water management plan will be developed to maximize the reuse of stormwater and potable water. Green infrastructure on the Project Site, in the form of landscaping and planting vegetation that require less irrigation or that can be sustained by collected rainfall, also will greatly reduce consumption of potable water and minimize impacts on the city's combined sewer system. Other sustainable design measures will include using energy-efficient water fixtures, automatic controls and possibly waterless urinals in the buildings. Water usage for the Memorial will be guided by New York City drought emergency policies as applicable.

Stormwater

The comprehensive water management plan will also maximize the reuse of stormwater. Stormwater will be captured on the Project Site and treated to be reclaimed and used for landscaping, flushing toilets, cooling tower makeup, and vehicle maintenance. The reuse of the stormwater will reduce the Project Site's need for potable water, thereby reducing impacts on the City's combined sewage system and water pollution control plants.

Although the Selected Project could result in the discharge of stormwater during heavy rain events and involves construction of more than one acre, a state pollutant discharge elimination system (SPDES) general permit for construction is not required. Stormwater runoff from impervious surfaces at the Project Site will be directed to municipal sewer catch basins. The project area is serviced by combined sewers, as opposed to municipal storm sewers, thus stormwater will be directed to the municipal wastewater treatment facility prior to discharging to surface water bodies. The Port Authority, in conjunction with federal, state, and city regulatory agencies, will develop measures to minimize temporary impacts from stormwater and implement these measures during construction.

As part of the *Sustainable Design Guidelines*, stormwater on the Project Site (excluding the public streets of Greenwich and Fulton) will be captured and reused in a greywater system. The greywater system will treat and re-circulate the water for non-potable water usage such as toilet flushing, vehicle maintenance, and irrigation needs. It is believed that a reduction of up to approximately 85 percent of the annual rainfall flowing directly into the sewer system and the combined sewer outflow (CSO) can be achieved through the greywater system. Consideration in the design of ledges, roofs and setbacks will be made to facilitate the capture of stormwater off buildings. In addition, stormwater will be captured (possibly through subterranean structures) from the pervious and impervious surface areas of the Project Site without buildings.

For the new Greenwich and Fulton Streets that bisect the Project Site, the capture of stormwater runoff will be achieved via sewer drainage catch basins. As a Best Management Practice, an oil/water separator will be used to filter the stormwater runoff before it flows into the main trunk line connected to the sewer system and the CSO. The oil/water separator will periodically be replaced to ensure the effective filtration of stormwater. The final engineering plans will determine the layout of the drainage basins and the oil/water separator or equivalent measures to prevent non-point discharge to the sewer system.

While the greywater system is expected to be designed to capture typical volumes of stormwater from the site, severe storm events may result in rainfall that would exceed the system's ability to capture all stormwater on site. In such cases, discharges to the sewer system may occur.

Solid Waste

The sub-grade levels of the Selected Project include centralized solid waste facilities, similar in form to the pre-September 11 facilities (i.e., trucking services, freight and shuttle elevators, vehicular access, and containers). Potential solid waste generation in 2009 is expected to amount to 579,551 pounds per week. In 2015 it is expected to amount to 992,926 pounds per week. LMDC anticipates that the Selected Project will meet, if not surpass, the pre-September 11 volumes of recycling, which will reduce the amount of solid waste headed for landfills.

Energy

In 2009 the Selected Project is expected to require approximately 2.7×10^{11} British Thermal Units (BTUs). In 2015, the energy demands of the Selected Project are anticipated to require a total of approximately 8.1×10^{11} BTUs. With the green measures of the *Sustainable Design Guidelines*, the increase in energy usage is significantly less than pre-September 11 levels. As the preliminary engineering progresses, it may be found that an increase in some energy needs is presented with the increased retail and cultural space. However, this potential increase in energy needs is expected to be offset by reduced per square foot energy for typical office space due to increased technological efficiency.

A comprehensive energy management plan, including a fully integrated building management system will result in environmental benefits and cost savings. The Selected Project is planned to include wind turbines located on the Freedom Tower at a higher altitude than surrounding buildings, presenting an opportunity for unobstructed wind power generation in an urban environment. The top of the Freedom Tower will be comprised of a lacy system of tension cables that form the perimeter of the building's top. The height and location of the Freedom Tower at the confluence of the Hudson and East Rivers is expected to allow the wind turbines to generate electricity. Electricity produced by the turbines will be measured using demand and consumption metering and utilized within the Freedom Tower, reducing the net draw of electricity for the overall site.

Emergency power will be provided to the buildings by emergency diesel generators. Emergency generators will be located to reduce vulnerability. Only necessary diesel fuel and flammable liquids will be stored above ground. The fuel oil for emergency generators related to the Freedom Tower will be stored below-grade and outside the building footprint.

Telecommunications

In 2009 and 2015, the Project Site will have telecommunications needs ranging from telephone service to cable and internet access. It is expected that the existing manholes accesses and slurry wall entry points will accommodate the needs of future tenants on the Project Site as development progresses throughout the Selected Project.

3.2.11 Traffic and Parking

As discussed in the FGEIS, LMDC has determined that the Selected Project will result in significant traffic impacts in both 2009 and 2015, as described below. Mitigation is therefore required.

The WTC was a major generator of traffic activity before its destruction on September 11 and, as documented in other studies, the tragic events of September 11 have significantly reduced both vehicular and pedestrian activities in the area. Redevelopment of the Project Site, restoring approximately 10 million square feet of office space and a hotel on the site, increasing the amount of retail space that characterized the Project Site pre-September 11, and adding a performing arts center, the Memorial, Memorial Center, and cultural facilities will add a considerable amount of traffic and activity to the streets that border the site, as well as to the north, south, and east. The Memorial, in particular, will increase activity throughout the day, depending on its hours of operation.

The traffic analyses conducted for the FGEIS comprised of two distinct study areas: a primary study area, within which traffic generated by the Selected Project will be most concentrated as it approaches and leaves the immediate Project Site; and a secondary study area, through which generated traffic passes en route to the streets and parking facilities nearest to the site. The primary traffic study area consisted of an area bounded to the north by Chambers Street, to the east by Broadway, to the south by Rector Street, and to the west by Route 9A. A set of 30 representative intersections were studied within this area. Ten additional key intersections were also analyzed in a secondary study area due to their potential to be significantly impacted by the Selected Project. These 10 intersections are located along major approach roads, such as the Route 9A corridor, Broadway north and south of the primary traffic study area, and Canal Street. The two newly created intersections created by the extension of Greenwich and Fulton Streets — Fulton Street/Greenwich Street and Fulton Street/Route 9A — were also examined. The analysis examined increases in traffic at these 42 intersections during the peak weekday AM, midday and PM hours. The analyses also examined two alternatives for Route 9A, that is currently undergoing a separate environmental review by NYSDOT-- a Route 9A at-grade design option and a Route 9A short bypass tunnel option.

As addressed for the Pre-September 11 Scenario in the FGEIS, the Selected Project will generate a substantial volume of vehicular activity. Under highly conservative assumptions, the Selected Project is expected to generate an estimated 1,300 to 1,700 peak hour vehicle trips in 2009 and an estimated additional 850 to 1,250 vehicle trips in 2015. On an areawide basis, the Selected Project will represent an increase of approximately five percent over traffic volumes that would have been expected in the future had the events of September 11 not occurred. Specific streets

on the periphery of the Project Site and immediately approaching are expected to have higher volume increases. These trips reflect both the reduced traffic from office space included in the Selected Project compared to pre-September 11 conditions and the increased traffic associated with both the Memorial and other uses on the Project Site.

When added to traffic generated by other background development projects, LMDC has concluded that the Selected Project will have significant traffic impacts at up to 18 of the 42 locations analyzed in 2009 and up to 24[5] of the 42 locations in 2015. Specifically, with the at-grade arterial design for Route 9A in 2009, the locations with significant traffic impacts include:

- Route 9A and Canal Street—AM, midday, and PM
- Route 9A and Chambers Street—AM
- Route 9A and Vesey Street—AM, midday, and PM
- Route 9A and Fulton Street—AM
- Route 9A and Albany Street—AM, midday, and PM (no significant impact for Route 9A short bypass)
- Route 9A and entrance to the Brooklyn Battery Tunnel—AM, midday, and PM
- Canal Street and Hudson Street—AM, midday, and PM
- Canal Street and Varick Street—Midday and PM
- West Broadway and Worth Street—AM
- West Broadway and Chambers Street—AM, midday, and PM
- West Broadway/Greenwich Street and Vesey Street—AM, midday, and PM
- Greenwich Street and Rector Street—Midday
- Church Street and Worth Street—AM, midday, and PM
- Church Street and Chambers Street—AM and PM
- Church Street and Vesey Street—AM, midday, and PM
- Church Street and Fulton Street—AM, midday, and PM
- Church Street and Cortlandt Street—Midday and PM
- Broadway and Worth Street—AM, midday, and PM
- Broadway and Vesey Street—AM, midday, and PM
- Broadway and Rector Street—AM and PM
- Water Street and Fulton Street—AM and PM

The locations with significant traffic impacts in 2015 (italics indicate new significant impacts as compared with 2009 conditions) are as follows:

- Route 9A and Canal Street—AM, midday, and PM
- Route 9A and Chambers Street—AM, *midday, and PM*
- Route 9A and Vesey Street—AM, midday, and PM
- Route 9A and Fulton Street—AM
- *Route 9A and Liberty Street—AM, midday, and PM* (no PM significant impact for Route 9A short bypass)

[5] This was inadvertently identified as 25 intersections in the FGEIS.

- Route 9A and Albany Street—AM, midday, and PM (AM significant impact for Route 9A short bypass)
- Route 9A and Entrance to the Brooklyn Battery Tunnel—AM, midday, and PM
- Canal Street and Hudson Street—AM, midday, and PM
- Canal Street and Varick Street—*AM*, midday and PM
- West Broadway and Worth Street—AM *and PM*
- West Broadway and Chambers Street—AM, *midday*, and PM
- West Broadway/Greenwich Street and Vesey Street—AM, midday, and PM
- Greenwich Street and Liberty Street—AM and PM
- Greenwich Street and Rector Street—*AM*, midday, *and PM*
- Church Street and Worth Street—AM, midday, and PM
- Church Street and Chambers Street—AM, *midday*, and PM
- Church Street and Vesey Street—AM, midday, and PM
- Church Street and Fulton Street—AM, midday, and PM
- Church Street and Cortlandt Street—*AM*, midday and PM
- Church Street and Rector Street—AM
- Broadway and Worth Street—AM, midday, and PM
- Broadway and Vesey Street—AM, midday, and PM
- Broadway and Rector Street—AM, *midday*, and PM
- Water Street and Fulton Street—AM, *midday*, and PM

Based on input from the City, the FGEIS also evaluated several street direction changes. (See section 13A.8 of the FGEIS.) These changes include converting Vesey Street from two-way traffic flow between Route 9A and Church Street to one-way eastbound, narrowing the width of Greenwich Street within the Project Site to allow for wider sidewalks in front of the proposed Memorial, making the Liberty Street truck entrance ramp into the underground garage beneath the Project Site into a two-directional ramp, and retaining Albany Street as a one-way eastbound street.

As discussed in the FGEIS, these street direction changes in 2009 with the at-grade arterial design for Route 9A are expected to result in significant traffic impacts at 19 of the 42 intersections analyzed. Generally with these street direction changes, there will be significantly better conditions for vehicles approaching the Project Site and its vicinity along Vesey Street, while there will be worsened conditions approaching the Project Site along Chambers Street, Greenwich Street and West Broadway, and within the Project Site (and leaving the Project Site) along Fulton and Liberty Streets. In 2015, significant traffic impact can be expected to occur at 26 of the 42 intersections analyzed. Overall, there will be slightly fewer intersections operating at overall unacceptable LOS E/F condition, and fewer individual traffic movements operating at LOS E/F conditions. There will be significantly better conditions for vehicles approaching the Project Site and its vicinity along Vesey Street, while there will be worsened conditions along several routes leaving the area.

Based on further discussions with the City, LMDC understands that NYCDOT does intend to make Vesey Street one way. The mitigation measures discussed below to address significant traffic impacts apply to any of the scenarios analyzed in the FGEIS, whether Vesey Street is one-

way or two-way and whether NYSDOT chooses an at-grade or by-pass tunnel design for Route 9A. All significant impacts generated by the Selected Project will require mitigation, particularly along the Route 9A corridor, near the northeast corner of the WTC Site, at the portals of the Holland Tunnel on Canal Street, and at other locations interspersed in the area. As discussed below, most but not all significant traffic impacts can be mitigated by standard traffic capacity improvement measures.

The Route 9A Short Bypass option was analyzed in 2015 for the both the one-way and two-way Vesey Street. The Route 9A Short Bypass option generally provides lower delays when compared to the Route 9A At-Grade option, because a large portion of through trips are removed from Route 9A intersections at Vesey, Fulton and Liberty Streets. Furthermore, because a small number of Trinity Place/Church Street and Broadway trips would divert to an-improved capacity Route 9A in the Short Bypass option, there would be slightly lower delays on intersections along Church Street and Broadway between Rector and Barclay Streets. No additional significant traffic impacts resulted for the Route 9A Short Bypass option. In some scenarios at significantly-impacted intersections, the Route 9A Short Bypass option allows for full or partial mitigation at intersections that could not be mitigated using conventional capacity-improvements measures in the Route 9A At-Grade option.

The FGEIS also examined traffic impacts in the event that Greenwich and Fulton Streets are closed for special events or security reasons. Overall, as addressed in the FGEIS there would be more significant traffic impacts when the streets are closed.

The FGEIS also evaluated traffic impacts under the Current Conditions Scenario. That analysis found that the traffic generated by the Selected Project will increase volumes by about 10 to 15 percent over the 2015 Current Conditions Scenario without the Selected Project.

The up to 1,400-space underground parking garage to be provided as part of the Selected Project for use by office tenants will be sufficient to accommodate that parking demand.

Mitigation

Overall, standard traffic capacity and engineering improvements would be sufficient to mitigate the vast majority of impacts that could occur as a result of the Selected Project; at a few locations, impacts could be only partially mitigated or will not be able to be mitigated via standard measures, but call for areawide traffic management strategies.

As addressed in the FGEIS, the vast majority of locations significantly impacted by the Selected Project could be mitigated with standard traffic engineering improvements, including:

- Signal phasing and/or timing changes;
- Prohibition of on-street parking at the approaches to a number of intersections in order to add a travel lane at the intersection;
- Enforcement of existing parking prohibitions at several locations to ensure that traffic lanes are available to moving traffic and are not blocked during key peak hours;

- Lane re-striping and lane designation changes to make more efficient use of available street widths;
- Relocating pedestrian crosswalks at key locations to minimize conflicts between vehicular and pedestrian traffic, and/or adding all-pedestrian phases at specific high pedestrian activity locations; and
- Relocating bus stops at a few key locations from the near side of the intersection to the far side of the intersection.

As discussed in the FGEIS, for 2009, 24 of the 42 intersections analyzed in the AM peak hour (including existing intersections and newly created intersections) will not be significantly impacted, 15 could be mitigated via the standard traffic engineering measures described above, and three intersections could either be partially mitigated or remain unmitigated by these types of measures. In the midday peak hour, 26 intersections will not be significantly impacted, 13 could be mitigated by the measures described above, and three could be partially mitigated or remain unmitigated. In the PM peak hour, 24 intersections will not be significantly impacted, 16 could be mitigated by the measures described above, and two could be partially mitigated or remain unmitigated.

For 2015, 18 of the 42 intersections analyzed in the AM peak hour will not be significantly impacted, 20 could be mitigated via the types of standard traffic engineering measures described above, and four intersections could either be partially mitigated or remain unmitigated by these types of measures. In the midday peak hour, 21 intersections will not be significantly impacted, 14 could be mitigated, and seven could be partially mitigated or remain unmitigated. In the PM peak hour, 18 intersections will not be significantly impacted, 19 could be mitigated, and five could be partially mitigated or remain unmitigated.

The FGEIS also provided suggested mitigation measures for the proposed street direction changes (i.e., making Vesey Street one way). While standard traffic engineering measures could mitigate most impacts, such measures will not be sufficient to fully mitigate expected significant impacts at five intersections in the AM peak hour, eight intersections in the midday peak hour, and six intersections in the PM peak hour. While this represents one more unmitigated intersection in each peak hour than was identified without the street direction changes, for at least one major intersection—Route 9A at Vesey Street—overall intersection delays will be substantially lower than for conditions without the street direction changes.

Additional improvements and more areawide measures will need to be considered to fully mitigate those intersections that could not be mitigated by the more standard and localized traffic improvements. Such measures could include an areawide traffic management strategy aimed at directing motorists to routes where additional capacity is available to accommodate traffic better than congested routes, particularly by advising motorists via intelligent transportation systems (ITS) signage at the portals to Lower Manhattan, such as the Brooklyn Battery Tunnel, Holland Tunnel, the southbound FDR Drive, and Route 9A. They could also include parking pricing strategies aimed at diverting motorists from driving to and from the area in the peak hours, and encourage use of earlier and later "shoulder hours," particularly for work trips made by car. Development of a coordinated traffic and parking management strategy for Lower Manhattan could reduce the potential for significant impacts and for unmitigated impacts.

Each of the traffic engineering improvements described above would require the approval of NYSDOT for geometric or signalization improvements along Route 9A, or NYCDOT or the NYPD for improvements at other (non-Route 9A) locations. In general, these improvements fall within the range of typical measures employed by these agencies in their ongoing efforts to maintain adequate traffic flow conditions, e.g., signal phasing and timing modifications, parking prohibitions, and intersection channelization improvements. Traffic enforcement agents are under the purview of NYPD. LMDC will continue to work with NYCDOT on the above mitigation measures and NYPD regarding the availability of enforcement agents to enforce the parking regulations**.** It is expected that NYCDOT will implement such mitigation measures, or comparable measures, as the Selected Project and other developments in Lower Manhattan are completed and traffic conditions warrant.

LMDC will also continue to coordinate with NYSDOT regarding the need for mitigation along the Route 9A corridor at intersections that are significantly impacted. NYSDOT is currently completing its own environmental impact statement for reconstruction alternatives for Route 9A in Lower Manhattan and, in the process, is utilizing a regional traffic methodology that is less conservative than the assumptions used in the FGEIS. It is expected that NYSDOT will review the findings of the FGEIS as worst-case projections for the corridor—since the FGEIS's analysis procedures included a higher future traffic volume—and evaluate the potential to increase Route 9A corridor capacity at critical intersections in order to be able to incorporate the mitigation recommendations of this FGEIS to the extent practicable. Where such mitigation (or a comparable substitute) is deemed not to be necessary or feasible by NYSDOT, the adverse impacts in question could remain unmitigated.

Northern Service Option

The Selected Project also incorporates the possible use of the Northern Service Option discussed above and in Appendix A. With this Option, a traffic signal will be added at the intersection of Vesey and Washington Streets, re-establishing the signal that existed in that location prior to September 11. Minor signal timing changes are also incorporated as part of the Northern Service Option and would become part of the overall mitigation measures summarized above. Vesey Street will operate one-way eastbound (as it now would with the Proposed Action). The direction of Washington Street will be reversed to flow southbound between Barclay and Vesey Streets. This Option also includes two security screening variations as discussed below.

Under the first security screening variation, service and parking access for Freedom Tower, the performing arts center, and retail space on the northwest quadrant of the WTC Site will be separated from the remainder of the Project Site's below-grade service and vehicular circulation network. Access for trucks, vans, and automobiles will be from Vesey Street with elevators transporting these vehicles to underground areas. All trucks or vans serving these uses on the northwest quadrant will undergo a security check on Washington Street between Barclay and Vesey Streets before proceeding to the service area off of Vesey Street. With the second security variation, trucks bound to these uses on the northwest quadrant of the WTC Site will undergo security screening below grade on the WTC Site.

As shown in Appendix A, traffic volume networks and level of service analyses were completed for both security screening variations of the Northern Service Option with full build-out conditions in 2015 for both the Route 9A at-grade and short bypass alternative designs. For the first screening variation, more vehicle trips will be shifted inland from Route 9A onto the Vesey and Barclay Street corridors as a result of the circuitous route needed to access security screening locations for Freedom Tower and the performing arts center. Also, more vehicle trips will be shifted further east on Vesey Street to northbound Church Street to westbound Barclay Street because the direction of Washington Street would be reversed from northbound to southbound.

For the second screening variation, traffic volumes will be higher on Route 9A between Vesey and Liberty Streets than under the first variation because trucks arriving to deliver their goods to the Freedom Tower quadrant will pass through Route 9A's intersections at Vesey, Fulton, and Liberty Streets twice on their inbound trip—one time to arrive at the security screening area inside the Liberty Street garage entrance, and a second time on their trip to the at-grade loading elevators on Vesey Street. This will cause higher traffic delays. However, with the elimination of the circuitous security screening route on Washington Street necessary with the first screening variation, the Vesey and Barclay Street corridors will experience slightly lower delays under this second variation.

With the first screening variation, 25 to 27 of the 42 intersections analyzed will be significantly impacted. In the AM and PM peak hours, the Barclay Street intersection at West Broadway will be significantly impacted under this Northern Service Option. Similarly, the second screening variation will also result in 25-27 intersections significantly impacted. Overall intersection traffic levels of service will, for the most part, be similar to those determined for the Selected Project without use of this Northern Service Option.

The mitigation measures discussed above will be the same used if the Northern Service Option is utilized with the Selected Project.

3.2.12 Transit and Pedestrians

Based on the FGEIS, LMDC finds that the Selected Project will not result in a significant adverse impact on transit in 2009 or 2015. There will be significant adverse impacts at certain pedestrian crosswalks in both 2009 and 2015. Some of these impacts could be minimized but not fully mitigated, as explained below.

Transit

The subway trips projected to be generated by the Selected Project in 2009 and 2015 will increase the demand on the subway lines serving the Project Site. However, as fully examined in the FGEIS, no subway element will be significantly impacted by the Selected Project in either 2009 or 2015 under the Pre-September 11 Scenario. In terms of subway line-haul capacity, none of the subway lines serving the Project Site will be significantly impacted by the Selected Project in either 2009 or 2015.

The number of bus trips projected to be generated by the Selected Project in 2009 and 2015 will increase the demand for local and express buses serving the Project Site. It is anticipated that

most of the demand will be accommodated by unused capacity on such bus routes and that the Selected Project will not have any significant adverse effect on bus service. MTA/NYCT routinely evaluates bus operations and would be expected to determine whether routing or frequencies need to be adjusted in 2009 and 2015 to accommodate any isolated excesses in demand on specific local or express routes.

The number of ferry trips projected to be generated by the Selected Project in 2009 and 2015 will be less than the ferry trips generated as a result of the WTC PATH Terminal closure from 2001 to 2003. The capacity of the World Financial Center ferry terminal is expected to be increased prior to 2015, and that terminal could accommodate an increase in ferry demand. The private ferry operators serving the World Financial Center ferry terminal could adjust service in 2009 and 2015 to accommodate increased demand.

Pedestrians

The FGEIS included pedestrian analyses for subway stairways, ramps, escalators, and turnstiles. The analysis of 2009 and 2015 assumed that the construction of the Fulton Street Transit Center and the permanent WTC PATH Terminal would be completed and operational. LMDC finds that, based on the analyses in the FGEIS, none of the station elements will be significantly adversely affected by the Selected Project in either 2009 or 2015. Pedestrian analyses were also performed for street-level crosswalks and sidewalk locations in the vicinity of the Project Site. Separate analyses were performed at the Church Street and Liberty Street intersection both with and without the underground connection between the WTC Site and Liberty Plaza.

The Selected Project will locate building entrances on the northern part of the WTC Site in closer proximity to Vesey Street than was the case pre-September 11. As a result, more pedestrian traffic is anticipated within the Vesey Street corridor. All pedestrian access to Tower 5 south of Liberty Street will be at-grade. The sidewalks along Vesey Street, Greenwich Street, and Liberty Street can adequately accommodate these anticipated increases in pedestrian traffic. However, eight crosswalks will experience significant impacts in 2009 as a result of the Selected Project. As discussed below under "Mitigation," five of these impacts could be mitigated by widening the crosswalks. The other three crosswalks could not be fully mitigated but could be widened to a maximum of 20 feet to minimize the effect of the Selected Project. In 2015, the Selected Project will result in significant impacts at 13 crosswalks, of which seven could be mitigated by widening the crosswalks. The other six crosswalks that could not be fully mitigated could be widened to a maximum of 20 feet to minimize the effect of the Selected Project. Although the Selected Project will cause some unmitigated crosswalk impacts in 2009 and 2015, pedestrians would be able to cross streets at these crosswalk locations with slightly more peak hour congestion than under pre-September 11 conditions but with little or no appreciable change in crossing time.

Pedestrian analyses were also performed for street-level crosswalks and sidewalk locations in the vicinity of the Project Site under the Current Conditions Scenario. That analysis found that 11 crosswalks will experience impacts in 2009 as a result of the Selected Project. In 2015, the Selected Project will result in impacts at 24 crosswalks during the peak periods analyzed.

Mitigation

As discussed above, in 2009, eight crosswalks will have significant impacts as a result of the Selected Project. These impacts could be mitigated by widening the crosswalks at five of these locations. The other three crosswalks could not be fully mitigated but could be widened to a maximum of 20 feet to minimize the effect of the Selected Project. In 2015, the Selected Project will result in significant impacts at 13 crosswalks, seven of which could be mitigated by widening the crosswalks. The other six crosswalks could not be fully mitigated, but could be widened to a maximum of 20 feet to minimize the effect of the Selected Project. Although the Selected Project will cause some unmitigatable crosswalk impacts in 2009 and 2015, pedestrians will be able to cross streets at these crosswalk locations with slightly more peak hour congestion but with little or no appreciable change in crossing time. LMDC will continue to communicate with NYCDOT regarding the suggested mitigation for the crosswalks.

3.2.13 Air Quality

The FGEIS included both mesoscale and microscale analyses of potential air quality impacts from the Selected Project. Based on the microscale analyses, LMDC has determined that operation of the Selected Project is not predicted to cause any significant adverse air quality impacts, or to cause any exceedance of National Ambient Air Quality Standards (NAAQS). Therefore, no mitigation is required during the operational phase of the Selected Project. In addition, based on the mesoscale analysis, LMDC has determined that the operation of the Selected Project is not predicted to result in the emission of regionally significant quantities of air pollutants.

A mesoscale (i.e., regional) analysis of air pollutants is typically performed by computing total expected project-related pollutant emissions ("burdens") within a region throughout a defined time period. The increment in pollutant emissions that will be emitted due to project-related changes in vehicular activity within the entire study area was computed for the annual quantities of CO, VOCs, NO_x and PM_{10}, by computing the emissions that would have been expected in those same years for the Selected Project. Vehicular pollutant burdens were computed based on the EPA emission estimating procedures, using MOBILE6.2 (for CO, PM_{10}, VOCs, and NO_x) and the procedures described in AP-42 (for resuspended road dust), and on the changes in vehicle miles traveled (VMT) for any given year. The total project-generated NO_x emissions were predicted to decrease from nearly 25 tons in 2009 to 10 tons in 2020. The total project-generated CO emissions were predicted to exceed 100 tons per year. The vast majority of these CO emissions would have existed in future years in the pre-September 11 condition, which was considered in the New York CO SIP attainment demonstration. The actual maximum increment of 14.9 tons per year in CO emissions from the Selected Project over the Pre-September 11 condition is not considered to be regionally significant. The total predicted project-generated VOCs emissions decrease from approximately 12 tons in 2009 to 9 tons in 2020. The total predicted project-generated PM_{10} emissions decrease from roughly 8 tons in 2009 to 14 tons in 2020. Based on the mesoscale analysis, LMDC finds that the predicted region-wide increase in emissions, where such occurs, is not considered regionally significant. LMDC will coordinate with NYSDOT, NYSDEC, EPA and the metropolitan planning organization in order to make the transportation data available for inclusion in the regional transportation Best Practices Model and in the Transportation Improvement Plan.

The microscale analyses (or local modeling analyses) presented in the FGEIS included an examination of both mobile sources and stationary sources. With regard to the mobile source analysis, the FGEIS examined four intersections with the highest potential for air quality impacts (Liberty Street, Albany Street and Vesey Street at Route 9A, and the proposed bus loading area at Greenwich Street from Vesey to Liberty Streets) under both Pre-September 11 and Current Conditions Scenarios. Using a conservative screening approach, maximum predicted changes in future 8-hour average CO increments from the Selected Project ranged from a slight decrease to 0.6 parts per million (ppm), with the highest predicted total concentration, including background, of 5.7 ppm for the Pre-September 11 Scenario. Predicted changes in concentrations of fine respirable particulate matter smaller than 2.5 micrometers (μm) ($PM_{2.5}$) ranged from no change to an increase of 0.2 micrograms per cubic meter ($\mu g/m^3$) on a 24-hour average basis, and up to 0.05 $\mu g/m^3$ on an annual average neighborhood scale. Predicated changes in concentrations of PM_{10} ranged from a slight decrease to a maximum of 9.3 $\mu g/m^3$ on a 24-hour average basis, and from 0.1 $\mu g/m^3$ to 3.9 $\mu g/m^3$ on an annual average basis. The modeling for this scenario assumed at-grade construction of Route 9A; it is expected that the increments with the short bypass alternative for Route 9A reconstruction would be higher but would not be significant and, as with the at-grade alternative, will not result in exceedances of the NAAQS.

Under the Current Conditions Scenario, as presented in the FGEIS, maximum predicted future 8-hour average CO increments ranged from 0.1 ppm to 2.0 ppm, with the highest predicted total concentration, including background, of 6.8 ppm. Predicted changes in $PM_{2.5}$ concentrations ranged from 0.1 $\mu g/m^3$ to 0.9 $\mu g/m^3$ on a 24-hour average, and on an annual average from 0.01 $\mu g/m^3$ to 0.06 $\mu g/m^3$. Predicted changes in maximum 24-hour average concentrations of PM_{10} ranged from 0.3 $\mu g/m^3$ to 10.2 $\mu g/m^3$ and on an annual average from 0.17 $\mu g/ m^3$ to 4.0 $\mu g/m^3$.

As discussed in Appendix A, with the use of the Northern Service Option, the highest total predicted $PM_{2.5}$ concentrations due to trucks at Washington and Vesey Streets will be 2.0 $\mu g/m^3$ and 0.0015 $\mu g/m^3$ on a 24-hour average and annual neighborhood scale average basis respectively. The highest total on-street contribution due to the "Future With the Proposed Action," as presented in the FGEIS, at this location was predicted to be 0.90 $\mu g/m^3$ and 0.039 $\mu g/m^3$ on a 24-hour average and annual neighborhood scale average basis, respectively. Although these contributions may not occur under the same conditions or at the same location, when conservatively added together, the total maximum increase in $PM_{2.5}$ concentrations due to the Option will be 2.9 $\mu g/m^3$ and 0.041 $\mu g/m^3$ on a 24-hour average and annual neighborhood scale average basis, respectively. These increments are much lower than the City's interim guidance thresholds, are considered insignificant, and are not expected to cause any new exceedances or increase the severity or frequency of existing exceedances of the $PM_{2.5}$ NAAQS. Based on these results, the operation of the Northern Service Option as part of the Selected Project will not have any significant impact on air quality.

Stationary sources located within the Project Site will include: emergency generators for life-saving operations and generators used for client-operated backup power in case of power outage, which are expected to be tested up to 1 hour per month; and ventilation system outlets that will exhaust air from the enclosed below-grade vehicular facilities, including bus and car parking, delivery truck docks, security vehicle inspection facility, and connecting ramps. HVAC systems will be electric and/or steam distributed by Con Edison with no additional generation facilities

associated with them. Wind turbines will also be placed on Freedom Tower, reducing the power demand from conventional sources. As committed to under the *Sustainable Design Guidelines*, the backup and life saving emergency generators will be fueled by ultra low sulfur diesel fuel. Emergency generators are exempt from NYSDEC air permitting requirements if they meet the applicable requirements of 6 NYCRR Part 201. The emergency generators will be installed and operated in accordance with applicable requirements. As discussed in the FGEIS, potential air quality impacts from emergency generators are considered insignificant.

Modeling of the impacts from the ventilation of the below-grade vehicular facilities was performed. Ventilation for the below-grade facilities will be designed in such a way as to ensure that no significant impacts will occur in publicly accessible spaces. All ventilation will be placed 40 feet above grade or higher. Based on the generic modeling addressed in the FGEIS, no significant adverse impacts on air quality are predicted from the air discharge vents.

General Conformity

Pursuant to 40 CFR § 93.158(a)(5)(i)(A), NYSDEC, in a letter dated April 28, 2004, determined and documented that the total of direct and indirect VOCs and NOx emissions during construction of the federally-funded portions of the Selected Project, together with all other emissions in the non-attainment area, will not exceed the emissions budget specified in the "New York State Implementation Plan for Ozone—Phase II Alternative Attainment Demonstration." Accordingly, on April 30, 2004, LMDC issued its Draft Conformity Determination, which is now undergoing public review, finding that the federally-funded portions of the Selected Project conform to the New York SIP. In addition, LMDC finds that the Selected Project will not cause or contribute to any new violation, or increase the frequency or severity of any existing violation, of the standards for the pollutants addressed in 40 CFR § 93.158; further, the Selected Project does not violate any requirements or milestones in the ozone SIP. (A copy of the Draft Conformity Determination is attached as Appendix F.) Upon completion of the public comment period, LMDC will issue the final conformity determination, notice of which will be published in both the *Federal Register* and more than one local newspaper.

3.2.14 Noise

As addressed in the FGEIS, LMDC has determined that the Selected Project will not result in any significant adverse mobile or stationary source noise impacts in 2009 or 2015.

As part of the noise analysis examined in the FGEIS, continuous 24-hour noise measurements and short-term 20-minute equivalent sound levels (L_{eq}) were conducted at 24 sites to provide a comprehensive baseline of noise levels adjacent to the Project Site. The sites include locations where the Selected Project is expected to have the greatest potential to increase ambient noise levels and cause an impact. The analysis concluded that the maximum noise level increase at these measurement sites with the Selected Project will be 2 decibels (dBA) or less, which is not considered significant.

In addition, there will be no significant impacts in 2009 or 2015 from the stationary noise sources, which will include heating, ventilation, and air conditioning (HVAC) systems,

mechanical equipment, and the wind turbines on top of Freedom Tower. All stationary sources will use sufficient applicable noise reduction devices to comply with applicable noise regulations and standards.

As with noise in pre-September 11 and 2003 current conditions, noise levels at the proposed sensitive receptors within the Project Site, including the Memorial and memorial-related uses, performing arts center, hotel, and museum, will exceed the *City Environmental Protection Order-City Environmental Quality Review (CEPO-CEQR)* guideline level. It is very difficult, if not impossible, to incorporate feasible mitigation measures that would reduce noise levels at the outdoor areas, including parks and Memorial, to *CEPO-CEQR* recommended threshold levels. However, future noise levels at the proposed parks and Memorial will be comparable to the levels in existing parks in New York City, including City Hall Park, Bowling Green Park and Battery Park.

Future noise levels attributable to the operation (mobile and stationary sources) of the Selected Project at the Memorial site will be 71 dBA in 2009 and 69 dBA in 2015, slightly exceeding the HUD Site Acceptability Standards of 65 dBA, just as current noise levels do. Based on HUD Policy, 5-10 dBA attenuation will normally be required for the proposed Memorial site. Although details of the Memorial design are not available, it is anticipated that, through noise reduction features and careful design measures, noise levels at the Memorial will be able to meet or approach the HUD Site Acceptability Criteria by the time the Selected Project is completed and operational.

The FGEIS also included a separate noise analysis for the proposed bus garage at the Project Site based on FTA guidelines in case FTA funding is sought. The future noise levels associated with the garage operations will be substantially less than the FTA impact threshold criteria. Therefore, LMDC concludes that there will be no significant noise impact associated with the proposed bus garage.

As discussed in Appendix A, the use of the Northern Service Option would result in maximum noise level increases from mobile source of two decibels (dBA) or less, which is not considered significant. With the use of the Northern Service Option, there will be no significant impacts in 2009 or 2015 from stationary noise sources. All stationary sources will use sufficient applicable noise reduction devices to comply with applicable noise regulations and standards.

Mitigation

Although it is expected that the peak construction period would range between 2006 through 2008, construction operations, such as those for upper floors of the Towers 2, 3, and 4, and initial construction of Tower 5, will continue at the Project Site in 2009. The Memorial and parks at the street level associated with the Selected Project will be completed and operational by 2009. Due to the proximity to the Memorial and parks as well as adjacent residences, significant noise impacts at these noise sensitive sites during construction will be unavoidable in 2009. It should be noted that at several locations, existing ambient noise levels prior to September 11 were already above those specified in CEQR and FTA and HUD impact criteria and continue to be so under existing conditions. Consequently, reducing construction noise to below such impact

criteria levels is not practicable because the construction noise will still be exceeded by the ambient noise levels. The dense, urban setting with mixed uses makes developing and implementing cost-effective, feasible mitigation measures a challenge.

LMDC and the Port Authority are committed to implement measures to reduce significant noise impacts resulting from construction consistent with the *Sustainable Design Guidelines* and the Environmental Performance Commitments (EPCs). More specifically, guideline SEQ-5 calls for the development and implementation of a Construction Environment Plan prior to construction. SEQ-5 will seek to reduce the construction component of ambient noise to the lowest practicable level.

3.2.15 Coastal Zone

Based on the discussion in the FGEIS, LMDC has determined that (i) the Selected Project will not result in any impacts to the coastal zone in 2009 and 2015; and (ii) the Selected Project is consistent with the New York City Waterfront Revitalization Program.

The Selected Project entails construction and operation of program elements within the coastal zone. Many of the program elements existed prior to September 11. Construction activities occurring within the Project Site and along the Hudson River shoreline will result in unavoidable, temporary impacts in the coastal zone. However, no construction activity is contemplated directly within the shoreline or waterfront area along the Hudson River or New York Harbor. While no new activities are envisioned in the Hudson River or New York Harbor itself, reuse of the Hudson River pump station and its cooling water intake system located along the shoreline, and the withdrawal of Hudson River water for cooling purposes are part of the Selected Project.

The Selected Project reflects a commitment to consistency with and support for coastal policies. The Selected Project will contribute to the New York City Waterfront Revitalization Program's goals of enlivening the waterfront and attracting the public to the city's coastal areas, and the new towers will significantly contribute to the skyline of Lower Manhattan. As fully discussed in the FGEIS, the Selected Project is consistent with all 10 City coastal zone policies.

3.2.16 Floodplain

Based on the discussion in the FGEIS, LMDC has determined that the Selected Project will not adversely affect the floodplain's ability to contain flood waters or exacerbate flooding conditions on the Project Site or its immediate vicinity, and thus, will have no significant adverse impacts on floodplains in 2009 and 2015.

Approximately 4.0 acres of the Selected Project will be located within the 100-year floodplain, including:

- Approximately 3.0 acres of the western portion of the WTC Site within the excavated "bathtub," an area bounded by Liberty Street, No. 1/9 IRT subway line (Greenwich Street extension), Vesey Street, and Route 9A; and

- Approximately 0.7 acres of the Southern Site, including the block bounded by Route 9A and Liberty, Washington, and Cedar Streets, the portion of Liberty Street between Route 9A and Washington Street, and the portion of Washington Street right-of-way between Liberty and Cedar Streets.

As part of the Selected Project, the existing Hudson River pump station and its cooling water intake system, which is approximately 0.3 acres in size and also located in the 100-year floodplain, will be reactivated. The Project Site is not located in a floodway.

Of the approximately 4.0 acres of the Selected Project that is located within the 100-year floodplain, approximately 3.05 acres will be unpaved. Paved areas will total approximately 0.95 acres, including portions of the Memorial, Liberty Street, sidewalks and rooftops of the Freedom Tower and the performing arts center. The Selected Project will not increase the amount of impervious surfaces on the Project Site. Rather, the Selected Project will introduce 3.05 acres of pervious surfaces to the floodplain where none previously existed prior to September 11, 2001. The pervious surfaces consist of the western portion of the Memorial Area and Liberty Park on the Southern Site block bounded by Route 9A, Liberty, Washington, and Cedar Streets (currently used for construction staging and contractor parking). Although located outside of the floodplain, the Southern Site block bounded by Washington, Liberty, Greenwich and Cedar (extension) Streets will also replace a portion of the paved plaza that existed prior to September 11, 2001 with usable open space that will likely include pervious surfaces or natural vegetation, such as grass. In addition, all structures will be flood-proofed by the extension of the existing bathtub and construction of a new bathtub in the eastern side of the WTC Site.

Construction of the Selected Project within the 100-year-old floodplain is the only practicable alternative that would provide a mixed-use site that includes a Memorial to honor the victims of the terrorist attacks while also re-establishing the Project Site as a locus of commerce, cultural space, and amenities.

The analysis in the FGEIS was performed in accordance with Executive Order 11988 and its implementing regulations, 24 CFR Part 55, which establishes an eight step process to evaluate the potential effects of any action in a floodplain, including: determining whether the proposed action is located in a 100-year floodplain; providing early public notice of a proposal to consider an action in a floodplain; identifying and evaluating practicable alternative; identifying potential direct and indirect impacts; designing or modifying the proposed action to minimize the potential adverse impacts by reevaluating the proposed action; publishing a final notice; and implementing the proposed action. The Selected Project was also analyzed in accordance with Article 36 of the Environmental Conservation Law (6 NYCRR Part 502), which requires an alternatives analysis and that any projects constructed within the flood hazard area must be consistent with the need to minimize flood damage. Further, 6 NYCRR Part 502 requires that no project be undertaken unless it is shown that the cumulative effect of the proposed project, when combined with all existing development, will not cause any material flood damage to such existing development.

With regard to flood insurance, the Port Authority currently holds an all-purpose insurance policy that includes flood insurance for the WTC Site and will continue to maintain the coverage. With regard to the Southern Site, LMDC or another entity will purchase flood insurance, and

LMDC will require either itself or such other entity or LMDC or the entity's successors to maintain such flood insurance for that property.

3.2.17 Natural Resources

LMDC believes that the Selected Project is not expected to result in significant adverse impacts to water quality in 2009 or 2015 under either the Pre-September 11 or Current Conditions Scenarios. The reuse of the Hudson River pump station and its cooling water intake system (CWIS), however, will result in some loss of aquatic organisms. Under accepted standards for assessing such impacts, LMDC's consultants have advised LMDC that those losses would not be significant in either 2009 or 2015 under either scenario, so long as intake flows at the CWIS remain at or below pre-September 11 levels. In order to ensure that losses of aquatic biota will not result in significant adverse impacts, the Port Authority has committed to limit the withdrawal volumes to no more than pre-September 11 levels, which would in 2015 represent between 12% and 35% of the CWIS design flow.

NYSDEC, however, has indicated to the LMDC that it regards any loss of fish from pump station operations as adverse and that it therefore believes that the Selected Project is likely to have significant adverse impacts on aquatic biota in both 2009 and 2015, even if CWIS intake flows remain well below pre-September 11 levels. LMDC and the Port Authority are therefore committed to incorporating "best technologies available" into the CWIS and, to this end, to exploring a range of alternative measures to further reduce or mitigate such impacts as the detailed design of elements of the Selected Project are developed. Such alternative measures will be fully explored through the Port Authority's application to renew its State Pollutant Discharge Elimination System (SPDES) permit for the pump station. Specifically, measures to reduce mortality from impingement (e.g., further flow reduction, modified screens with fish return, reduction of flow velocities, closed-cycle cooling, and fish avoidance systems such as barrier nets, light, and sound) and entrainment (e.g., flow reduction, closed-cycle cooling, fine mesh barriers to exclude eggs and larvae such as Gunderbooms and fine mesh wedge wire screens) will be explored with respect to factors such as feasibility, effectiveness, cost, and constraints imposed by surrounding property owners and land uses (such as deed restrictions or easements) as part of the SPDES permitting process for the operation of the WTC intake. In accordance with NYSDEC regulations, that process will include extensive opportunities for public comment and participation. (The Port Authority Letter is attached as Appendix G.)

As addressed in the FGEIS, potential bird strikes as a result of the Selected Project will be either reduced from or approximately the same as pre-September 11 conditions and are not expected to represent a significant adverse impact under either the Current Conditions or Pre-September 11 Scenarios. Nonetheless, LMDC and the Port Authority, in consultation with Silverstein Properties, will continue to investigate opportunities to reduce bird collisions as the design for the Project Site advances through building design and management practices. Incorporation of such measures will be balanced with requirements for safety and security and the iconic role of Freedom Tower and other relevant considerations.

LMDC also finds, based on the analysis in the FGEIS, that significant adverse impacts will not be expected under the Pre-September 11 Scenario to the five threatened or endangered species or species of special concern to state or federal agencies that have the potential to occur in the

Lower Hudson Estuary, or Significant Coastal Fish and Wildlife Habitats. Shortnose sturgeon will not be expected to occur in the immediate vicinity of the CWIS intake and therefore will not be subjected to impingement or entrainment. None of the four species of sea turtles identified as having the potential to occur as transient individuals nest or reside in the lower Hudson River year round, and are only rarely observed in this portion of the estuary. The FGEIS also examined Peregrine falcons, designated an endangered species in New York, and concluded that they are accustomed to the intensely developed habitats of New York City and are not expected to experience a negative impact due to the Selected Project.

3.2.18 Radiofrequency Electromagnetic Fields

The buildings of the Selected Project are being designed to accommodate a variety of rooftop telecommunications and broadcast services. In addition, they may contain cellular and other communication services. These facilities will create radiofrequency electromagnetic fields (RFEMF). Based on the analysis in the FGEIS and commitments made by both the Port Authority and its Net Lessee (Silverstein Properties) to meet all requirements of the Federal Communications Commission, LMDC has determined that the Selected Project will not result in any significant adverse impacts from RFEMF and will not pose human health risks.

3.2.19 Environmental Justice

Based on the analyses in the FGEIS, LMDC has determined that the Selected Project will not have any adverse impacts on any environmental justice communities.

During construction and operation of the Selected Project, issues of particular importance to low-income and minority populations include: human health and quality-of-life effects related to construction at the Project Site and construction truck traffic off-site; continued availability of community facilities, services, and open space; economic vitality and job opportunities; preservation/enhancement of community character and cohesion; indirect residential and business displacements arising from secondary development or change in community character; human health impacts of the infrastructure needed to support the Selected Project; and the cumulative effect of the Selected Project and other construction and improvement projects in the next decade in Lower Manhattan.

The environmental justice analysis included in the FGEIS indicated that the Selected Project will not produce disproportionately high or adverse effects on low-income or minority communities. The proportion of low-income and minority residents in the primary study area is lower than that of Lower Manhattan, Manhattan, or New York City, indicating a low potential for impacts to communities of concern in the area. The portion of Chinatown within the secondary study area represents a community of concern for environmental justice purposes. This community is, however, farther removed from the Project Site and will not be subject to disproportionately high or adverse impacts during the construction or operational periods.

Based on the evaluation of environmental justice issues presented in the FGEIS, LMDC has determined that:

- The Selected Project will not result in disproportionately high or adverse human health or quality-of-life impacts to any communities of concern. Demographic and income conditions along routes necessary for construction-related truck traffic are similar to those overall in Lower Manhattan. The overall increase in truck traffic is expected to be low. The increase in traffic along existing truck corridors in communities of concern will not be disproportionately greater than that for other portions of the study areas.
- Evaluation of community and open space facility capacity and access indicates that no disproportionate impacts on communities of concern in the two study areas will result.
- Construction activity will produce economic benefits in terms of output and jobs during the 10-year construction period. Similarly, completion of the Selected Project is expected to improve economic vitality and increase the number of job opportunities. This will benefit a wide range of residents and businesses, including low-income and minority communities. Jobs created during the operation of the Selected Project are expected to encompass a wide range of skills, wage levels, and occupations in office, retail, government agency, and cultural facilities employment.
- An evaluation of the potential for indirect displacement of residents and businesses in the study areas found that no significant impacts will result from the Selected Project in 2009 or 2015. The Selected Project will enhance community character in the primary study area and Lower Manhattan in general as the vacant site is replaced with a WTC Memorial, cultural facilities, open space, and other elements to create a mixed use development that will help restore Lower Manhattan. These new uses will be consistent with and supportive of existing and future land uses and community character.
- In 2009, the Selected Project will result in lower infrastructure usage, compared with pre-September 11 levels. In 2015, the level of infrastructure use will be comparable to pre-September 11 levels. When compared with the Current Conditions Scenario, the Selected Project will require additional water, sewer, solid waste, and energy resources. Additional facilities required to meet future needs would be subject to individual environmental review and permitting as appropriate.
- The cumulative benefits resulting from the Selected Project, in combination with other access, infrastructure and community enhancements expected in Lower Manhattan through 2015 support the long-range goals of the City of New York to recover from the terrorist attacks, revitalize Lower Manhattan, promote a diverse 24-hour residential and business community, and enhance quality-of-life and community character.

3.2.20 Construction

The rebuilding of the WTC will take place over approximately 12 years, from 2004 to 2015. The most intense period of activity is anticipated to occur between the third quarter of 2004 and fourth quarter of 2008 with a peak period occurring in 2006.

While the Selected Project alone will be a significant construction project in Lower Manhattan, several other projects are also anticipated to occur in the area during the 2004–2015 period.

Three of the other major projects are transportation-related construction projects including the permanent WTC PATH Terminal on the WTC Site, Route 9A–Lower Manhattan Reconstruction, and the Fulton Street Transit Center; all three projects are anticipated to begin in 2004 and be completed in 2008. A fourth major project, construction of the South Ferry Subway Terminal, is anticipated to occur during the same time period but is located approximately a half mile to the south of the WTC Site. In addition to the transportation-related projects, other projects such as street reconstruction and private residential and commercial development are anticipated to occur during the 2004–2015 period.

Taken together temporally and spatially, the construction activities of this major project will affect change in "normal," everyday activities for residents, workers, and visitors to the Project Site and Lower Manhattan, particularly during the peak construction period 2006.

LMDC and the Port Authority are committed to continuing to coordinate construction as members of the LMCCG and to cooperating with the anticipated LMCCC. In addition to LMDC and the Port Authority, the members of the LMCCG include sponsors of the other major Lower Manhattan recovery projects including MTA and its relevant subsidiaries, NYSDOT, NYCDOT, and New York City Department of Design and Construction. Other agencies with relevant interest and expertise, such as FTA, HUD, EPA, NYPD and NYCDEP will work with the LMCCG, as will private developers, utility companies and construction firms managing projects in Lower Manhattan, on coordinating construction activities for all these major Lower Manhattan projects and implementing mitigation to reduce the cumulative impacts from such projects as discussed below. The LMCCG will also receive input from residents, businesses, agencies and organizations to discuss the construction processes and schedules for the Lower Manhattan recovery projects. A copy of the LMCCG Mission Statement is attached as Appendix C.

Traffic and Parking

Based on the analysis in the FGEIS for the peak year construction period, LMDC finds that a total of six intersections will have significant adverse impacts as a result of construction vehicles attributable to the Selected Project. These intersections include: Vesey Street/Route 9A during the AM peak hour; Chambers Street/Church Street during the AM and PM peak hours; Barclay Street/Church Street during the AM peak hour; Cortlandt Street/Church Street during the midday peak hour; Canal Street/Broadway during the PM peak hour; and Worth Street/Broadway during the AM, midday, and PM peak hours. Mitigation measures for these construction impacts are therefore required.

The FGEIS conservatively assumed that two lanes would be closed (and two would remain open) throughout the Church Street and Broadway corridors, including at major intersections, during the NYCDOT roadway reconstruction project. The FGEIS thus found that some significant traffic impacts are expected along Church Street and Broadway during the AM, midday, PM peak hours due to construction activity from the Selected Project and the other major Lower Manhattan projects.

Traffic Mitigation

Traffic impacts could be mitigated by coordinating with NYCDOT to close only one lane at a time (and maintain three travel lanes) within its work areas at major intersections along Church

Street and Broadway. The additional lane could be used to provide an exclusive turning lane at these locations during the construction period. LMDC will continue to coordinate with NYSDOT about this potential mitigation measure.

Additional green time could be provided for the westbound approach at the Vesey and Route 9A intersection to mitigate the identified impact during the AM peak hour. The impact identified during the midday peak hour on the westbound approach of the Cortlandt Street and Church Street intersection could be mitigated by providing a dual right turn lane from Cortlandt Street.

LMDC recognizes that an essential element of the construction plan is to maintain access to local businesses and points of interest, such as the WTC Site itself, to the greatest extent practicable. Staging areas for trucks that would limit the impact on adjoining neighborhoods are also contemplated by those guidelines. LMDC will continue to coordinate with the LMCCG to address cumulative traffic impacts in Lower Manhattan. LMDC will also continue to coordinate with NYCDOT's Street Management Study.

Pedestrian Access and Circulation

LMDC recognizes that maintaining access to local businesses and points of interest such as the WTC Site itself for all pedestrians, including residents, tourists, and other visitors to the greatest extent practicable is an essential element of the construction plan. To achieve this, pedestrian flow along Vesey and Liberty Streets will be maintained throughout the duration of construction except during limited periods of construction that will require temporary closures. All closures will be kept to a minimum as much as possible. LMDC and the Port Authority will also implement the *Sustainable Design Guidelines* which would require the SEQ-5 Construction Environment Plan, which calls for the project sponsor to "avoid or minimize impacts and communicate plans with the public" as well as to "prepare contingency measures in the event established limits are exceeded." (See Appendix D.)

Where activities require the closure of certain segments around the perimeter of the WTC Site, appropriate measures will be taken to offset any effects on pedestrian flow. For example, construction and staging activities proposed along the east side of the WTC Site between Liberty and Vesey Streets will require the use of a portion of the existing west side sidewalk on Church Street. To mitigate the loss of sidewalk space at this location, the western curb lane on Church Street between Liberty and Vesey Streets will be added to the remaining sidewalk to provide the requisite pedestrian flow.

The EPCs pertaining to Access and Circulation will be employed during construction. (See Appendix B.) Such measures include:

- Development and implementation of project-specific pedestrian and vehicular maintenance and protection plan;
- Promoting public awareness through mechanisms such as: signage; telephone hotline; and web site updates;
- Ensuring sufficient alternate street, building, and temporary and permanent WTC PATH Terminal and subway station access during construction period; and

- Maintaining regular communication with NYCDOT and participation in its construction coordination efforts.

Air Quality

Based on the analyses in the FGEIS, LMDC finds that no significant adverse impacts on particulate matter are predicted along the Selected Project's construction access routes, and no significant adverse impacts are predicted on overall respirable particulate matter (PM_{10}) concentrations in the vicinity of the construction sites. However, absent mitigation, the predicted maximum increases in fine respirable particulate matter ($PM_{2.5}$) concentrations, due to the Selected Project alone and the cumulative impact of the Selected Project and the other major Lower Manhattan recovery projects are substantially higher than the NYCDEP interim guidance threshold values for both annual and 24-hour average $PM_{2.5}$.[6] Under worst-case construction and meteorological conditions, it is predicted that, absent mitigation, the cumulative impact of the Selected Project and the other major Lower Manhattan projects would substantially exceed the 24-hour average $PM_{2.5}$ National Ambient Air Quality Standard. While nitrogen dioxide (NO2) levels are not predicted to exceed the NO2 NAAQS, a significant adverse impact on NO2 concentrations is predicted, absent mitigation, immediately adjacent to the construction site. Accordingly, mitigation measures for these construction impacts are required.

Air Quality Mitigation

In addition to implementation of the Environmental Performance Commitments, as discussed in the FGEIS, LMDC is also committed to implementing additional measures to reduce particulate emissions. Specifically, all off-road construction equipment of 50 horsepower or greater will utilize, as practicable, best available control technology to reduce particulates, and all off-road construction equipment at the Project Site will utilize ultra low sulfur fuel except for those engines that arrive to the Project Site with their own fuel supply and which will remain at the site for a short duration (i.e., twenty days per year) and off-road engines used for the 130 Liberty Street in 2005. LMDC and the Port Authority will implement one or more of the following measures to further reduce particulate emissions:

- Electrification: Connection to a grid based power source of certain construction engines which operate in a fixed position or temporarily fixed position, such as welding machines and compressors. Provided that temporary connection to the power grid is available at the start of construction, providing sufficient power to the sites, some such equipment could operate on direct power, thus eliminating the on-site diesel exhaust source. While there may be instances where flexibility is needed and where some local generation is needed when access to connection points is not feasible, LMDC has determined that the Selected Project can replace much of the on-site power generation with grid power, thus minimizing the onsite generation capacity and significantly reducing diesel operated

[6] The annual $PM_{2.5}$ concentrations in Table 22-5 of the FGEIS were inadvertently stated as 0.11 (Proposed Action) and 0.26 (Cumulative). The correct numbers are 0.07 and 0.55 respectively. Likewise, Table 22-6 should read 17.21 (Proposed Action) and 17.36 (Cumulative) instead of 17.25 and 17.77.

welding machines and compressors. Such electrification not only significantly reduces particulate emissions, it also significantly reduces nitrogen oxide emissions.

- Advanced Reduction Technologies: Among others, LMDC has found that tailpipe emission technologies are available which can achieve reductions in PM emissions of 85 percent and as high as 98 percent or more, such as diesel particle filters (DPF). DPFs are not effective for every type of engine operation and there may be technical difficulties in applying DPFs to some engines. The existing DPFs which have been verified by EPA or by the California Air Resources Board (CARB) as effective at significantly reducing PM emissions are mostly dependent on a high operational exhaust temperature for part of the operational cycle in order to regenerate the filter and enable the continued operation of the engine. In some cases of construction engines that requirement is not met. DPFs with other means of regeneration exist, but would need to be tested for the specific desired applications. Procedures for verifying the use of these technologies will be identified and implemented.

- Newer Engines: The use of new construction engines will ensure that older, higher emitters are not operating on-site, and will make the operation of added control technologies easier and more efficient. For example, DPFs do not generally function with engines manufactured prior to 1994/5 since those engines did not include fuel injection. Since newer engines tend to have lower emissions to begin with, tailpipe reduction technologies would function more efficiently. Accordingly, LMDC and the Port Authority are committed to including in all construction bids the use of newer engines as practicable.

The LMDC and the Port Authority will participate in the LMCCG and develop verification procedures to ensure the use of ultra low sulfur diesel, maintenance of reduction technologies, implementation of dust suppression programs and utilization of grid power by construction contractors on the Project Site. If necessary to avoid exposure to short-term exceedances of the PM NAAQS, LMDC will explore initiatives relating to location specific measures.

To reduce emissions of nitrogen oxide and nitrogen dioxide, LMDC and the Port Authority will maximize the electrification of certain construction equipment at the Project Site as discussed above. The use of newer engines to reduce particulates will also reduce nitrogen oxide and nitrogen dioxide emissions. In addition, LMDC and the Port Authority are committed to exploring the use of NOx reduction technologies and products, such as selective catalytic reduction, exhaust gas recirculation, fuel borne catalysts or other additives for such construction engines, and will implement one or more of these technologies to ensure that, the total reduction in nitrogen dioxide emissions at the Project Site during the construction period is at least 17 percent as compared to construction without such mitigation. These measures will only be utilized in cases where they can be successfully employed in conjunction with the technologies chosen to maximize reduction of PM emissions; NOx reduction technologies that would interfere or reduce the effectiveness of PM reduction technologies will not be utilized.

LMDC is continuing to review with agencies responsible for the other major Lower Manhattan recovery projects their ability to make similar commitments with respect to some or all of these

additional mitigation measures to reduce cumulative particulate, nitrogen oxide and nitrogen dioxide emissions from construction equipment. Although the precise commitments to be made by these agencies have not yet been determined, it is expected that, through a combination of these or other comparable measures, such agencies would achieve the benefits described in the Mitigation Scenario Modeling Assessment provided in Section 22.6.2 of the FGEIS.

Noise and Vibration

The noise evaluation in the FGEIS was conducted based on HUD, FTA and CEQR guidelines and criteria to determine the relative change in noise levels that will result from the construction of the Selected Project and the other Lower Manhattan transportation recovery projects. Noise levels during the peak construction year of 2006 also took into account increased noise from any traffic (mobile sources) associated with both the major Lower Manhattan recovery projects and the Selected Project. LMDC has determined, based on the analysis in the FGEIS, that significant construction noise impacts are anticipated to result from mobile sources at one site on Liberty Street and two sites on Barclay Street. Noise levels attributed to construction activities other than mobile sources will exceed *City Environmental Quality Review* criteria at 17 of the 22 receptor locations evaluated. In addition, peak 8-hour noise levels during the peak construction year will exceed FTA criteria at eight sites; peak 30-day noise levels will also exceed FTA criteria at seven sites. Based on the FGEIS, LMDC has determined that the Selected Project will not result in significant adverse vibration impacts during construction.

Noise Mitigation

Lower Manhattan Construction Coordination

LMDC and the Port Authority are committed to implementing various measures to mitigate noise impacts during construction of the Selected Project. It should be noted that at several locations, existing noise levels prior to September 11 were already above those specified in HUD, FTA and CEQR impact criteria and continue to be so under existing conditions. Reducing construction noise to below such impact criteria levels will not be practicable because the construction noise will be exceeded by the ambient noise levels. The dense urban setting with mixed uses makes developing and implementing cost-effective feasible mitigation measures a challenge.

To address this challenge, LMDC and the Port Authority will participate in the LMCCG and the LMCCC.

In recognizing that it is beneficial that construction be coordinated to ensure that projects move forward expeditiously while minimizing the impact to residents, businesses, workers, commuters, pedestrians, and vehicles, the LMCCG's mission is to coordinate the communication between Lower Manhattan recovery projects as they develop measures to mitigate and minimize potential noise impacts for Lower Manhattan recovery projects. (See LMCCG's Construction Mission Statement attached as Appendix C.) The LMCCC will enhance public information and construction coordination efforts.

Environmental Performance Commitments (EPCs)

The LMCCG, or an entity created by the LMCCG, will implement and enforce the Environmental Performance Commitments (EPCs). The EPCs address construction techniques, design elements, and operating procedures that will be implemented to lessen the potential for adverse environmental impacts from construction activities in areas of special concern including noise and vibration. Consistent with the environmental performance commitments made by the agencies funding and sponsoring major projects in Lower Manhattan, LMDC will participate in the ongoing coordination efforts that are expected to continue throughout construction. It is also envisioned that the other agencies that signed the EPCs will undertake additional or more specific EPCs appropriate to the project based on each project's particular nature, timing, and scope.

Sustainable Design Guideline SEQ-5 - Construction Environment Plan

Separately from the EPCs, LMDC and the Port Authority are committed to implementing measures to reduce significant noise impacts and vibration resulting from construction through the *Sustainable Design Guidelines*. More specifically, guideline SEQ-5 calls for the development and implementation of a Construction Environment Plan prior to construction. The Construction Environment Plan will seek to reduce pollution and noise from construction activities and vehicles to adjoining neighborhoods. For noise pollution prevention, the plan will include the development of a materials staging and construction access plan prior to the start of construction. It is anticipated that careful staging of activities and construction vehicle access and travel away from sensitive receptors to the greatest extent practicable will minimize impacts. It is also anticipated that the Construction Environment Plan will include: source reduction measures (e.g., noise barriers); equipment alternatives; receptor reduction measures; alternative construction techniques; construction scheduling coordination with other Lower Manhattan construction activities; and preparation of a contingency plan in case established (criteria) limits are exceeded.

LMDC, the Port Authority, and Silverstein Properties will participate in the LMCCG and will implement the Selected Project's Construction Environment Plan. The plan will be developed prior to construction of the Selected Project and will reflect the most recent designs and construction plans. It will be updated continuously as the project schedule and activities evolve during construction. An overview of potential elements of the Construction Environment Plan is presented below.

Emission Limits And Performance Standards

Outdoor construction activities of the Selected Project will be between approximately 7 AM and 6 PM, Monday through Saturday, as practicable in accordance with applicable practices and requirements. Noise from construction equipment is regulated by EPA noise emission standards and also specified in the New York City Noise Code. These mandate that certain classifications of construction equipment, e.g., air compressors, pavement breakers, and heavy trucks, meet specified noise emission standards. The entity developed by the LMCCG will ensure that these standards are carefully followed.

For locations of sensitive receptors for specific project sites, LMDC and other agencies will participate within the LMCCG and develop construction noise performance standards intended to reduce noise levels at those locations to the degree practicable. Performance standards may include construction noise level thresholds for daytime, evening, and nighttime hours for weekday, weekend and holiday periods at sensitive receptor locations at and/or adjacent to a project site. These threshold criteria may include hourly L_{eq} and L_{10} during the various time periods, and may also include 8-hour L_{eq} and 30-day L_{dn} levels, consistent with agency guidelines for construction noise.

Designated Truck Routes

In general, because the project area has relatively high airborne noise levels due to existing traffic volumes, the increase in noise levels caused by delivery trucks and workers traveling to and from the construction sites will not be perceptible. However, localized increases in noise levels will be expected in the immediate vicinity of the Project Site near a few defined delivery truck routes and streets, e.g., Barclay and Liberty Streets. Since all truck trips will be restricted to the designated truck routes, it is anticipated that noise impacts associated with construction-related traffic will be limited to the receptor sites located on Barclay and Liberty Streets.

Noise Monitoring

Prior to construction, background noise measurements will be taken at noise-sensitive locations, in addition to the noise measurements conducted during the environmental review process. After construction begins, these stations could be used by project sponsors to monitor contractors to ensure that the performance standards established by the individual agencies are met. Contractors working on LMDC-funded projects at the Project Site will be required to meet the performance standards, procedures, and conditions specified in the Construction Environment Plan that will be developed before the start of construction.

Design Considerations And Project Layout (Sound Path Reduction Measures)

Design considerations and project layout approaches include constructing temporary noise barriers, rerouting traffic, placing construction equipment farther from noise-sensitive receptors, maximizing the distance between noisy activities, and constructing walled enclosures/sheds around especially noisy activities. There are several mitigation measures that have the potential to significantly reduce project impacts:

- The use of acoustic barriers and walled enclosures around certain construction activities. For example, noise tents/enclosures could be used around workers using jackhammers. A temporary noise barrier of appropriate height could be installed along the fence line/property line of the Project Site to reduce the noise levels. In addition, temporary barriers, e.g., wood panels on top of Jersey barriers could also be positioned adjacent to and moved along the slurry wall and other construction operations.
- The placement of construction equipment in shielded locations, such as below-grade in the bathtub of the Project Site, if possible. It is expected that most of the delivery and loading activities will occur inside the bathtub during foundation and sub-grade

construction. The edge of the slurry wall will thus provide noise shielding for the receptors on the street levels.

- The installation of noise reducing components on jackhammers, air compressors, generators, light plants, pile drivers and cranes to reduce noise levels.
- The use of electrically operated equipment, rather than combustion equipment, wherever possible; use of new models of equipment with quieter engines; or the "right-sizing" of equipment, especially generators, to minimize noise from unnecessarily larger pieces of equipment.
- The use of soil beds, timber planking, resilient surface coatings, and/or exterior rubber lining on truck bodies, wheel barrows, and concrete buggies to reduce rock impact noise during truck load/unloading operations.
- The use of drive-through street-level truck enclosures for truck loading and unloading.
- The use of sheds/enclosures at concrete pump sites during concrete truck unloading.
- The placement of most loading/unloading inside the bathtub and away from areas on the streets levels, if possible.
- The designation of central areas within projects for noisy activities, such as cutting steel or wood or use of noisy equipment such as impact wrenches. Encourage use of pre-cut, pre-fabricated, or modular construction materials that minimize need for on-site fabrication or cutting methods.

Overall, the implementation of such measures will reduce the number of adverse airborne noise impacts, but is unlikely to eliminate all of them. Even with these measures, construction operations will create significant adverse airborne noise impacts at a number of locations—in particular, at various residences adjacent to the Project Site.

Sequencing of Operations

Sequencing operations among the Selected Project and other Lower Manhattan recovery projects could reduce noise impacts by either combining noisy operations to occur in the same time period or spreading them out, avoiding sensitive times of the day (nighttime activities) or sensitive days of the year (e.g., September 11). This approach requires a highly coordinated effort. LMDC, the Port Authority, and other appropriate project sponsors and other entities such as the NYCDOT will coordinate efforts to explore which construction operations can be limited to daytime operations only, without significantly affecting schedule and costs.

Project sponsors could also unilaterally schedule the noisiest construction activities such as building slurry walls, pile driving, and surface excavation to daytime hours or less sensitive days unless these activities were enclosed or far away from noise-sensitive locations, such as residences.

Other activities, however, may not have as much latitude in scheduling, such as utility work. Because utility work requires the complete closure of the roadway and shutting off utility service for several hours, utility work is normally undertaken at night. Some cut and cover construction

will be needed, and noisy equipment, such as jackhammers, will at times be required. Where practicable, work will occur during the day. Moreover, late evening construction will occur during a limited number of evenings over the course of a year, which is the expected length of utility relocation work at a site.

Alternative Construction Methods and Equipment

Alternative construction methods, using special low noise emission level equipment, and selecting and specifying quieter demolition methods will also be included in the Construction Environment Plan (see earlier discussion in this section). In addition to the previously discussed possible alternatives to traditional equipment such as silencers or mufflers on engines, alternatives to traditional backup alarms could be considered. Backup alarms are high-pitched signals that are designed to attract attention for those who may be in the path of vehicles moving in reverse gear. While effective, backup horns tend to produce noise that is generally annoying and disturbing to nearby residents. Modifications to back-up alarms may include the use of alarms that automatically adjust to minimal, yet audible, levels (such as 5 dBA) above ambient noise levels in the area. Alternatives could include the use of infrared lighting or strobe lights. Any modifications or alternatives to backup alarms must be acceptable to the Occupation Safety and Health Administration. In addition, LMDC and the Port Authority will explore opportunities to use quieter construction techniques and specially quieted equipment will be specified where feasible and effective.

It should be noted that the use of alternative construction methods and equipment and mitigation measures require evaluation of other factors including impacts to schedule, safety and project cost considerations. If alternative construction methods result in schedule conflicts or delays, overall construction duration and exposure to construction noise could be extended, and the issue of whether to follow that course would be addressed when the question arises.

Overall, the types of noise mitigation that will be implemented at or adjacent to the Project Site will vary depending on the type and extent of construction and its proximity to sensitive uses (such as residences). Consequently, noise mitigation measures cannot be applied on a "one size fits all" basis, but must instead be tailored to the specific situation at each location.

For each site, the noise control plan will include an inventory of all equipment and its associated noise levels; prediction of construction noise levels (which take account of ambient noise levels, the types of construction activities, percent of time in operation, and the time of day in operation); establishment of distances between receptors and noise sources; and finally, a description of the various noise reduction measures that could be used to meet the construction noise limits that will be imposed on the contractors.

Interior Noise Attention at Residences

Some residential receptors are projected to incur interior noise levels during construction potentially exceeding recommended interior noise levels of 45 dBA. LMDC commits to providing noise insulating measures at affected residential receptors, such as insulated window treatment, where noise levels during construction are projected to exceed 45 dBA as a result of the Proposed Action. Baseline noise monitoring will be conducted at these receptor locations to

establish interior noise levels, to enable a projection of interior noise levels, to enable a projection of interior noise levels (based on existing window conditions), propose the most appropriate insulation technology to address noise impacts, and to assess the efficacy of the proposed noise attenuation solution.

Economic Effects

The major construction projects that would be occurring in 2006 would all generate major economic benefits. In particular the Selected Project is estimated to generate about 4,136 person-years of construction employment and about 6,373 person-years of employment in the city and about 7,853 person-years of employment in the state; construction activity equal to about $1.33 billion in the state, of which $1.02 would occur in the city; and tax revenues, exclusive of property-related payment, equal to $53.09 million.

LMDC and the Port Authority will continue to work together to minimize disruptions to businesses during construction of the Selected Project. Many of the buildings and businesses to the north and south of the Project Site (the areas closest to the proposed construction) were damaged and closed due to the terrorist attacks on September 11. However, some businesses south of the Project Site that have reopened or are expected to open may be adversely affected by construction noise and air quality. On the other hand, the businesses will also likely benefit from the large number of construction workers. Church Street will remain open throughout the construction period, although the western lane may be closed for much of the time, as well as portions of Church Street between Vesey and Dey Streets. It is not expected that access to retail uses or other businesses on the east side of Church Street in this area will be restricted so much that the businesses would be adversely impacted.

Cultural Resources

As discussed above, some limited areas of the eastern side of the WTC Site and of the Southern Site will require testing and monitoring, respectively, to avoid adverse impacts to archaeological resources. Analyses as part of the environmental review for the permanent WTC PATH Terminal, currently undergoing a separate environmental review by FTA and the Port Authority, would insure the avoidance of any potential impacts to archaeological resources in the location of the potential below-grade pedestrian connection under Church Street from the permanent WTC PATH Terminal to Liberty Plaza. Taken cumulatively, LMDC has determined that no significant adverse impacts to archaeological resources are anticipated from the Selected Project and the other major Lower Manhattan recovery projects.

As discussed in the FGEIS, construction of the Selected Project has the potential to cause damage to nearby historic resources from ground-borne vibrations, dewatering (for the bathtub on the east side of the site and for the expansion of the existing bathtub to the south), and other activities. Buildings or sites located within 90 feet of the Project Site are considered to be in the area of potential effect for construction activities. Historic resources in this area include the Barclay-Vesey Building at 140 West Street, the Federal Office Building/U.S. Post Office at 90 Church Street, 30 Vesey Street, St. Paul's Chapel Cemetery at Church Street between Vesey and Fulton Streets, the East River Savings Bank at 26 Cortlandt Street, the Beard Building at 125 Cedar Street, 114-118 Liberty Street, the Western Electric Company Factory at 125 Greenwich Street, the American Stock Exchange at 86 Trinity Place, the Hazen Building at 120 Greenwich

Street, 123 Washington Street, and 90 West Street. In addition there are potential historic resources at 106, 110, and 112 Liberty Street; 130 Cedar Street; and, 137-139 Greenwich Street.

Cultural Resources Mitigation

Construction of the Selected Project has the potential to cause damage to nearby historic resources from ground-borne vibrations, dewatering (for the bathtub on the east side of the site and for the expansion of the existing bathtub to the south), and other activities. To avoid any adverse impacts to standing structures throughout the construction period, feasible technologies will be explored and a Construction Protection Plan will be developed in consultation with the SHPO and will comply with the terms of the Programmatic Agreement referred to above. Typical protective measures in such construction plans include the following:

- To the extent permitted, a preconstruction inspection of the buildings will be undertaken by an engineering firm licensed to practice in the State of New York (the "Inspecting Engineer"), to determine existing foundation and structural condition information and ascertain any pre-existing damage, existing structural distress, and any potential structural weakness of the foundations or structures of these buildings. The Inspecting Engineer will have experience with historic structures.
- A written report will be prepared by the Inspecting Engineer documenting any potential weakness or structural distress and an assessment of the stability of any applied ornament, together with a protocol addressing any recommended remediation and steps to be taken to secure problem areas prior to the commencement of any construction activities. The written report will be submitted to the SHPO and will be supplemented with photo-documentation in the form of 8 inch x 10 inch black-and-white photographs keyed to a map or plan in order to provide a clear record of existing conditions and any problem areas.
- Controls on construction vibration will be required as per the Landmarks Preservation Commission (LPC) standards, or the specifications of the Inspecting Engineer if the latter is lower. LPC requirements limit maximum peak particle velocity to 0.5 inches per second for historic structures and 2.0 inches per second for non-historic structures.
- The Construction Contractor will ensure that the appropriate vibration limits and any other criteria deemed appropriate by the Inspecting Engineer are incorporated into the sub-contracts for the excavation work, which may include rock removal operations. The Construction Contractor will be responsible for monitoring these controls with periodic inspection by the owner's representative.
- Under supervision of the Inspecting Engineer, the Construction Contractor will provide continuous seismic monitoring at the site and inside the buildings during excavation and any other construction operations that would cause vibrations. Seismographs will be installed on the interiors and exteriors of the buildings, to the extent permitted by building owners. These units will be located such that they are away from the general public but are accessible to the technicians who must monitor them. The seismographs will measure vibration levels during excavation and construction. Prior to the commencement of excavation operations, the seismographs will be installed and tested to

ensure that they are in working order and to enable taking baseline readings. Daily logs of the seismic monitoring will be maintained and submitted to the SHPO upon request.

- If any excessive vibration (that which meets or exceeds the peak particle velocity level) is detected, the Inspecting Engineer will stop the work causing this excessive vibration. Buildings will be inspected for any structural degradation that may have occurred. The Inspecting Engineer will submit a report to the SHPO detailing the reason for exceeding the peak particle velocity level and the presence or lack of damage to buildings. If any damage was sustained, it will be secured, and the work that caused any damage will be altered to reduce the vibration levels to within acceptable limits. The resumption of work, if damage was sustained, must be authorized by the SHPO.
- In addition, during excavation the Inspecting Engineer will monitor any exposed vertical rock faces or fissures, joint orientation, and potential weaknesses to ensure that underground utilities serving the identified buildings are protected from damage.
- Should any cracking occur in any of the buildings during excavation or construction, monitors will be installed over each crack and monitored on a weekly basis until the Inspecting Engineer deems the cracks to be stable.
- All substantive requirements of the New York City Building Code applicable to construction activities, protection of adjacent structures (including party wall exposure) and utilities, and specific sections dealing with excavation and foundation operations will be met or exceeded. Construction will be performed in a safe manner with controlled inspections as required by the New York City Department of Buildings. Inspections will include but will not be limited to structural stability and foundation concrete. The Inspecting Engineer is required to be present during these and other operations to monitor the construction progress and conformance with contract documents.

Taken cumulatively with the other Lower Manhattan recovery projects, it is not expected that there will be any adverse impacts to historic resources adjacent to the Project Site.

Construction of the Selected Project has the potential to adversely affect some of the remnants of the former WTC. In addition to the typical protective measures listed above, in order to minimize or mitigate any such effects from the Selected Project, LMDC has incorporated into the Programmatic Agreement (see Appendix E) a series of commitments with respect to the future treatment of such remnants and procedures for consulting with the SHPO and identified consulting parties concerning such treatment. It is expected that the sponsors of other Lower Manhattan recovery projects that might have the potential for similar effects on such remnants would enter into similar arrangements or take comparable actions to avoid or mitigate such impacts as well.

4.0 SAFETY AND SECURITY

4.1 Construction Safety and Security

As part of the construction plan for the Project Site, the appropriate or responsible project sponsor will develop a detailed Health and Safety Plan (HASP) to be implemented throughout all aspects of the Selected Project's construction. The HASP, actually a compendium of several HASPs specific to particular areas of construction and activities, will require that each contractor

develop a plan governing their work for the appropriate or responsible project sponsor to review prior to implementation and commencement of any construction activity. The HASPs will require compliance with all applicable laws and regulations.

The HASPs will identify all preventive and emergency response procedures to be implemented in managing and controlling hazards and safety issues. The HASP will also describe methods to protect construction workers, the public, and the environment. Specific measures will typically address equipment, materials, controls, crew size, and job responsibilities, and ensure that operating procedures and maintenance practices are addressed, employed, and audited for safety. Preventive measures will include inspections, self-assessments, and testing to identify problem areas. For oversight, the Port Authority will implement an audit program to monitor all contractors for conformance with their individual HASP, as well as the project-wide HASP.

Appropriate security measures will be implemented during construction to address site needs prior to the completion and implementation of operational security structures and systems.

4.2 Emergency Safety

The Selected Project will meet or exceed safety standards expressed by relevant current building codes and guidelines. When the provisions of the relevant current codes do not address the unique conditions at the Project Site, a nationally recognized reference will be used to prepare an appropriate solution to present to authorities having jurisdiction over the Project Site, or an expert or team of experts will be consulted to propose an appropriate solution to the authorities having jurisdiction over the relevant authorites.

Ongoing research and extensive work with specialty security and fire safety consultants will lead to the development of a security system on the Project Site that advances the state of the art. The design of security and safety systems will consider the unique configurations, level of needed protection and threat likelihood for each building, structure or public space. Emergency response systems will be tailored to the anticipated security and emergency life safety needs of each space or structure. In addition, the proximity of each of these structures will allow for a more comprehensive overall design for safety and security on the site. A fire safety plan for each building will be created for review by the Port Authority in consultation with the FDNY. Additional life safety measures that will be implemented at the Project Site are not discussed in this ROD and Findings Statement for security reasons.

The design of all structures on the Project Site is expected to incorporate life safety provisions that will be guided by or exceed the relevant current building code requirements. For office towers and other applicable buildings an integrated public address system, designed to achieve recommended intelligibility levels of the National Fire Protection Association (NFPA), will alert occupants and visitors in the event of an emergency. Emergency power will be provided for all life safety systems. Tall buildings as well as other applicable buildings within the Selected Project will adhere to specific requirements applicable to high-rise facilities covering emergency voice communication, emergency power, a fire command center and automatic fire detection and sprinkler protection. The exits will be designed with attention to the number of exits, accessibility for persons with disabilities, exit separation, and exit width to support safe egress in emergency conditions. Dead-end corridors and common path of travel will be limited, as

expressed by applicable codes and standards. Compared to the Pre-September 11 Scenario the Selected Project will provide wider sidewalks and more roadways, thus facilitating egress from the site during emergencies.

Emergency power will be provided to the buildings by separate electrical services to serve emergency life safety loads. The systems to be powered during failure of normal electric systems include exit lighting, communications and public address systems, fire pump, smoke purge systems and emergency elevator operation of at least one elevator per bank. An automatic transfer switch will be in place between the normal and emergency electrical services. Emergency generators will be located to reduce vulnerability to potential threat or accidental emergency, providing greater reliability to on-site power resources.

Emergency response systems will rely on detailed planning throughout the Project Site for effectiveness and reliability. A state of the art internal antenna system will be considered for improved communication with and among emergency responders. The building sprinkler system will have a water storage capacity exceeding the New York City Fire Code, with widely separated access points. Air filtration and smoke purge systems will be designed to maintain critical life safety conditions in appropriate interior spaces.

A fire strategy will be developed for the Project Site through a combination of prescriptive requirements and performance-based engineering. Specific standards and codes will be observed such as maximum distance traveled for egress and maximum compartment size for containment of fires. Sprinklers, standpipes and extinguishers will be available in accordance with code requirements. The Project Site will be designed to meet, if not surpass, standards expressed in applicable codes applying to public assembly occupancy structures. Typically, building codes consider large volumes of people and require specific protective features. Active smoke control will be in place to create an atmosphere which will enhance egress and emergency response operations, including underground portions of the concourses and buildings. Stairway pressurization will be provided for stairways serving areas 75 feet above grade or higher. In addition, detailed analyses of integrated systems will be used to identify and examine special considerations in the development of a successful fire/life safety strategy.

When the standards expressed in the applicable codes do not apply to unique conditions at the site, a nationally recognized reference will be used or an expert or team of experts will be consulted to propose an appropriate solution to the authorities having jurisdiction over the relevant activities. Careful consideration will be given to systems and issues including: fire ignition and growth, detection, alarm, egress, fire-fighting facilities, smoke management and compartmentalization, structural fire resistance and suppression. The combination of prescriptive codes and regulations with performance-based engineering and design creates an integrated approach for the project. Overall safety targets will be prescribed by the general codes, and evaluation or improvement upon these performance targets is sought through further applied research and system models.

The office tower structures will be strengthened through a concrete reinforcement of the building core throughout the height of the building, including exit stairs, elevators and lobby space. To that end, the width of the exit stairs and other measures for emergency egress will exceed those

required by the current building code, allowing for more rapid evacuation and emergency response access. Exit stairs will have emergency lighting redundancy, will be widely separated and pressurized to mitigate smoke intrusion. Additional measures such as photoluminescent-marks and/or electroluminescent devices will further enhance the usability of exit stairs in case of emergency. At each floor, stair landings will provide a refuge space for a wheelchair occupant. The egress system will be designed for redundancy, with interconnecting corridors allowing alternative exit options in the event of a blockage or other hazard. Exits will flow directly to the exterior of buildings, eliminating the confusion associated with exiting through the building lobby. The building structure will be further strengthened through increased redundancy in the supporting steel assembly. This steel will be protected from heat and deformation by fireproofing material with a high level of durability and cohesion.

4.3 Operational Safety and Security

Safety and security considerations will be reflected in the operation of the elements of the Selected Project. The facilities for operational activities will include security, control and communication systems aimed toward maintaining a safe environment during everyday and emergency situations. Visual surveillance, lighting, emergency communications, and public and emergency access are examples of measures that will be carefully considered in the final design. In conjunction with the physical design, the Project Site's operating agency (or agencies), and, for the office towers, Silverstein Properties, will coordinate with public safety and law enforcement agencies such as the New York City Police and Fire Departments to develop detailed security plans and systems for all areas of the Project Site. Additional measures that will be implemented in the Project Site are not discussed in this ROD and Findings Statement for security reasons.

When appropriate, security standards published by the U.S. Government will serve as a guideline for design of the structures and spaces within the redeveloped site. A design goal of each component of the Selected Project will be to achieve a high level of security and safety. High rise buildings, hotel facilities, retail spaces and cultural and memorial spaces will be evaluated with respect to their individual security and safety needs and parameters. Architectural design features, structural design, and construction material selection will create opportunities for risk mitigation, in addition to the incorporation of security sensitive landscaping elements. Security threats to be considered in the design and execution of the Selected Project will include, but not be limited to:

- Explosive event threats delivered by vehicles and/or persons;
- Unauthorized use of firearms;
- Conventional crimes against persons and property;
- Airborne contaminants threats;
- Threat of sabotage to equipment;
- Water contamination threat; and
- Arson.

Vehicular screening and access will be designed to achieve secure protection from an explosive event threats by stressing visible security at sensitive locations. Such security screening will be managed to ensure efficiency and to minimize queuing and idling on streets around the site.

Persons entering secure areas and locations within the Project Site will be subjected to screening for explosives, flammables or firearms at visible security checkpoints at sensitive positions. Airborne contaminant monitoring and detection will allow emergency response to noxious threats as well as providing a positive identification of safe conditions. Local point-of-use water filters will also be suggested.

It is anticipated that the PAPD (or other appropriate agency) will be responsible for policing the Project Site, with NYPD support for emergency situations. The PAPD (or other appropriate agency) will be primarily responsible for patrolling, providing security, and protecting the Project Site. The new worker and visitor populations introduced as a direct result of the Selected Project will create an increased demand for service which will be met with increased staffing and operational resources as needed.

In addition to published and industry standards, other efforts are underway to understand, evaluate and improve the standards, technology and practices that are needed for cost-effective improvements to the safety and security of buildings and occupants.

The National Construction Safety Team Act, signed into law on October 1, 2002, provides for the evaluation of building failure by the National Institute of Standards and Technology (NIST). This law applies comprehensive investigative methods to the World Trade Center building and fire investigation, especially regarding the events of September 11, 2001. The investigation seeks to assess the building performance and emergency response and evacuation procedures, focusing on materials used and technical conditions. The NIST Public-Private Response Plan goal is to develop a technical basis for understanding, evaluating and improving the standards, technology and practices that are needed for cost-effective improvements to the safety and security of buildings and occupants. The areas of examination include evacuation, emergency response procedures and threat mitigation. The three-part NIST-led public-private program includes:

- A federal building and fire safety investigation to study the most probable factors that contributed to post-aircraft impact collapse of the Twin Towers and WTC, and the related evacuation and emergency response experience.
- A research and development program to provide a technical foundation that supports revisions to building and fire codes, standards, and practices that reduce the impact of extreme threats to the safety of buildings, their occupants and emergency responders.
- A dissemination and technical assistance program to engage leaders of the construction and building community in implementing proposed changes to practices, standards, and codes. This effort also will provide practical guidance and tools to better prepare facility owners, contractors, architects, engineers, emergency responders, and regulatory authorities to respond to future disasters.
- NIST findings will be considered for incorporation into the safety and security design elements and systems including but not limited to building design and materials emergency procedures and technical equipment for the Project Site where applicable and to the extent practicable.

5.0 MONITORING AND ENFORCEMENT

To enhance the operating commitments and mitigation measures described in this ROD and Findings Statement, the following monitoring procedures and enforcement mechanisms will be in place with respect to the Selected Project.

5.1 Commercial Design Guidelines and Sustainable Design Guidelines

The *Commercial Design Guidelines*, including the *Sustainable Design Guidelines*, will be adopted by LMDC and the Port Authority with administrative procedures. The Guidelines will set forth the procedure for the review and approval of plans in accordance with the design guidelines and a mechanism for considering suggestions for modifications to such guidelines on a case-by-case basis. The *Sustainable Design Guidelines* will be reviewed annually to ensure that long-term sustainability goals are met.

5.2 Construction

The Selected Project will be bid and constructed in accordance with this ROD and Findings Statement and the commitments made herein. As noted above, LMDC and the Port Authority will continue to participate in the LMCCG. In addition, Governor Pataki and Mayor Bloomberg have indicated their intention to issue Executive Orders to establish the LMCCC. Once established, LMDC and the Port Authority will cooperate with the LMCCC.

5.3 Historic Resources

LMDC entered into a Programmatic Agreement with the SHPO and ACHP in order to address any unanticipated or adverse effects on historic resources or properties that may occur as a result of the Selected Project's implementation and, in particular, to provide a further opportunity for the SHPO and the consulting parties to comment on plans for the Memorial and the Project Site as they are developed in order to avoid or minimize any potential for adverse effects and historic resources on the Project Site. In addition, the Programmatic Agreement sets forth a review process for artifacts removed from the WTC Site and specifies procedures for treatment of archaeological resources.

5.4 Traffic

NYCDOT will continue to evaluate the traffic flow in the area around the Project Site and will, at such times as traffic volumes in the study area warrant, implement the traffic mitigation measures in this ROD and Findings Statement, or alternatively, other comparable measures to reduce the traffic impacts of the Selected Project.

5.5 Natural Resources

Prior to reactivation of the CWIS, the Port Authority will be required to obtain a SPDES permit from NYSDEC. The SPDES permit will contain specific discharge limits in order to minimize the Selected Project's impacts on aquatic resources. The permit will also include appropriate

monitoring, recordkeeping and recording requirements to insure compliance with the discharge limits.

6.0 FGEIS COMMENTS AND RESPONSES

LMDC received a number of written comments from agencies, elected officials, organizations and individuals. All such comments have been considered by LMDC in preparing this ROD and Findings Statement. Responses to all such comments are attached as Appendix H. Written comments are contained in Appendix I.

7.0 FINDINGS AND DECISION

The basis for LMDC's decision includes its review of the project purpose and need, as described in Section 1.2, the environmental impacts of the Selected Project and its ability to satisfy that purpose and need as described in Section 3.0, the ability of alternatives to meet the project purpose and need and the environmental impacts of such alternatives as described in Section 2.0, safety and security concerns as described in Section 4.0, and the public comments received on the DGEIS and FGEIS, as well as during the planning processes described above.

The Selected Project will create an appropriate Memorial for the victims of September 11, 2001 and February 26, 1993, will restore commercial, retail, and open space uses on the Project Site and will revitalize and enhance the Lower Manhattan community. The Selected Project has been designed and is expected to achieve each of these goals while minimizing the potential for adverse environmental impacts. Nevertheless, as discussed in the analyses above, construction of the Selected Project would necessarily involve significant traffic, noise, and short-term air quality impacts during its construction period, the early part of which is likely to overlap with construction of other Lower Manhattan recovery projects being carried out by other public agencies. When completed, the Selected Project will add traffic and pedestrians to already congested intersections in Lower Manhattan and some incremental shadows to Washington Market Park and on the open space area along Church Street east of the WTC site. Although best available technologies will be explored during the permitting process, reactivation of the existing Hudson River pump station and its cooling water intake system — in order to reduce potable water and energy requirements of the Selected Project — will also result in the loss of some aquatic biota. The Memorial will honor the victims of September 11 and enhance the historic significance of the site; however, the Selected Project will also likely require removal of some remnants of the former WTC. While LMDC has committed to a broad program of measures to mitigate (or avoid entirely) these impacts, some adverse impacts are inevitable if the significant benefits of the Proposed Action are to be realized.

LMDC finds that, on balance, the Selected Project would best realize the underlying purpose and need as set forth in Section 1.2 and LMDC's overall goals and objectives. By incorporating the possible use of the Northern Service Option described above, the Selected Project would simplify and reduce the cost of the required below-grade infrastructure on the WTC Site while permitting construction of Freedom Tower, the performing arts center and other cultural facilities to proceed in advance of completion of the larger sub-grade infrastructure, access and loading facilities planned for the balance of the Project Site. LMDC also finds that inclusion of such

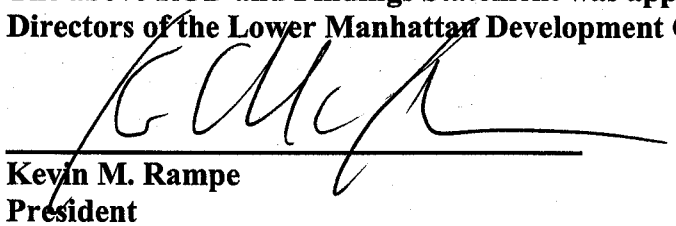
Northern Service Option in the Selected Project will not have significant adverse environmental impacts beyond those identified for the Proposed Action in the FGEIS and that, accordingly, no further or supplemental environmental review is required for that Option.

LMDC has carefully considered the events of September 11 and the aftermath, the social, economic and environmental evaluations contained in the environmental review record, including the DGEIS and FGEIS, the input received from other agencies, organizations, elected officials and the public, and factors and project commitments and mitigation outlined above in this ROD and Findings Statement. In accordance with 40 CFR § 1505.2, LMDC has adopted all practicable means to avoid or minimize environmental harm from the Selected Project and adopted monitoring and enforcement programs, as discussed above. This ROD and Findings Statement will permit LMDC to continue with the Selected Project and incorporate the associated commitments and stipulations as defined herein. LMDC approves the Selected Project as defined in this ROD and Findings Statement.

LMDC has also weighed and balanced relevant environmental impacts with social, economic and other considerations. Having considered the DGEIS and FGEIS, and having considered the above written facts and conclusions relied upon to meet the requirements of 6 NYCRR § 617.11, LMDC certifies that, consistent with social, economic and other essential consideration, from among the reasonable alternatives available, the Selected Project is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable, and that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions to the decision those mitigative measures that were identified as practicable.

Based on the foregoing determinations and findings and the entire environmental review record herein, LMDC hereby approves the Selected Project in accordance with the above-referenced applicable statutory and regulatory requirements in order to facilitate remembrance, rebuilding, and renewal in Lower Manhattan in the aftermath of September 11.

The above ROD and Findings Statement was approved and adopted by the Board of Directors of the Lower Manhattan Development Corporation on June 2, 2004.



6-2-04

Kevin M. Rampe
President
Lower Manhattan Development Corporation

Date