

1.1 INTRODUCTION

Prior to 8:46 AM on September 11, 2001, the World Trade Center (WTC) in Lower Manhattan was a thriving commercial, transportation, and retail destination for 50,000 workers, tens of thousands of commuters, and thousands of visitors. It was home to approximately 400 firms, governmental agencies, and organizations involved in national and international commerce, a hotel, transportation facilities, and scores of retailers. While the WTC was located in the heart of the Financial District, it also neighbored established and growing residential communities.

On September 11, 2001, two passenger jetliners traveling from Boston to Los Angeles were hijacked by terrorists and redirected to New York City. Each airplane headed for Lower Manhattan toward the WTC and its Twin Towers. One airplane was flown into floors 94 through 98 of the North Tower at 8:46 am. The second airplane was flown into floors 78 through 84 of the South Tower at 9:03 am. The attacks caused massive explosions that showered burning debris over the surrounding buildings and the streets below, and ignited fires within the towers themselves. The South Tower collapsed at 9:59 am and the North Tower collapsed at 10:28 am. From the moment the North Tower was hit, rescuers rushed to the WTC in the hope of helping evacuate those still in the towers. Even after the collapse of the South Tower, countless firefighters and others climbed into the North Tower to aid those trying to escape. It is estimated that 15,000 people escaped from the Towers before they collapsed. Even so, nearly 2,800 people lost their lives that day in the WTC and its vicinity.

In the aftermath, the Lower Manhattan Development Corporation (LMDC) was created by Governor George E. Pataki and former Mayor Rudolph Giuliani as a subsidiary of the New York State Urban Development Corporation doing business as Empire State Development Corporation (ESDC, a political subdivision and public benefit corporation of the State of New York) to coordinate the remembrance, rebuilding, and revitalization efforts. LMDC is proposing to undertake, with funding from the United States Department of Housing and Urban Development (HUD), and in cooperation with the Port Authority of New York and New Jersey (Port Authority, a municipal corporate instrumentality of the States of New York and New Jersey), a World Trade Center Memorial and Redevelopment Plan (Proposed Action) that includes the construction of a World Trade Center Memorial and memorial-related improvements, as well as commercial, retail, museum and cultural facilities, new open space areas, new street configurations, and certain infrastructure improvements at the WTC superblock bounded by Liberty, Church, and Vesey Streets, and Route 9A. The *Southern Site* comprises the two city blocks south of the WTC Site and portions of Liberty Street and Washington Street. The WTC Site and *Southern Site* are referred to collectively as the Project Site in this Generic Environmental Impact Statement (GEIS) (see Figure 1-1).

LMDC is conducting a coordinated environmental review of the Proposed Action pursuant to federal law as the recipient of HUD Community Development Block Grant program funds (42 USC § 5304(g)) and as lead agency under both the National Environmental Policy Act (NEPA)

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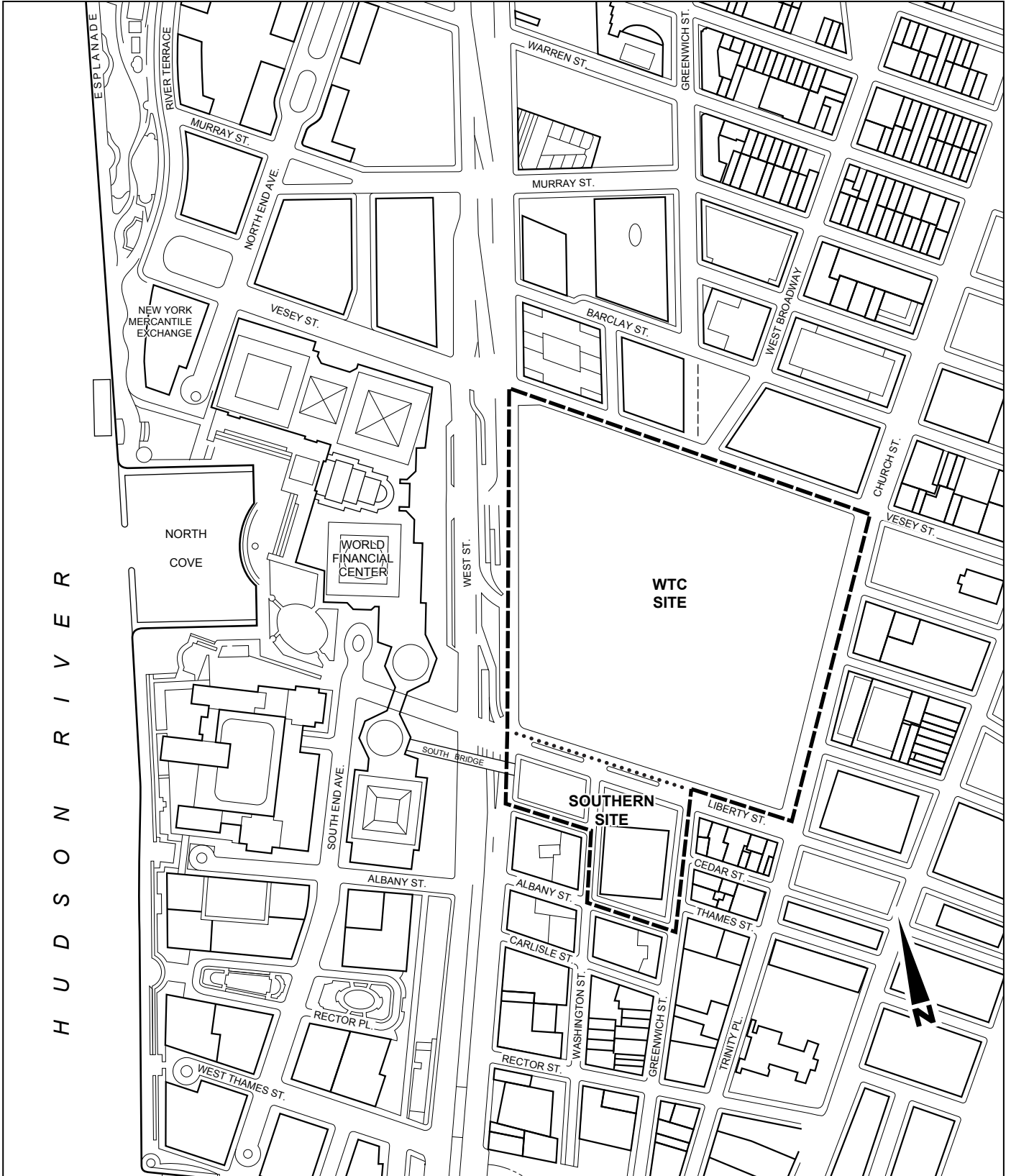
and the New York State Environmental Quality Review Act (SEQRA) and their implementing regulations. LMDC has prepared GEIS as part of that review. On June 20, 2003, LMDC released on its web site (www.renewnyc.com) and circulated publicly a Draft Scope for the GEIS, making it available to agencies and the public for review and comment. LMDC held two public scoping meetings at the Tribeca Performing Arts Center at the Borough of Manhattan Community College, 199 Chambers Street, New York, NY, on Wednesday July 23, 2003. The public comment period remained open for submission of further written comments until 5 PM, August 4, 2003. Based on the comments received and other considerations, a Final Scope for the GEIS was prepared and then approved by LMDC's Board of Directors on September 16, 2003, and made available to the public, interested parties, and cooperating agencies.


The Draft GEIS (DGEIS) was published in January 2004. Public review for the DGEIS began on January 22, 2004, with publication and distribution of the document. The DGEIS was circulated to involved and interested agencies and other parties and posted on LMDC's web site, and notices of its availability and the public hearings were published in the Federal Register on January 23, 2004, the New York State Environmental Notice Bulletin on January 28, 2004, and in daily and neighborhood newspapers in between and around those two dates. LMDC also made available the Amended General Project Plan (GPP) for the Proposed Action, which was approved by LMDC's Board on September 16, 2003. LMDC held two joint public hearings at Pace University in Manhattan to receive comments on the DGEIS and the GPP on February 18, 2004, one from 1 PM to 5 PM and one starting at 6 PM. The public comment period on the DGEIS remained open through March 15, 2004. The public comment period on the Amended GPP remained open through March 19, 2004.

LMDC is also conducting a parallel review under Section 106 of the National Historic Preservation Act (NHPA). Section 106 requires federal agencies to identify historic properties listed in or eligible for inclusion in the National Register of Historic Places that may be affected by a proposed undertaking. As fully discussed in Chapter 5, "Historic Resources," LMDC coordinated the Section 106 process regarding the WTC Site's eligibility for listing on the National Register of Historic Places with the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). On March 31, 2004, LMDC, FTA, and FHWA issued a Coordinated Determination of National Register Eligibility (Coordinated DOE) for the WTC Site finding the entire WTC Site eligible for listing. LMDC recently prepared a draft Programmatic Agreement, with the New York State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP), to address historic resources on the WTC Site. LMDC is now considering comments on that draft. The Programmatic Agreement was distributed to "consulting parties" identified during the Section 106 process and released for public comment through newspaper notice and on LMDC's website until April 8, 2004.

Comments and responses on the DGEIS and the GPP as well as on the proposed Finding of No Adverse Effect are included in Chapter 27. The text and figures in the FGEIS have been modified in response to changes in the Proposed Action and to the comments received.

This chapter contains background on the Project Site through the recovery and redevelopment efforts to date; a statement of the purpose and need for the Proposed Action; a description of the Proposed Action and its principal alternatives; and an identification of the reviews and approvals required for implementation of the Proposed Action.



 Project Site

0 200 400 FEET
SCALE

1.2 BACKGROUND AND CONTEXT

1.2.1 WORLD TRADE CENTER

In 1962, the States of New York and New Jersey authorized and directed the Port Authority to acquire the Hudson Tubes interstate public transit system (now known as PATH), to construct the WTC complex and to cooperate with other governmental agencies for the purpose of renewing and improving the WTC area as part of the Port Authority's mission to develop the port of New York and New Jersey. The WTC complex consisted of the approximately 16-acre WTC Site, a superblock bounded generally by Church Street on the east, Liberty Street on the south, Route 9A on the west, Vesey Street on the north, and a 2-acre commercial parcel immediately to the north of the WTC Site that would be the location of an office building completed in 1983.

Construction on the WTC Site began in 1966. As part of the construction process, a slurry wall was constructed around the area of the site west of the Metropolitan Transportation Authority/New York City Transit (MTA/NYCT) No. 1/9 subway line and the area was excavated to bedrock, lined with concrete to seal the four sides and bottom, creating a structural "bathtub" for the Twin Towers, two 110-story buildings that rose over 1,350 feet and were then the tallest buildings in the world. Occupancy of the Twin Towers began in December 1970 at the North Tower, One World Trade Center (1 WTC, or Tower One), and in April 1972 at the South Tower, Two World Trade Center (2 WTC, or Tower Two). The roof of 1 WTC also had an approximately 350-foot mast supporting television and radio antennae for major public and private broadcasters in New York City.

The WTC Site included Four and Five World Trade Center (4 and 5 WTC), both of which were nine-story buildings; the eight-story U.S. Customs House (6 WTC); and a 22-story hotel (3 WTC), all of which surrounded the Austin J. Tobin Plaza (the Plaza). Directly below the Plaza was the Concourse, a retail mall and transportation hub that provided pedestrian connections to the PATH trains to New Jersey and seven subway lines operated by MTA/NYCT. There were six below-grade floors, which included parking for 2,000 cars, a system of freight servicing and loading, tenant storage, and significant infrastructure and utilities supporting the operation of the WTC's buildings and transportation facilities, including PATH. The six below-grade floor slabs also provided critical lateral stability for the slurry wall of the bathtub.

Pursuant to an agreement between the Port Authority and New York State's Battery Park City Authority (BPCA), a pedestrian bridge was built connecting the northern part of the WTC Site with the commercial core of *Battery Park City* (BPC) west of the WTC. To the north of the WTC Site, the complex included Seven World Trade Center (7 WTC), a 47-story office building completed by Silverstein Properties in 1983, over two electrical substations occupied by Consolidated Edison Company of New York, Inc. (Con Edison) and connected to the WTC Site by a pedestrian bridge over Vesey Street.

In total, the WTC complex included over 12 million square feet of office space, of which over 10 million square feet were located on the WTC Site. The WTC Site also included approximately 400,000 square feet of active retail space, 2,000 parking spaces, and a 600,000-square foot (820-room) hotel with conference facilities.

On February 26, 1993, a terrorist truck bomb was set off near the public parking garage underneath the WTC Site, killing six individuals and causing damage to infrastructure and the

hotel. Following the bombing, public parking was eliminated and certain additional security measures were implemented.

In July 2001, the Port Authority entered into long-term leases for the office, retail, and related space at the WTC Site—not including the hotel at 3 WTC or the U.S. Customs House at 6 WTC—with affiliates of Silverstein Properties and for existing and future retail spaces at the WTC Site with affiliates of Westfield America (collectively, together with their successors, the Net Lessees). The insurance contracts relating to the net leased properties are the subject of consolidated lawsuits between the Net Lessees and their insurance companies. These lawsuits are pending in the United States District Court for the Southern District of New York.

1.2.2 SOUTHERN SITE

Located south of the WTC Site across Liberty Street, the Southern Site was occupied by a 39-story office building at 130 Liberty Street, St. Nicholas Greek Orthodox Church at 155 Cedar Street, and a parking lot at 140 Liberty Street surrounding the church.

1.2.3 SEPTEMBER 11

On September 11, 2001, terrorists hijacked three commercial jetliners and used them to destroy the WTC and damage the Pentagon. A fourth hijacked plane crashed in Pennsylvania. These terrorist attacks resulted in substantial loss of life and destruction of property. The Twin Towers collapsed and all other buildings on the WTC Site were destroyed.

To the north of the WTC Site, 7 WTC and the Con Edison substation within it were destroyed. On the Southern Site, the outdoor parking lot at 140 Liberty Street was covered by material from the collapses, St. Nicholas Greek Orthodox Church was destroyed, and 130 Liberty Street was severely damaged and its two-level plaza along Liberty Street destroyed. Other buildings surrounding the WTC Site, including the Millennium Hilton Hotel, Century 21 department store and the Federal Office Building/U.S. Post Office on Church Street, Fiterman Hall on Barclay Street, 90 West Street, the Barclay/Vesey (Verizon) Building on Route 9A, and the Winter Garden, the World Financial Center, and Gateway Plaza in BPC were also severely damaged. Material spread by the attacks covered a larger area, extending north to Chambers Street, east to Nassau/Broad Streets, south to the Battery, and west to the Hudson River waterfront.

All mass transit stations and facilities in and around the WTC Site were destroyed. Service on PATH and all subway lines serving Lower Manhattan was shut down.

Much of Lower Manhattan south of Houston Street became a restricted area and was cordoned off for security and recovery reasons. Large streets and parks, including Route 9A, historic Battery Park, and the Hudson River Park below Houston Street, were taken over by safety installations, emergency vehicles, recovery equipment, and rescue and recovery facilities for extended periods of time. Some streets remain closed or occupied by safety installations and construction equipment. Many of the businesses and residents in the surrounding area were temporarily displaced, and some have not returned. 130 Liberty Street remains standing, damaged, and vacant. 140 Liberty Street is still a construction staging area.

1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.3.1 RECOVERY EFFORTS

The effects of the terrorist attacks were felt throughout the region and the country, leading to an outpouring of support for the physical, financial, and emotional recovery efforts that continue to this day. In the aftermath of the attacks, the Twin Towers became a symbol of antiterrorist resolve, and many volunteers contributed time, money, and resources to the monumental tasks of search, rescue, and recovery. A widespread sentiment arose in the city, the state, and the nation for rebuilding the WTC site 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.

PHYSICAL RECOVERY

Rescue and recovery operations began immediately after the attacks under the direction of the Federal Emergency Management Agency (FEMA) and the New York City Department of Design and Construction (DDC). Work continued 24 hours a day, seven days a week. Initial efforts focused on human rescue operations. As weeks passed, the passage of time and the magnitude of the material eliminated further opportunities for successful rescue, and recovery of human remains became the primary challenge.

As material was removed from areas near the WTC complex and the safety of nearby structures was verified, workers and residents were generally allowed to return to the surrounding area. By the beginning of 2002, the restricted area was reduced to the area west of Broadway and south of Barclay Street, and a public viewing platform was constructed on Fulton Street just east of Church Street. The platform remained in place until Church Street was reopened and a wide sidewalk/viewing area on the west side of the street (on the eastern edge of the WTC Site) was created. While Liberty, Vesey, and Barclay Streets surrounding the WTC Site remain closed to vehicular traffic, pedestrian paths have been created across Vesey and Liberty Streets from Church Street to Route 9A. However, some buildings to both the south and the north of the WTC Site remain unoccupied. *With the exception of 130 Liberty Street*, most are being repaired or reconstructed. The fate of Fiterman Hall, a building on the north side of Barclay Street *that was* renovated for use by the Borough of Manhattan Community College before September 11, remains uncertain.

The City of New York maintained primary responsibility for the recovery efforts until June 30, 2002, and coordinated its efforts with other private and governmental entities. Approximately 1.8 million tons of damaged structures and materials were removed through the fall, winter, and spring of 2001-2002, leaving much of the WTC Site excavated to a depth of 40 to 70 feet. In order to preserve the WTC complex as well as the health and safety of rescue workers, necessary infrastructure repairs were undertaken concurrently with the recovery efforts, including the temporary stabilization of the slurry walls and flood-proofing of the WTC Site. The portion of the WTC complex on which 7 WTC was located was returned to Port Authority control on May 7, 2002. Recovery efforts concluded as of June 30, 2002, when the WTC Site was returned to Port Authority control. MTA/NYCT completed reconstruction of the No. 1/9 subway tunnel in September 2002, after which service resumed on that subway line to Lower Manhattan, though without the damaged Cortlandt Street Station.

In order to restore service to a major regional transit hub, construction of a temporary WTC PATH station by the Port Authority began in July 2002 following conclusion of the recovery

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operations. The station opened for service in November 2003. The temporary WTC PATH station was constructed in substantially the same configuration that existed prior to September 11, except that the tracks and platforms are not fully enclosed and the station is not heated or air-conditioned, has fewer pedestrian and transit connections, and has only one entrance/exit (on Church Street near Vesey Street).

In the spring of 2002, Silverstein Properties and Con Edison began reconstruction of 7 WTC and the electrical substations at its base. On the Southern Site, 130 Liberty Street remains vacant and shrouded in black netting. Its plaza and the supporting structure for the plaza were removed, leaving a deep hole in the ground. To the west, the block formerly occupied by the church and the parking lot was repaved and has been used for construction staging. In BPC, two large tents were erected on Site 26 to serve recovery workers, though the site is now functioning as a surface parking lot again.

FINANCIAL RECOVERY

In recognition of the disastrous impact of the terrorist attacks, President George W. Bush declared Lower Manhattan a national disaster area and \$21 billion in aid was approved by the United States Congress for the repair, restoration, and recovery efforts. These funds were allocated to FEMA, the Federal Transit Administration (FTA), and HUD for specific objectives and grants, to be separately administered by each of the agencies and local project sponsors. LMDC has received grants totaling \$2.783 billion from HUD through its Community Development Block Grant (CDBG) program to accomplish the express purposes outlined in the legislation. (See Defense Appropriations Act of 2002, Public Law 107-117, and Supplemental Appropriations Act of 2002 for Further Recovery From and Response to Terrorist Attacks on the United States, Public Law 107-206.) Consistent with these objectives, LMDC's early actions focused on the stabilization and revitalization of the area during the recovery efforts and plans to eliminate the blighting effect of an essentially empty, excavated space in the heart of Lower Manhattan and New York's Financial District. HUD's grant recognizes the urgent need to address the effects of the attacks on the Twin Towers, the symbols of the nation's premier business and historic district, and on the area's businesses, residents, workers and visitors as well as related effects on the city and state economy.

Government programs aimed at providing assistance to individuals affected by the events of September 11 were also established in the months following. The Victim Compensation Fund provides economic compensation to families and dependents of victims in lieu of pursuing a civil court case for damages; the Small Business Administration offered low-interest loans to eligible individuals to repair or replace damaged property and personal belongings not covered by insurance; FEMA's Disaster Housing Program made funds and services available to individuals whose homes were uninhabitable, while FEMA and New York State also provided cash grants to those who did not qualify for the Small Business Administration loans; Department of Labor also made funds available for extension of unemployment assistance. Financial assistance provided by individuals and nonprofit organizations such as the American Red Cross, September 11th Fund, Twin Towers Fund, and New York State World Trade Center Relief Fund also proved invaluable in the recovery efforts.

EMOTIONAL RECOVERY

The need for reflection and emotional healing was also of paramount importance in the wake of the September 11 attacks. Local and national health care organizations provided services to

survivors, rescue workers, and victims' families with funding from individual donations as well as governmental agencies, such as FEMA. Support was also provided through spontaneous memorials and expressions of mourning at the WTC Site, in the city, throughout the region and around the country. International support was demonstrated by visits to the WTC Site by heads of state.

At the same time, 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 the Interim Memorial in Battery Park. The Interim Memorial is dedicated "to all whose lives were taken, and the many who gave their lives trying to save them at the World Trade Center in the attacks of September 11, 2001." The centerpiece of the memorial is the *Sphere*, an artwork by Fritz Koenig originally located on the fountain at the center of the Plaza at the WTC Site. The *Sphere* was damaged in the September 11 attacks and was donated by AXA Insurance Company. On the first anniversary of the attacks, Mayor Michael Bloomberg dedicated an eternal flame at the Interim Memorial.

Also on March 11, 2002, Governor Pataki and Mayor Bloomberg dedicated the *Tribute in Light*, two banks of 44 spotlights which projected light almost one mile into the night sky near the location as the Twin Towers. The *Tribute in Light* was the result of collaboration between civic organizations and artists from a broad range of disciplines, and could be seen from up to 25 miles around Lower Manhattan. The lighting of the *Tribute in Light* was one of many ceremonies held across the United States that day and continued to illuminate the night sky for 32 days.

A permanent Memorial will be created at the 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 at the WTC on February 26, 1993. The Memorial would be set in a context that bustles with the activity of Lower Manhattan, yet provides a respectful setting for remembrance and contemplation. Visitors from around the world are expected to come to the Memorial to learn about the events of September 11, 2001, and February 26, 1993, and to remember those who died and those whose lives were changed forever. The Memorial mission statement, program, and design process are discussed further in section 1.6, below. *The design of the Memorial is based on a concept by Michael Arad and Peter Walker—"Reflecting Absence"—described in section 1.5.5, below.*

1.3.2 PRINCIPLES FOR REBUILDING

Governor Pataki and former Mayor Giuliani created the LMDC in November 2001 to help plan and coordinate the rebuilding and revitalization of Lower Manhattan south of Houston Street. LMDC is charged with assisting New York City in recovering from the terrorist attacks on the WTC and ensuring that Lower Manhattan emerges as a strong and vibrant community. The centerpiece of LMDC's efforts is the creation of a permanent Memorial remembering and honoring the innocent men, women, and children lost in the terrorist attacks and cooperation with other public and private entities in the revitalization and redevelopment of the Project Site. Toward this end, and with input from every affected and interested community, LMDC and the Port Authority initiated a comprehensive planning process that has resulted in the Proposed Action.

In addition to the Memorial effort, LMDC and the Port Authority will continue to coordinate the restoration of the Project Site as a functioning part of Lower Manhattan. The Proposed Action is

intended to re-establish the Project Site as a locus of commerce, civic space, and amenities, including appropriate commercial and retail uses, as well as supporting utilities and infrastructures, for the Downtown area. While Lower Manhattan has long been a center of world finance and a major economic engine for the entire region, it has more recently become the fastest-growing residential neighborhood in the city and a major destination of regional, national, and international travelers. For these reasons, revitalization of Lower Manhattan should include cultural and other amenities that help make the area a lively environment all day, every day.

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 Urban Development Corporation Act, the objectives of the LMDC, the mission of the Port Authority, and the goals articulated by the public, the Governor, and the Mayor: to remember and honor the victims of the terrorist attacks while revitalizing Lower Manhattan. Meeting the immediate need for physical, financial, and emotional recovery following the attacks on September 11, 2001 is the principal purpose of LMDC and the Proposed Action. Following is a review of the public dialogue, unprecedented in terms of scope and magnitude, which shaped the proposed WTC Memorial and Redevelopment Plan.

1.4 PLANNING FOR DEVELOPMENT

1.4.1 INITIAL STEPS

In the months following its formation in November 2001, LMDC developed a coordinated outreach plan to consult with a broad range of individuals and groups affected by the WTC attacks, including families of victims, business owners, and residents of Lower Manhattan, in order to create appropriate objectives. LMDC formed nine Advisory Councils to provide forums for public input and participation in focused topic areas, including Victims' Families; Residents; Financial Service Firms; Professional Firms; Arts, Education and Tourism; Restaurants, Retailers and Small Businesses; Development; Transportation and Commuters; and the General Advisory Council. LMDC also met with Community Boards, civic groups, planning and not-for-profit organizations, elected officials, and government agencies to seek advice. Transcripts of all meetings were kept for public record. All such public participation was instrumental in developing and refining LMDC's initial mission and principles for action.

After the initial widespread public outreach campaign, 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 public hearing, and comments were incorporated into a *Revised Blueprint* issued on June 5, 2002.

The *Revised Blueprint* contained the following 15 principles:

- Respect the site of the WTC as a place of remembrance, and reserve an area of the site for one or more permanent memorials;
- Facilitate the continued revitalization of Lower Manhattan to ensure its long-term viability;

- Restore all or a portion of the street grid and reintegrate the former WTC Site to the rest of Downtown;
- Eliminate Route 9A as a barrier between the Financial District and BPC;
- Coordinate mass transit services to provide a coherent integration between Lower Manhattan and the rest of the city and region;
- Create a distinctive transit hub linking PATH, subway, and future regional rail service as a gateway to Lower Manhattan;
- Create Downtown facilities to accommodate the anticipated surge in charter, tour, and public buses, and explore opportunities for off-street vehicular and service access;
- Expand the residential population and enhance residential life to create a strong sense of community throughout Lower Manhattan;
- Promote retail and commercial opportunities that support Lower Manhattan as a vibrant place with daytime and nighttime activity;
- Provide for new or expanded cultural and civic institutions in Lower Manhattan;
- Create an accessible, attractive, and comprehensive park and open space system for Lower Manhattan;
- Support sustainable design, “green building” technology, state-of-the-art safety and security in design and engineering, and accessible design features;
- Support excellence in design to ensure the creation of a location that is a symbol of New York City recognized around the world;
- Encourage preservation of outstanding historic structures and the cultural value of the cityscape; and
- Develop Lower Manhattan, not only with a revived and strengthened financial services/Wall Street economy, but with new centers of economic activity.

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. For example, the Residential Grant Program provides financial incentives to encourage individuals of all income levels to remain in, or move to, housing in Lower Manhattan. LMDC is also sponsoring History and Heritage in Downtown NYC, a joint initiative of 14 cultural institutions located in Lower Manhattan that is intended to encourage tourists and visitors to explore Downtown’s cultural heritage.

1.4.2 PRELIMINARY DESIGN CONCEPTS

Guided by the *Revised Blueprint* developed with extensive public input, LMDC and the Port Authority jointly issued a Request for Proposals (RFP) in May 2002 for an urban design study of options for the WTC Site, adjacent areas, and related transportation infrastructure. The principles expressed in the Revised Blueprint shaped the preliminary program and design concepts submitted by the successful RFP respondent, the team of Beyer Blinder Belle Architects and Planners LLP and Parsons, Brinckerhoff, Quade and Douglas, Inc. The key new additions to the program for the WTC Site were the creation of a space for a permanent memorial and the introduction of streets to the former superblock.

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LMDC and the Port Authority released six initial concept plans to the public on July 16, 2002, and conducted an extensive outreach program to solicit public comment. The plans were available for comment on the LMDC's web site and at Advisory Council meetings. LMDC and the Port Authority concurrently sponsored an exhibit at Federal Hall on Wall Street, at which visitors were encouraged to read and complete a public comment brochure soliciting opinions about site land uses and programmatic elements embodied in each of the six design concepts. 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 six initial concept plans are described below:

MEMORIAL PLAZA

This plan included five towers (one at 79 stories, two at 67 stories, and two at 62 stories), and an 8-acre plaza west of an extended Greenwich Street, with sites for memorials and buildings for museum/cultural uses. Fulton and Cortlandt Streets would extend to Greenwich Street, and Fulton Street would become a pedestrian path through the open space to connect to the World Financial Center. West Street express traffic would be submerged in a tunnel, with local traffic carried on a surface boulevard. Five acres of new property would be created on a grand promenade over the submerged express lanes of West Street. A tall, freestanding mixed-use tower would be located on the northwest corner of the site, with a signature skyline element. This tower would terminate a grand promenade linking the site to Battery Park and, via ferry, Ellis Island and the Statue of Liberty. Potential residential development was identified south of Liberty Street.

MEMORIAL SQUARE

This plan created a 10-acre square framed by 10-story buildings, with a multi-level public arcade surrounding the square and connecting to retail levels and transit systems. There would be four towers (one at 80 stories, two at 70 stories, and one at 56 stories). Rooftop gardens of the low buildings would be connected by a continuous public walkway that surrounds and overlooks the square, creating an upper level of public open space. Overall there would be 24.1 total acres of public space, including parks, streets, sidewalks, public arcades, and grand promenade. The tallest tower would have an antenna or sculptural top that marks the skyline at 1,500 feet. Four city blocks to the south of the site would be acquired to create a new cultural district and park spaces connecting Broadway to the waterfront. Greenwich Street is extended through the site, and could have limited vehicular access. West Street express traffic is submerged in a tunnel to create a grand promenade linking the site to Battery Park.

MEMORIAL TRIANGLE

This plan established a 5-acre triangular public open space with Greenwich Street extending through the site. New memorial, cultural, and commercial facilities enclose this open space to the west, with a central public pavilion. There would be six towers (one at 85 stories, one at 61 stories, and four at 59 stories) and 13.2 acres of total public space. One tower would include a 1,500-foot-high skyline element. A major east-west pedestrian route passes through a series of open and enclosed spaces, including the pavilion, which provides access to memorial facilities and a below-grade transit concourse. A broad elevated pedestrian deck spans West Street to reach the upper level of the Winter Garden, leading to the waterfront. Potential residential development would take place south of Liberty Street.

MEMORIAL GARDEN

This plan included a 4-acre open space between an extended Greenwich Street and West Street. Memorial or cultural uses would occupy the southwest corner of the site. There would be five towers (one at 80 stories, two at 66 stories, and two at 50 stories) and 6.8-acres of new public space. Fulton Street would extend from Church Street to Greenwich Street, and farther east by a multi-level pedestrian concourse that connects by bridge to the Winter Garden upper level. The tallest tower would overlook the new open space, and have an antenna or sculptural top, which marks the skyline. Potential residential development would take place south of Liberty Street.

MEMORIAL PARK

This plan set the Memorial site within a 6-acre park partially situated on a deck over West Street. Two buildings for museum or cultural uses would complete the park's enclosure. A new public square is created on a block west of St. Paul's Chapel. There would be five towers (two at 72 stories and three at 45 stories) and 14.4 acres of new public space. The tallest structure would include a 1,500-foot-high skyline element. Fulton, Cortlandt, and Liberty Streets are oriented perpendicular to West Street. Fulton Street would become a major east-west corridor with a pedestrian arcade that flows from Greenwich Street to the World Financial Center. North-south regional traffic would use a West Street bypass that runs under the deck, with local traffic at grade. The plan would require the acquisition of part of the plaza of the 130 Liberty Street and the parking lot at Cedar and West Streets. Potential residential development would take place south of Liberty Street.

MEMORIAL PROMENADE

This plan created a large oval park on a deck above West Street, as well as new public squares, memorial sites, and sites for a museum and other low-rise cultural buildings. A grand promenade would extend south along West Street to Battery Park, lined with trees or plants to remember each of the victims. By connecting the proposed museum/cultural facilities on the site to Battery Park, the promenade would form a dignified, symbolic connection of spaces between the Statue of Liberty, Ellis Island and the WTC Site. The skyline is marked by two 63-story towers on the eastern portion of the site along Church Street. There would also be four 32-story towers and a total of 27.7 acres of public space. Potential residential development would take place south of Liberty Street.

1.4.3 LISTENING TO THE CITY

On July 20 and July 22, 2002, the LMDC and Port Authority in part sponsored interactive town hall meetings to discuss the six preliminary design 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 (another 800 participated in the dialogue on-line). Participants in *Listening to the City* held 10- to 12-person roundtable discussions, each led by a trained facilitator and assisted by technical advisors if questions arose. A network of laptop computers recorded ideas generated by the groups, and overall themes and priorities were quickly developed and reported back to all participants. Each participant could then vote on the priorities using wireless keypads for immediate results. Eighty percent of participants felt very satisfied or satisfied with the quality of the dialogue.

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The general consensus of both the *Listening to the City* series and the over 10,000 additional public comments received by LMDC at Federal Hall, revealed a strong dissatisfaction with the six proposals. The concept plans were felt to be too similar, too bulky, uninspired, and inappropriate settings for the Memorial. The public wanted decision-makers to think boldly and be imaginative in redeveloping the site, but also to respect and honor those whose lives were lost. The public made clear a firm desire to see the Memorial planning and site planning more closely linked, and to create a mix of commercial, cultural, and residential uses that also restores the iconography of the Twin Towers.

The Civic Alliance to Rebuild Downtown New York produced a summary report of the event, entitled *Listening to the City: Report of Proceedings*. Although the public found the preliminary designs to be fundamentally inadequate, common ideas and elements emerged during the public outreach process that informed the next phase of planning for development. Some views conflicted with others, as evidenced below:

- **Restore the skyline** . Nearly 60 percent of *Listening to the City* attendees, and 84 percent of the Federal Hall exhibit comments indicated that it was important or very important to add a major symbol to the skyline. Numerous individuals and grassroots organizations additionally supported rebuilding the Twin Towers as they originally stood;
- **Preserve/Recognize the footprints of the Twin Towers**. When polled about specific features of the concept plans, 36 percent of *Listening to the City* participants indicated that preserving the footprints was most important, the highest percentage of the features polled. A Quinnipiac Poll released in July 2002 stated that 42 percent of respondents felt that the footprints should be preserved, while 41 percent felt that there should be development on them. Some family members and participants at public meetings felt that not only should the footprints be preserved, but the entire WTC Site should remain undeveloped as “hallowed ground.”
- **Create better pedestrian connections across Route 9A**. Creating better pedestrian connections between BPC and points east was raised at numerous public forums. Eliminating Route 9A as a barrier was important or very important to 88 percent of *Listening to the City* participants. Some have expressed concern about construction impacts and costs associated with a bypass tunnel beneath Route 9A.
- **Build an interconnected transportation hub**. Linking transportation modes downtown has been a priority for the public early on in the process, and linking PATH, ferries, subways, and potential regional rail were identified. Support for this concept was also evident at the *Listening to the City* meetings.
- **Re-establish all or part of the street grid**. Over 50 percent of participants in *Listening to the City* felt that restoring all or part of the street grid was important or very important, while over 55 percent of the Federal Hall comments indicated similar support. Participants at public meetings have also expressed an interest in better pedestrian flow through the WTC Site, connecting the neighborhoods at the perimeter.
- **Reduce commercial density on-site**. The mix of commercial and retail uses included in each of the six concept plans was widely discussed with mixed reaction. Members of the LMDC Advisory Councils expressed their view that the six concept plans included too much office space on the WTC Site. Many members questioned whether reconstruction of the original 11 million square feet was economically feasible. Participants in *Listening to the City* expressed concern that the WTC Site would be overdeveloped, with too much

commercial space on the site. Many others, particularly people who work and/or own businesses downtown, stated that restoration of commercial space and creating jobs is essential to a thriving economy and that redevelopment would help the businesses that were most affected by September 11.

Members of the Advisory Councils and the general public expressed a desire to see more retail in the neighborhood, and, in particular, more street-level retail. The retail that was lost at the WTC served as one of the only areas in Lower Manhattan that filled many of the residents' needs, and residents have expressed a desire to develop retail that is also open on nights and weekends. When responding to the question, "how important is it that new retail areas at the WTC Site be located below ground and above ground," 56 percent of respondents on the Federal Hall exhibit public comment brochure indicated that it is either important or very important.

- **Plan space for potential cultural and/or civic uses.** Advisory Council participants and downtown residents consistently stated the need to create a mixed-use community in Lower Manhattan, in part by expanding the number of cultural and civic uses in the area. Many people also expressed a desire for the Memorial and Memorial-related buildings to promote international understanding, which could be accomplished through the creation of additional cultural uses such as museums on or around the site. When asked how important it is to include cultural uses on the WTC Site or adjacent areas, 64 percent of Federal Hall exhibit comments indicated that it was important or very important to do so.
- **Include a variety of open spaces.** The need for open space in Lower Manhattan was articulated often in Advisory Council meetings and other public forums. The Memorial Promenade concept was praised in particular because of the amount of and variety of new open spaces it suggested. When asked about open space, over 50 percent of *Listening to the City* participants as well as over 50 percent of Federal Hall exhibit respondents wanted to see a variety of open spaces in particular, rather than a single open space, on the site.
- **Incorporate housing for all income levels.** At the *Listening to the City* meetings, 55 percent of participants indicated that more housing for all income levels was the most important priority downtown. More residents would create a 24-hour neighborhood and attract businesses, while affordable units would further diversify the population.

1.4.4 INNOVATIVE DESIGN STUDY

In response to strong public sentiment for inspiring new designs from world-class architects and planners, LMDC initiated an Innovative Design Study for the WTC Site through a Request for Qualifications (RFQ) for Innovative Designs for the World Trade Center issued in August 2002. LMDC received 406 submissions from around the world, from which six teams were selected in October 2002 to take part in the Innovative Design Study that would be conducted in phases. In addition, a seventh team, working as in-house design consultants for the LMDC, was invited to participate. The field was narrowed with the assistance of a panel of architects and designers recommended by New York New Visions, a consortium of local design, urban planning, and civic organizations.

VISION FOR LOWER MANHATTAN

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*

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for the *Innovative Design Study (Vision for Lower Manhattan)*. The seven design teams were given the *Vision for Lower Manhattan* program document, with a new, flexible program suggesting a variety of programmatic elements:

General Program

- Create a sense of place;
- Allow for phased development;
- Incorporate green and sustainable design elements;
- Produce a distinctive skyline;
- Connect neighborhoods north and south, east and west through the site;

Land Use Program

- Set aside space for a Memorial that respects the footprints of the Twin Towers;
- Integrate up to ten million square feet of office and up to one million square feet of retail development;
- Residential development would be permitted south of Liberty Street;
- Plan for a hotel with conference center;
- Consider cultural and civic amenities;
- Establish a sequence of parks and open spaces of different sizes;
- Recognize adjacent religious institutions;

Transportation Program

- Plan for a newly prominent WTC PATH Terminal;
- Contemplate a new street grid through the site and revitalized street life; and
- Incorporate a Grand Promenade along Route 9A.

Nine designs by the seven teams were presented to the public in December 2002:

FOSTER AND PARTNERS

This design concentrated the majority of office space in a 1,765-foot-high “twinned tower” along the eastern side of the WTC Site near Church Street. Additional development would include office buildings along the north side of Vesey Street and a theater/opera house, museum, residential, and additional office use south of Liberty Street. The footprints of the former towers would be “voids” that form the center of the memorial that could be seen from the open spaces and viewing areas in the tower above. A plaza-level deck would be built above portions of Route 9A and Hudson River Park to create a large open space that would connect with BPC and the waterfront via ramps. Fulton and Greenwich Streets would extend through the site for pedestrian access only.

MEIER EISENMAN GWATHMEY HOLL

This proposal focused on a grand public space at the heart of the site. Office space and a conference center/hotel would be concentrated in an L-shaped series of interconnected grid-like 1,111-foot-high towers. A concert hall and memorial museum and library would be south of Liberty Street, but there would be no residential uses under this design. Multiple memorial areas would be located both on the WTC Site and in BPC. Open space would be located around buildings as well as in “shadows” extending west from the footprints of the former towers. The footprints themselves would contain glass-bottom reflecting pools with memorial space in the

below-grade areas. Route 9A would be below grade from the Brooklyn Battery Tunnel north to Warren Street. Greenwich and Fulton Streets would be open as view corridors and pedestrian ways but not to vehicular traffic.

PETERSEN/LITTENBERG

This design centered around a public sunken garden with 17 building parcels surrounding it. Envisioned as a new city district, this proposal would have two 1,400-foot towers straddling a new transit center along Church Street. Other towers would be along Vesey and Liberty Streets, with smaller-scale development towards the center of the site. On the footprints of the former towers would be a pool of water and an open amphitheater with a below-grade museum. Route 9A would be substantially reconfigured, creating sites for new cultural and memorial-related uses, as well as a number of open spaces and a promenade extending south to Battery Park. Fulton Street would be extended and a new street—Greenwich Place—would be created west of and roughly parallel to Church Street.

SKIDMORE OWINGS AND MERRILL TEAM

The SOM design proposed a “dense grid of vertical structures.” Structures would occupy nearly the entire 16-acre WTC Site, with new open spaces (“sky gardens”) and cultural uses woven in among the primarily commercial towers. This proposal was withdrawn by the design team prior to the final phase.

UNITED ARCHITECTS

Development under this proposal would be concentrated in an arc of five interconnecting towers reaching up to 1,600 feet. The footprints of the former towers would be open and surrounded by a plaza, with a below-grade memorial space. An additional “sky memorial” would be located in the towers and would permit views down to the footprints. A theater and hotel would be located south of Liberty Street. Greenwich Street would be extended, but Fulton Street would not. There would be a pedestrian bridge and a pedestrian tunnel connecting the site with BPC, although the existing Liberty Street bridge would be removed.

STUDIO DANIEL LIBESKIND

The Memory Foundations proposal sought to preserve and reveal a portion of the slurry walls of the bathtub of the WTC Site as a symbol and physical embodiment of the resilience of withstanding the attacks of September 11. The tallest building in the world would rise 1,776 feet in the air *on the northwest corner*, and four other commercial towers would encircle the memorial setting in a descending spiral. New cultural facilities and a performing arts center would be sited directly around the memorial. At street level, Memory Foundations would create a lively public realm by restoring Greenwich and Fulton Streets with a continuous street wall and at-grade retail shops and restaurants. On the east, Wedge of Light Plaza would be created along Fulton Street from the St. Paul’s churchyard to the entrance to the September 11th Place. Fulton Street would be extended west as the Park of Heroes.

THINK WORLD CULTURAL CENTER

The THINK Team (Ban, Schwartz, Smith, Vinoly) submitted three proposals for consideration. The World Cultural Center design centered around two open-lattice towers built around the footprints of the former towers. A memorial would be located at 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 at the heart of the two towers, and extend across Route 9A to BPC. Commercial development would take place in office towers surrounding the memorial site. Fulton and Greenwich Streets would be extended for pedestrian and vehicular traffic.

THINK SKY PARK

The Sky Park design featured three large office towers flanking an elevated open space. Below the park would be cultural uses, retail space, transportation connections, office space, and a hotel/convention center. The proposed towers would be up to 1,650 feet high. The memorial is defined by the footprints of the former towers as well as the space above them. Multiple outdoor uses would include an amphitheater, cafes, skating rink, fountains, gardens, and potential memorial spaces. Greenwich and Fulton Streets would be extended for pedestrian and vehicular traffic, with additional limited access provided for reopened Dey and Cortlandt Streets.

THINK GREAT ROOM

The Great Room proposal created a vast public space under an enormous free-span glass ceiling, with glass cylinders enclosing the areas of the footprints and a museum at the lower level. Office and cultural uses would be around the north, south and east perimeter of the site, framing the enclosed plaza. Between Cedar and Albany Streets would be an office and hotel building with a transmission tower spire reaching up to 2,100 feet. The street grid would not be restored across the site, but the open plaza would allow pedestrians to move freely.

1.4.5 PLANS IN PROGRESS

In coordination with the release of the nine designs to the public in December 2002, LMDC launched *Plans in Progress*, one of the most ambitious public outreach campaigns ever undertaken. *Plans in Progress* included a variety of ways for the public to view and comment on the nine design concepts, including a major exhibition at the Winter Garden at the *World Financial Center* which drew over 100,000 people. LMDC placed public hearing notices in major metropolitan and local papers throughout the tri-state area and conducted outreach throughout the five boroughs, Long Island and New Jersey through leafleting at major transportation hubs servicing all areas of New York City, Long Island, Westchester, and New Jersey. LMDC continued outreach via email to major civic organizations and distributed thousands of flyers throughout Lower Manhattan.

LMDC staff reviewed in detail the over 13,000 public comments solicited through *Plans in Progress*. An overwhelming majority (over 83 percent) of those comments were favorable toward the plans. Components of the public outreach campaign are summarized below, and were published by LMDC in March 2003 in a document entitled *The Public Dialogue: Innovative Design Study*.

- **Public Hearings**

LMDC, in collaboration with the Port Authority, held a large-scale public hearing on January 13, 2003, in Lower Manhattan. The public hearing was simulcast in locations throughout New York City and Long Island and live on LMDC's web site. A public hearing was also held in New Jersey on January 21, 2003. Thousands of citizens from the tri-state

area attended these public hearings, and over 1,000 people from around the globe participated and commented through the web site simulcast.

- **Winter Garden Exhibit**

A special exhibit of the nine design concepts was held at the Winter Garden at the World Financial Center from December 19, 2002, through February 2, 2003. Public comment cards were provided, along with a comment bin to collect completed cards. Over 100,000 people visited the exhibit and over 8,000 comment cards were collected. Comments focused on the fundamentals of each plan in order to discern public reaction to individual program elements, rather than asking visitors to submit an overall preference.

- **Advisory Council Meeting**

A meeting for all LMDC Advisory Council members was held on January 8, 2003 to discuss the nine design concepts.

- **Community Board 1 Meeting**

During the public comment period, LMDC appeared before Community Board 1 to review the nine design concepts and hear the questions and concerns of Lower Manhattan residents.

- **Mailing to the Families of Victims**

LMDC sent a mailing to over 3,000 families, including the 1993 Families. The mailing included an overview of the *Plans in Progress* campaign and ways families could provide input.

- **Innovative Design Study Video**

LMDC produced an Innovative Design Study video that provided the public with a presentation of the design concepts. The teams described each design and, in their own words, their vision for the WTC Site. The videos, along with public comment brochures were distributed to all 193 public library branches throughout New York City.

- **Elected Officials Mailing**

Every city, state, and federal elected official in New York State received a mailing that included a notice of public meetings and an overview of the *Plans in Progress* public outreach campaign. Elected officials were encouraged to share the information with constituents.

- **LMDC's Official Web Site**

LMDC also invited public comment through its web site. Descriptions of the Innovative Design Concepts were accessible online. Visitors could view a slide presentation of the design concepts, read about the teams and submit their comments to LMDC from anywhere around the world. LMDC received over 8 million web site visits and over 4,000 electronic comments between December 18, 2002, and February 2, 2003.

- **Email, Fax, and Regular Mail**

Letters sent via email, fax, and regular mail were also accepted and considered.

1.4.6 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 to the greatest extent possible the comprehensive record of

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public comment. LMDC and the Port Authority also conducted an extensive feasibility analysis of each design. The agencies based the evaluation on numerous factors:

- Memorial Setting: How well does the plan provide an appropriate Memorial setting?
- Program: How well does the plan meet the program requirements outlined in the RFQ?
- Parcels/Street Pattern: How well does the plan establish practical street, block, and development parcels?
- Public Response: What was the public response to the plan?
- Vision: How well does the plan support the Mayor Bloomberg's *Vision for a 21st Century Lower Manhattan*?
- Connectivity: How well does the plan connect with its surroundings?
- Phasing: Does the plan allow for phased development over time?
- Public Realm: How effective is the addition to the public realm?
- Private Development: Does the plan provide an attractive environment for private development?
- Irresolvable Issues: Are there components that are irresolvable?
- Resolvable Issues: How significant are the issues that can be resolved?
- Cost: What is the estimated cost of publicly funded elements of the plan?

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—both of which received strong public support.

MEMORY FOUNDATIONS

The Studio Daniel Libeskind plan received a significant response from the public, with 92 percent of comments rated as positive, including total support for the plan and for individual elements. Of those favorable comments, 39 percent showed support for the memorial context and setting. Many felt Libeskind's approach to the memorial was dramatic and powerful through his use of the slurry wall and the bathtub area. Many commented that this plan provides for below-grade memorial experiences, though others felt it was also important to have additional memorial areas at ground level.

Libeskind's approach to restoring the skyline was also a popular element. Nearly 30 percent of the favorable comments expressed support for Libeskind's approach to restoring the skyline. Many felt the spire stood as an inspirational symbol, and provided a tall structure to fill the Lower Manhattan skyline. Others liked the relationship of the iconic tower to the Statue of Liberty and the Gardens of the World concept as a powerful statement about the international nature of the site.

Another commonly discussed element was the Libeskind plan's treatment of parks and open space. Overall, elements such as the Heroes Park and Wedge of Light Plaza were considered unique and imaginative.

WORLD CULTURAL CENTER

The THINK World Cultural Center plan also received a positive response from the public, with 90 percent of overall comments favorable. Of the comments on the elements of the plan, almost

42 percent supported the skyline element in the plan. Most thought it was the most imaginative approach to restoring the skyline. Others commented that the Twin Towers of Culture are bold, visually appealing and provide symbolism for the ultimate memorial design.

The memorial context and setting in the World Cultural Center plan was also an element that interested the public. Approximately 21 percent of the favorable comments on the elements related to the memorial context and setting. Many supported the symbolism of bringing the memorial to the sky. Others expressed concern about the location of the museum and its feasibility.

Also noted were the cultural and civic components of the plan. Over 15 percent of those who commented favorably on the elements of this plan supported the cultural and civic amenities. Many commented they liked the emphasis and prominence placed on these elements and felt that they were an important rebuilding element.

FINAL SELECTION

After the two finalists were announced, each team was asked to develop further aspects of their plans. The teams further defined the setting of the Memorial, coordinated their designs with the proposed transportation network, and explored the marketability of the office and retail space proposed. Following discussion and evaluation by the 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 proposed WTC Memorial and 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. Libeskind's plan was felt to be imaginative and inspiring, and one that would serve as the most appropriate catalyst for the revitalization of Lower Manhattan by creating the public realm around which the private market can best develop over time.

REFINEMENTS TO THE SELECTED PLAN

In the spring and summer of 2003, LMDC together with the Port Authority entered into various 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 the Net Lessees.

Based on comments from the public, the Advisory Councils, and other concerned parties, LMDC, the Port Authority, and Studio Daniel Libeskind refined the WTC Memorial and Redevelopment Plan concept to include additional development area south of Liberty Street and possibly Site 26 in BPC. 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 the open space component of the Proposed Action.

As described in detail in section 1.6, in January 2004 the Memorial Competition jury selected the Memorial design concept, "Reflecting Absence." This design would introduce an at-grade landscaped plaza with two voids symbolizing the lost Twin Towers, below-grade reflecting

pools and cloisters, and accessible portions of the west slurry wall and box beam column bases.

Later in January, the Port Authority unveiled its plan for the permanent WTC PATH Terminal designed by Santiago Calatrava, oriented along the southern edge of Wedge of Light Plaza and creating new open spaces, PATH Plaza and a Dey Street corridor.

Following the release of the DGEIS and receipt of comments on the DGEIS and GPP, LMDC continued to refine the plan, including the Memorial design, and the location of the Memorial Center and cultural buildings. Most recently, LMDC proposed to undertake the clean-up and deconstruction of 130 Liberty Street on the Southern Site and eliminated Site 26 as a possible location for the bus garage.

The refined WTC Memorial and Redevelopment Plan incorporating all changes to date and described below is analyzed in this GEIS as the Proposed Action.

1.5 DESCRIPTION OF THE PROPOSED ACTION

1.5.1 PROJECT SITE

The Project Site includes the WTC Site and the *Southern Site*. The WTC Site is an approximately 16-acre parcel bounded by Liberty Street, Church Street, Vesey Street, and Route 9A. Except for a viewing area on the expanded sidewalk along Church Street between Liberty Street and approximately Dey Street, it is fenced off and inaccessible to the public with the exception of those areas associated with the temporary WTC PATH station, completed in November 2003. The excavated bathtub on the western part of the WTC Site is publicly visible at street level from the viewing areas on Church, Liberty, and Vesey Streets, below grade from the temporary WTC PATH station, and above grade from the Winter Garden and the pedestrian bridges on Liberty and Vesey Streets. The tunnel for the restored No. 1/9 IRT subway lines is visible as it crosses the site. There are entrances for construction vehicles at the four corners of the site with trucks entering and leaving the site on both Church Street and Route 9A. Liberty and Vesey Streets adjacent to the WTC Site remain closed to vehicles.

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.

1.5.2 BUILDING PROGRAM

The Proposed Action would provide for the construction on the Project Site of a Memorial and memorial-related improvements, up to 10 million square feet of above-grade Class A office space, plus 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, museum and cultural facilities, and certain infrastructure improvements described in more detail below. While this is the maximum development program for each of the components, the combined total of the retail and hotel facilities would not exceed 1.6 million square feet.

1.5.3 SITE PLAN

The proposed street configuration would divide the WTC Site into four quadrants of unequal size (see Figures 1-2 and 1-3). Specifically, Fulton Street would run east-west through the WTC Site, and Greenwich Street would run north-south through the WTC Site. The Memorial, *the Memorial Center*, and cultural buildings would occupy the southwest quadrant, which is where the Twin Towers stood. At the northwest corner of the WTC Site would be the tallest structure in the complex, the Freedom Tower. The *four* other proposed towers would descend in height clockwise to the fifth tower on the Southern Site.

This fifth tower would have ground-floor retail and would be located on the south end of the Southern Site *between Cedar and Albany Streets*. The Southern Site would be reconfigured to open Cedar Street between Greenwich and Washington Streets and close Washington Street between Liberty and Cedar Streets. This would allow the creation of a single large open space on the new block south of Liberty Street as well as the tower site between Cedar and Albany Streets. St. Nicholas Greek Orthodox Church would *rebuild its facility* in the open space not far from its previous location on September 10.

The Proposed Action also provides for infrastructure and utilities to support the operations of the Project Site as a whole, including below-grade freight servicing and loading, a below-grade bus parking garage serving the Memorial, rentable storage, *below-grade chiller and fan plants*, a parking garage for building tenants and safety and security-related facilities. The bus parking may be underground on the Southern Site or possibly on the *eastern portion of the WTC Site* itself.

LMDC, the Port Authority, and Silverstein Properties are developing design guidelines for the commercial structures and *open space* that would be built under the Proposed Action.

1.5.4 VEHICULAR ENTRANCES AND CIRCULATION

By extending two streets through the WTC Site, the Proposed Action would restore vehicular access both from north to south and from east to west. Traffic would flow south on Greenwich Street and West Broadway from Tribeca to the area south of Liberty Street. Vehicular traffic would flow west on Fulton Street. These streets may be restricted or closed from time to time.

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

Tour buses would 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) would then proceed south on Greenwich, 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.

Trucks would also enter the below-grade service levels of the site via the Liberty Street ramp. Automobiles belonging to building tenants would be allowed to enter and exit the WTC Site via a ramp on the south side of Vesey Street (at Washington Street). *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*.

1.5.5 SOUTHWEST QUADRANT/MEMORIAL AREA

The southwest quadrant would contain the approximately 4.87-acre Memorial, *an interpretive museum (Memorial Center)*, and other cultural institutions as described below (*see Figure 1-4*). The Memorial *would* be based on the “*Reflecting Absence*” concept selected by the Memorial Competition jury. Although it will be refined, it would *preserve and provide access to a portion of the slurry wall on the west side of the WTC Site, and portions of the concrete bottom of the bathtub exposed 70 feet below grade. Pedestrian access to the Memorial area would be provided on all sides.* The approximately 1-acre square footprints of the Twin Towers would be recognized at grade and approximately 30 feet below grade. *The Memorial would recognize each of the victims of the attacks of September 11, 2001 and February 26, 1993.*

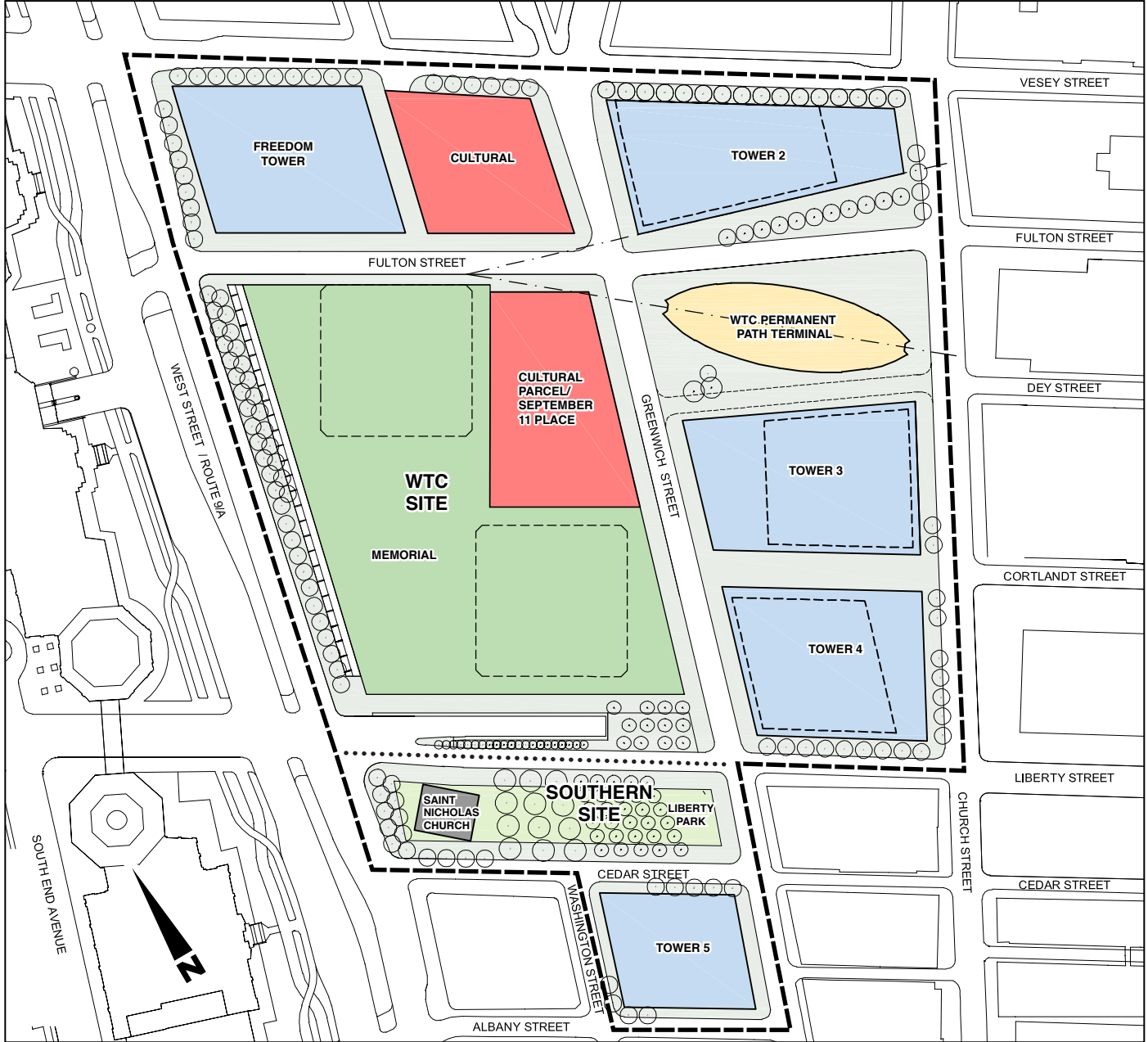
The main entrance to the Memorial would be from September 11 Place, a paved civic plaza at the southwest corner of Fulton and Greenwich Streets. Pedestrian access would also be provided at other locations on Greenwich, Fulton, and Liberty Streets.





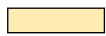
The Memorial Center relating to the events of September 11 and other cultural facilities would also be located in the Memorial area. It would be located below grade to the west of the former South Tower footprint, and is intended to educate, inform, and inspire by telling individual stories of the victims and the contributions of many toward the rescue, recovery, and relief efforts. The Memorial Center would contain some artifacts from the WTC Site.

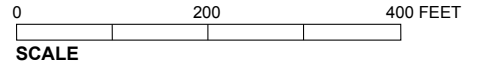
The remaining cultural facilities would be housed in a cultural complex of two buildings at the northeast corner of the quadrant. While the cultural uses for these facilities are not yet determined, LMDC is seeking institutions to provide a diverse and broad range of cultural programs and activities for the growing residential and business district in Lower Manhattan. On June 30, 2003, LMDC publicly sought information from cultural institutions interested in locating on the WTC Site to further planning for the museum, the cultural facilities, and the performing arts center. LMDC’s Invitation to Cultural Institutions elicited 112 responses from local, national, and international cultural institutions. The “Report on the Memorial Center and Cultural Complex at the World Trade Center Site” published on February 10, 2004 will be utilized to further develop the site plans for the Project Site, to shape the process by which cultural organizations will be selected for the site, and to define the next steps in cultural development. (The full report is available on LMDC’s web site, www.renewnyc.com.)

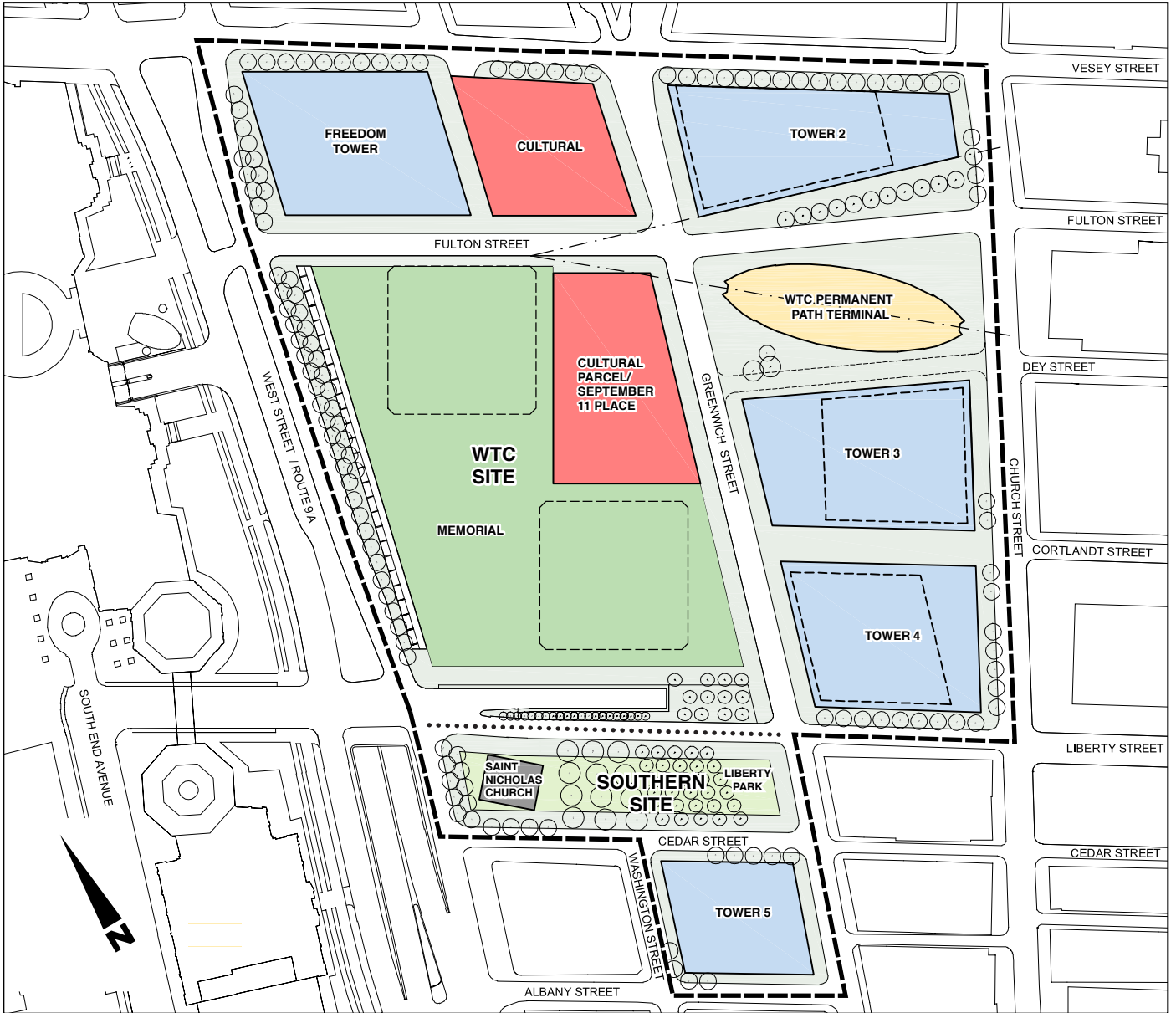
1.5.6 NORTHWEST QUADRANT




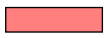
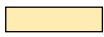
The northwest quadrant would be the location of Freedom Tower and the performing arts center (*see Figure 1-5*). Freedom Tower would be the visual landmark of the Proposed Action in New York City’s skyline. It would have approximately 70 floors of office, mechanical, and functional space. A viewing platform would be located atop the building and above that would be a broadcast tower at 1,776 feet. The viewing platform and the broadcast tower would replace those lost on September 11. Current plans call for the top of the structure, *in the open area below the platform there will be the base for broadcast towers, to include an array of wind turbines. The high wind speeds present at the altitude, the absence of wind interference from other buildings, and the shape of the Freedom Tower are expected to allow the turbines to generate a significant amount of electricity to contribute to the building’s power demands. This is an innovative application of an emerging technology, and the design, configuration, and power yield of the turbines are currently being studied by Silverstein Properties.*



-  Project Site
-  Memorial Site
-  Commercial
-  Cultural
-  Permanent WTC PATH Terminal





-  Project Site
-  Memorial Site
-  Commercial
-  Cultural
-  Permanent WTC PATH Terminal

Proposed Site Plan
Shown with Route 9A Bypass Alternative
 Figure 1-3





dbox

The proposed performing arts center would be located east of Freedom Tower. Its specific use and capacity have not yet been defined. Decisions on its design and use are part of LMDC's outreach campaign for cultural institutions described above; however, the primary entrance to the center is expected to face September 11 Place.

1.5.7 NORTHEAST QUADRANT

The northeast quadrant would be the location of an office building. Tower 2 would have approximately 65 floors of offices and its lobby would open onto both Fulton and Vesey Streets. Retail use in the base of Tower 2 may be an anchor tenant. For purposes of this analysis a hotel approximately 25 stories tall *with up to 800 rooms* would also *be located in the northeast quadrant. It would provide meeting rooms and function space, and its lobby would be at the corner of Greenwich and Fulton Streets.*

The northern portion of Wedge of Light Plaza would be located along the southern (Fulton Street) edge of this quadrant.

1.5.8 SOUTHEAST QUADRANT

The southeast quadrant would contain the major portion of Wedge of Light Plaza, the entrance leading to both the permanent WTC PATH Terminal and the subway system, and two office towers (Towers 3 and 4). Wedge of Light Plaza would be widest at Church Street, to draw people into the site toward its active center at the intersection of Fulton and Greenwich Streets. Its shape and location would 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. It would be designed to be a lively space to accommodate a range of activities. *Tower 3 would be separate from and to the south of the permanent WTC PATH Terminal building, allowing the Dey Street view corridor to extend between Church and Greenwich Streets. Tower 4 would be located south of Cortlandt Street.*

The two office towers would be located south of the *permanent WTC PATH Terminal building*. Tower 3 would have approximately 62 floors of offices above its retail base. Tower 4 would be on Liberty Street. It would have approximately 58 office floors above its retail space—which is expected to house the second retail anchor.

1.5.9 SOUTHERN SITE

On the Southern Site, Washington Street would be closed between Liberty and Cedar Streets to create a large rectangular open space, *Liberty Park*, between Route 9A and Greenwich Street. St. Nicholas Greek Orthodox Church would be reconstructed in *the park*. *Tower 5* would be built south of the reconstructed segment of Cedar Street and overlook *Liberty Park*. It would have approximately 57 floors of office space and ground floor retail. Its lobby would be on Cedar Street.

The Proposed Action would require the deconstruction of the damaged building at 130 Liberty Street on the Southern Site. The building was exposed to dust and debris as a result of the events of September 11. Therefore, prior to deconstruction, material in the building would be tested and cleaned, with special attention to the sensitive handling and removal of any human remains that might be found.

1.5.10 BELOW GRADE

The Proposed Action would expand the existing bathtub south to include the entire Southern Site. A new bathtub would 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 Proposed Action would provide for retail uses on two below-grade concourse levels. Retail uses would enliven the pedestrian connection linking the permanent WTC PATH Terminal to the World Financial Center in BPC on the west and the subway system on Church Street, and would provide connections to street-level retail and pedestrian activities (see Figure 1-5).

Beneath the concourse levels would be two service levels above the bedrock. The upper service level would be adjacent to the PATH mezzanine, while the lower level would be adjacent to the PATH tracks and platforms. There would also be loading facilities (docks, stalls, and bins) for trucks on the mezzanine level beneath the new office towers. Parking for buses would be provided below grade at the Southern Site or at the WTC Site itself. Parking for 1,200 to 1,400 cars belonging to building tenants would also be provided below grade. No parking is contemplated in the area of the site below the Memorial. The exact locations and configuration of the retail space, office lobbies, and subgrade uses have yet to be determined.

As part of the infrastructure for the Proposed Action, an existing Hudson River pump station below grade in BPC would be reactivated, as discussed in Chapter 12, "Infrastructure." The pump station would feed a chiller plant (similar to the one that existed prior to September 11) below grade on the WTC Site. *Fans regulating air intake and ventilation would also occupy a significant amount of space below grade at various locations across the Project Site.*

1.5.11 SITE DESIGN

The Proposed Action is composed of a number of different elements, including a Memorial, a Memorial Center, cultural buildings, open spaces, office space, infrastructure, and retail uses. These many components fit together in the vision of the Memory Foundations concept plan, which emphasizes the centrality of the Memorial experience and reintegrates the site into the fabric of Lower Manhattan.

The Memorial design concept "Reflecting Absence" includes a tree-filled civic plaza at grade with two large pools recognizing the original WTC footprints. The Memorial would have pools recessed to approximately 30 feet below street level, with inclined walkways leading to a below-grade level dedicated to the victims and events of September 11. The Memorial would also include access to a portion of the western slurry wall and box beam column bases at the lowest level. Below-grade access in the Memorial would also allow for a connection to the Memorial Center, which would remember the events of February 26, 1993 and September 11, 2001 and include artifacts previously removed from the site.

Cultural buildings would be located both adjacent to Freedom Tower, at the corner of Fulton and Greenwich Streets and within the Memorial quadrant along Greenwich Street. These buildings have not yet been designed, but would accommodate up to approximately 380,000 square feet of cultural programming.

Commercial design guidelines for the Proposed Action are being prepared by LMDC and Port Authority, in consultation with the City of New York and Silverstein Properties, to translate the

vision of the Memory Foundations concept into a set of principles and standards that *would* guide the design of the public open spaces and commercial projects. These guidelines *would* 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 at the same time defining the essential elements that will ensure that each part of the *Proposed Action* contributes to the overall vision. The guidelines are *generally* outlined below. A *definitive set of guidelines would be adopted and administered by LMDC and Port Authority with participation by the city, including Sustainable Design Guidelines, following approval of the Proposed Action.*

TOWERS

The five towers would be organized in a three-dimensional spiral, culminating in the Freedom Tower. Their orientation would emphasize the centrality of the *Memorial* space. When viewed from a distance, the composition of towers would recall the dynamism of the Statue of Liberty, creating an association between what would become the two most prominent landmarks along the Hudson River. *More significant than the particular massing of any of the towers is the overall composition of the five towers, with the towers incrementally increasing in size, beginning with Tower 5 as the lowest and Freedom Tower as the tallest.*

Towers would be subject to height and bulk limits and *would* be designed to maximize daylight to buildings and streets, *reinforce the streetwalls and pedestrian realm*, improve views from the upper stories, *strengthen the overall composition of buildings on the site* and to mitigate the wind effects at ground level. *The streetwall of the towers would be distinct. Each base would create consistent relationships with adjacent buildings and provide an appropriately scaled pedestrian experience. The tower shafts of Towers 2, 3, and 4 would have an initial setback above the streetwall bases and then become more slender as they rise, reducing the towers' bulk as they near the top. This may be accomplished with additional setbacks at higher levels.*

Additionally, the shaping of each tower top would be considered within its relationship to the set of five. Each roof would inflect toward the Memorial and the slopes would increase in angle beginning with Tower 5's roof as the shallowest and Freedom Tower's as the greatest.

Consistency among the designs of the towers would be achieved by using a palette of metal, glass, and other materials consistent with the goals of luminosity and transparency. This would create interiors with generous daylight that take advantage of views to the site and surroundings. It would also give the complex a unified presence, both day and night. Visibility from the street into the office lobbies, retail spaces, and transit uses is an essential goal; the greatest possible extent of at-grade building facades would be transparent.

SAFETY AND SECURITY

Although pedestrian traffic would dominate the ground level of the 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 would 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.

OPEN SPACE

Central to the success and identity of the redeveloped Project Site would be the character, coherence, and vibrancy of its streets, sidewalks, and open spaces. The designs of the public sidewalks and parks would give a unique character and unity to the Proposed Action. The design of the public realm would be planned to create a powerful and reverent setting for the Memorial, to support site development and to create a new public place.

Wedge of Light Plaza, PATH Plaza, and September 11 Place

Wedge of Light Plaza and the PATH Plaza would become the main civic open spaces of the new WTC. They would be designed to *bustle with* the energy of those who pass through as well as be able to accommodate *spontaneous and programmed* public events. They would be plazas while at the same time part of the procession of spaces that would connect the Lower Manhattan business district to the Hudson River. The form of the Wedge of Light would invite pedestrians into the Memorial precinct and area around the Freedom Tower, while focusing attention on September 11 Place at the intersection of Greenwich and Fulton Streets.

Hard surfaces would predominate in Wedge of Light Plaza, while the PATH Plaza would include landscape planting and seating, where appropriate. Recommended paving material includes natural stone unit pavers. Landscaping, site furnishings, and lighting that recognize the importance of this civic space and that are complementary with the surrounding Memorial and building designs would also be used. The pattern of paving would provide a pedestrian scale to the spaces and reinforce their special character. The entrance to the permanent WTC PATH Terminal proposed by the Port Authority would stand independently between Wedge of Light Plaza and the PATH Plaza on a diagonal axis.

September 11 Place would serve as the primary gateway to the Memorial, would create connections between the performing arts center, the permanent WTC PATH Terminal, and the PATH Plaza and would provide a setting for the cultural complex. Additionally, it would act as a transitional space balancing the active, public streets and open spaces with the contemplative nature of the Memorial. September 11 Place would be largely paved with stone unit pavers to accommodate the heavy demands of visitors.

Liberty Park

The development of Liberty Park would create an opportunity for a new park to serve workers and the growing number of residents in the surrounding areas. The edges of this space *would* remain visually open to the surrounding streets to ensure a safe environment throughout the day and evening. It would provide green space and possibly *other programmed uses* along its eastern edge. Sidewalks would be located along the edge of the park and unit pavers could be used for hard surfaces within the park. Landscaping, lighting, and site furnishings are also recommended where appropriate.

STREETSCAPE

As the WTC Site is located between the older, dense fabric of the Financial District and the newer, spacious fabric of the World Financial Center and BPC, the streetscape of the WTC can relate to features of both—*generous sidewalks with trees and street furniture that are well-defined by significant buildings programmed with active, street-level uses*. The streetscape

would employ unified landscaping, paving, lighting, and furnishings to create a distinctive appearance across the *Project Site* and define its boundaries, and at the same time would relate to the *Memorial design* and the urban fabric of Lower Manhattan. Where appropriate, street trees would be introduced to create green corridors. Across the perimeter of the *Project Site*, where the new development faces typical city streets, along Vesey, Liberty, Church, Cedar and to some extent West Streets, the streets would be planned as tree-lined streets complementing the planting at existing streets. Within the *WTC Site*, along Fulton and Greenwich Streets, the streetscape would be unique, marking the edges of the Memorial and defined by lighting and street furniture.

Minimum sidewalk widths of 25 feet wherever possible would be maintained for smooth pedestrian traffic flows. Street edges would be created that are both visually and physically porous, while respecting the security needs. Fulton Street would be developed as a linked series of public open spaces, not as a conventional streetscape. *Fulton Street west of Greenwich Street* would be an extension of the *Wedge of Light Plaza*, connecting the Memorial, the open spaces along Fulton Street, the Freedom Tower and the World Financial Center. The paving treatment would be similar to that of the *Wedge of Light Plaza*.

Significant urban vistas would be framed through the orientation of streets, buildings, and landscape elements. Visible and convenient connections would be provided between the street and transit concourses below grade. Strategies would be developed that meet the criteria for security, but do not impede the movement of pedestrians and the visual continuity of street trees, lighting, and furnishings.

Materials for sidewalks and curbs would be durable and dignified. Granite curbs and stone unit pavers are recommended. Patterns and materials would be carefully coordinated with characteristics for paving in other public open spaces such as *Wedge of Light Plaza* and *September 11 Place*. Contemporary rather than historic forms and patterns would be used. Street lighting and furnishings are important features and would be detailed in a manner consistent with the buildings of the *WTC Site*. Regarding landscaping, street trees would be planted at ground level and in continuous rows. Spacing of trees would be based on tree species and coordinated with other elements such as lights and furnishings.

RETAIL

Retail spaces would be located at the underground concourses and above ground at the bases of buildings. They must be integrated with the overall plan while at the same time retaining their own character to promote its vitality and ability to enliven the streetscape. Below-grade storefronts would be primarily of glass and metal with proportions, rhythms and details that unify the shops. A uniform module of storefront glass would be employed to provide consistent rhythm and proportion. Storefront walls would be sleek and taut and detailed with a sense of minimalism. Glazing would be clear glass with at least two-thirds of the storefront wall area for each tenant transparent. Areas faced with an approved opaque material may be used on corners or at the ends of concourses.

Above-grade storefronts would be integrated with the design of the individual buildings in which they are located. The designs may vary, but would follow basic principles: glazing would be clear glass, with at least two-thirds of the frontage transparent. Preferably, there would be some consistency between the below-grade and above-grade proportions, materials and details. The

use of a uniform module is encouraged, but not required. Introduction of opaque areas, such as stone or metal panels, is allowed, in patterns that relate to the building architecture.

At the underground concourses there *would* be a hierarchy of signage. Directional signage for the large number of commuters *would* be primary and clear. At street level and above, retail spaces would be located alongside office lobbies, cultural uses, and transit uses; thus, retail signage *would* be presented in a refined and respectful manner. Retail uses may also extend to kiosks, temporary structures, and movable carts in specified locations.

1.5.12 SUSTAINABLE DESIGN GUIDELINES

LMDC and the Port Authority intend to achieve improved environmental and sustainable attributes in the design, construction and operation of the Proposed Action. One of the methods identified is the adoption and implementation of the *Sustainable Design Guidelines* for the WTC redevelopment projects. The *Sustainable Design Guidelines* identify and describe the environmental and sustainable attributes for the commercial and open spaces of the Proposed Action. They would be incorporated into the overall design guidelines. (The current draft of the *Sustainable Design Guidelines* is in Appendix A).

The sources for the *Sustainable Design Guidelines* are the New York State Executive Order 111, U.S. Green Building Council (USGBC), and the New York State Green Building Tax Credit. Executive Order 111 is designed to encourage energy efficiency in the design and construction of new buildings or improved energy efficiency in existing buildings. The Green Building Tax Credit facilitates this endeavor by granting tax credits to the owners of large residential or commercial buildings that achieve energy efficiency, improved indoor air quality (IAQ) and reduced overall impacts on the environment. The USGBC is an umbrella organization which has produced LEED Green Building Rating System, a nationally accepted rating system for green building practices. LEED certification indicates compliance with certain green building practices that are also intended to be economically feasible. *In following the Sustainable Design Guidelines, developers would achieve eligibility for LEED certification at a minimum.*

In conjunction with Port Authority and Silverstein Properties, as well as interested civic and environmental organizations, LMDC developed the *Sustainable Design Guidelines* to go beyond other comparable guidelines, which tend to be focused on only a specific building or project. *On the Project Site*, issues of neighborhood scale (such as regional transportation systems, relationships to each individual building) necessitate strategies and guidelines that go beyond addressing only one particular building type.

At their broadest level, the *Sustainable Design Guidelines* address issues of regional and neighborhood scale such as *connections* to regional transportation systems and surrounding neighborhoods.

1.5.13 COMPLETION DATES

It is anticipated that the Proposed Action would be constructed in several phases. The first phase, scheduled for completion by 2009, would 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.

1.6 MEMORIAL MISSION STATEMENT, PROGRAM, AND DESIGN

Just as public input and participation informed the selection of Libeskind's Memory Foundations plan to provide a setting for the WTC Memorial and to guide redevelopment at the site, the search for a Memorial design has been the subject of extensive public dialogue. In June 2002 the LMDC Families Advisory Council began the process of creating a draft Memorial Mission Statement and Program for the WTC Memorial. LMDC solicited comment in the summer of 2002 on the Families Advisory Council draft documents in a variety of ways, including a mailing to the victims' families in July, the *Listening to the City* events on July 20 and July 22 (described above in section 1.4.3), and through a series of public meetings held in all five boroughs and New Jersey in August and September 2002. LMDC also convened meetings for family members of victims in New Jersey and Connecticut in August and November 2002.

These draft documents, and the public comment that was received, served as the starting point for two drafting committees, which were created in the fall of 2002 by LMDC. The committees were comprised of family members, residents, survivors, first responders, arts and architecture professionals and community leaders. The drafts, along with extensive public comment, were used by the committees to create a revised draft Mission Statement and Program. All of the public comments related to the memorial that were received prior to the committee meetings were reviewed, analyzed, and categorized by the LMDC. These comments were then provided to the committee members to consider in their deliberations. LMDC released the revised draft Mission Statement and Program for the WTC Memorial on January 8, 2003. LMDC then launched *Plans in Progress*, an aggressive public outreach campaign to solicit public input on these important documents to supplement existing public information channels on LMDC's web site, at www.lowermanhattan.info, and through community representatives and Advisory Councils. A special mailing was sent to family members soliciting comments on these Memorial planning documents. Much of the outreach was performed concurrently with the *Plans in Progress* campaign outlined above in section 1.4.5.

Comments on the first drafts of the Memorial Mission Statement reflected a desire for a more simple, powerful statement than was originally conceived, and one that carried emotion, stated what happened on September 11, and recognized the need to heal.

MEMORIAL MISSION STATEMENT

Remember and honor the thousands of innocent men, women, and children murdered by terrorists in the horrific attacks of February 26, 1993, and September 11, 2001.

Respect this place made sacred through tragic loss.

Recognize the endurance of those who survived, the courage of those who risked their lives to save others, and the compassion of all who supported us in our darkest hours.

May the lives remembered, the deeds recognized, and the spirit reawakened be eternal beacons, which reaffirm respect for life, strengthen our resolve to preserve freedom, and inspire an end to hatred, ignorance, and intolerance.

During the *Plans in Progress* campaign, thousands of public comments were received representing a wide range of opinion about what should constitute the Memorial guiding

World Trade Center Memorial and Redevelopment Plan GEIS

principles and elements. In developing the Memorial Program, particular attention was devoted to discussing how to honor individual victims, the interpretation and meaning of sacred space, the magnitude of the loss and event, and the authentic character of elements and artifacts that survived.

Program Guiding Principles

The Memorial is to:

- Embody the goals and spirit of the Mission Statement;
- Convey the magnitude of personal and physical loss at this location;
- Acknowledge all those who aided in rescue, recovery and healing;
- Respect and enhance the sacred quality of the overall site and space designated for the memorial.
- Encourage reflection and contemplation; evoke the historical significance and worldwide impact of September 11, 2001;
- Create an original and powerful statement of enduring and universal symbolism;
- Inspire and engage people to learn more about the events and impact of September 11, 2001 and February 26, 1993; and
- Evolve over time.

Program Elements

The Memorial should:

- Recognize each individual who was a victim of the attacks
 - Victims of the September 11, 2001 attacks in New York, Virginia, and Pennsylvania
 - Victims of the 1993 terrorist bombing of the WTC
- Provide space for contemplation
 - An area for quiet visitation and contemplation
 - An area for families and loved ones of victims
 - Separate accessible space to serve as a final resting place for the unidentified remains from the WTC Site
- Create a unique and powerful setting that will
 - Be distinct from other memorial structures like a museum or visitor center
 - Make visible the footprints of the original WTC towers
 - Include appropriate transitions or approaches to, or within, the Memorial
- Convey historic authenticity
 - The Memorial or its surrounding areas may include:
 - Surviving original elements
 - Preservation of existing conditions of the WTC Site
 - Allowances for public ceremonies and celebrations

MEMORIAL COMPETITION

Following the adoption of the Memorial Mission Statement and Memorial Program in April 2003, the Memorial design was opened up to an international competition. LMDC drafted competition guidelines that incorporated the Mission Statement and Memorial Program, selected an independent jury, and initiated the World Trade Center Site Memorial Competition. By the deadline for submissions on June 30, more than 5,200 entries had been received. In November 2003, eight finalists were selected to proceed and further develop their memorial design concepts. These eight finalists produced additional materials to communicate their designs to both the jury and the public. These materials included 3-D models, illustrations, and animations of their Memorial Designs. These eight designs were placed on public exhibit in the Winter Garden at the World Financial Center starting on November 17. In addition, the eight designs were posted on the competition web site for the public to view.

Votives in Suspension

Two memorial sanctuaries *would be* set into a landscaped park. In each sanctuary, where the towers once stood, each individual who perished in the 1993 and 2001 attacks *would be* represented by a votive light suspended above a large reflecting pool. The names of the WTC victims *would be* listed in alphabetical order on the walls of the sanctuary spaces. A wall at the southern end of the park *would be* engraved with text about the history of the WTC Site and the efforts of the rescue workers on September 11, 2001. The unidentified remains *would be* at bedrock, between the footprints. There *would be* access to bedrock at the slurry wall.

Lower Waters

This memorial proposal contains *plans for* a large inclined park sloping from street level at Liberty Street to approximately 30 feet below street level at Fulton Street. There *would be* a formal lower garden in the South Tower footprint and a structure at the North Tower footprint with a broad staircase, water features, and the unidentified remains. In this scheme, the cultural buildings proposed in the master plan along Fulton Street and Greenwich Streets *would be* re-configured along Greenwich Street. Below grade, the finalists proposed a “Museum of September 11,” which *would* include access to the slurry wall and to bedrock at the North Tower footprint. Walls *would* encircle the west and east sides of the park and *would be* inscribed with the victims’ names, listed in alphabetical order.

Passages of Light: The Memorial Cloud

The proposed memorial *would* include a “cloud,” an open-air structure with cathedral-like vaults below and a translucent glass walking surface above. The top surface of the cloud *would* touch surrounding sidewalks, enabling access across the site from the West Street to September 11 Place at Fulton and Greenwich Streets. The ground plane beneath the “cloud” *would* contain paving, plantings, and slot openings to bedrock below. The tower footprints *would be* left open as two grassy fields. A passageway at bedrock *would* connect exposed slurry wall, the chamber for unidentified remains, and provide access to areas of both footprints. On the ground beneath the “cloud,” thousands of lights *would* shine upward, illuminating the engraved names of each individual victim. The names *would be* grouped according to each person’s location on February 26, 1993, or September 11, 2001. Rescuers names *would be* grouped together in a ribbon running through the larger field of names.

Suspending Memory

The proposed memorial area *would be* covered by a large pool containing two memorial gardens at the tower footprints. The gardens *would be* connected by a bridge. Each garden *would be* planted with trees and lawn and contain columns honoring each individual who died at the WTC in 1993, and who died on September 11, 2001. The columns *would* tell the story of each individual's life through a timeline of personal information. The name of each victim from Pennsylvania and Virginia *would be* etched into a glass plaque in the bridge. The south garden *would* contain a quiet area for families and loved ones. In the north garden, a sunken cascade of stairs, enclosed on three sides, *would have* a sculpture rising up out of a pool of water with all the known names of the unidentified victims. The unidentified remains *would be* located in a vault at bedrock below the north memorial garden. There *would be* access to bedrock at the slurry wall. The proposal *would* also include street memorials, a series of markers outside the site *that* re-create the image of the original Twin Towers in the skyline.

Garden of Lights

The memorial would be organized on three levels. The highest level *would be* a garden that includes prairie and orchard plantings. The middle level *would* include large white rooms accessible to family members at each footprint connected by a path and a stream of water. The unidentified remains *would be* in one of the rooms at the north footprint. The lowest level *would* contain a public area filled with individual lights and altars commemorating each victim. There *would be* access to bedrock at the slurry wall.

Reflecting Absence

The proposal includes *plans for* two pools submerged approximately 30 feet below street level in the middle of a large open plaza at street level. Individual victims' names *would be* engraved on the low stone wall surrounding the pools, in no discernable order. The names could be grouped together according to meaningful relationships—such as friends, relatives, and/or colleagues being next to each other. The open plaza *would* contain pine trees in a field of paving stones and low structures leading to underground corridors around each pool. A vestibule off one of the corridors *would* lead to the unidentified remains. The cultural buildings proposed along Fulton Street and Greenwich Streets *would be* re-configured along West Street. Access to bedrock is proposed in this design through the cultural buildings.

Dual Memory

The memorial proposal contains a pavilion called the “Individual Memory Footprint,” and a garden called the “Shared Memory Footprint.” A plaza with lawn and stone paving *would* connect the two. At bedrock, there *would be* a private area for families and loved ones at the heart of the Individual Memory Footprint near the unidentified remains. The names of the victims *would be* in this area on stone panels, in order of birth. In the public areas, individual victims *would be* represented with thousands of light portals in the pool of water over the roof of the Individual Memory Footprint. Each name *would also be* engraved on glass and stone panels, in a random arrangement.

Inversion of Light

This memorial proposal includes a street-level landscaped park for public ceremonies. The park *would have* a circular skylight with a vertical blue laser light, projecting upward from the location of the unidentified remains. The memorial *would also have* an underground level with a “monument to the unidentified,” a wall of names, a stone and terrazzo plaza, an illuminated reflecting pool, and granite walls with inscriptions and etched insignias. The unidentified remains *would be* below this lower level. Individuals’ names *would be* etched on a glass wall at the northern footprint. The names *would be* organized by date, location, and “civilian or non-civilian” identity. Access to bedrock level at the slurry wall *would be* provided.

MEMORIAL SELECTION

On January 6, 2003, LMDC announced that the Memorial Competition had selected Michael Arad and Peter Walker’s Memorial design concept, “Reflecting Absence.” The design *would* include landscaping on the plaza level, access to *the box beam column bases* and the *west slurry-wall*, and configuration of cultural buildings.

The Memorial plaza would be at street level to allow for its integration into the urban fabric of Lower Manhattan. It would have rows of deciduous trees, forming informal clusters, clearings, and groves. It would consist of stone pavers, plantings, and low ground cover.

In the midst of the Memorial would be two large “voids.” The Memorial voids would represent the footprints of the former Twin Towers, and reflect the absence of the towers. The voids consist of two approximately 200-by-200-foot pools of water recessed approximately 30 feet below-grade. Thin curtains of water would cascade from the plaza level at grade down into the pools below. Visitors would be able to descend from the plaza level via inclined walkways into a corridor surrounding each of the below-grade pools, where victims’ names would be inscribed on a wall surrounding each of the pools. A below-grade chamber for public remembrance and contemplation would connect the corridors surrounding the two voids.

A portion of the western slurry wall between Fulton and Liberty Streets would be stabilized and exposed (see Figure 1-6). Visitors would be able to descend along the wall via stairs or a ramp to reach the base of the structural “bathtub” (sometimes referred to as “bedrock”).

Access to portions of the lowest area of the bathtub would also be provided beneath both northern and southern voids. This would include access to tower perimeter box beam column base outlining portions of the lower footprints of the towers (see Figure 1-6).

Access to the southern box beam column bases would be open to the public, and may be provided through the Memorial Center. Access to the northern box beam column bases may be adjacent to the western slurry wall. Beneath the northern void at the lowest level of the bathtub, family members will be able to visit a chamber which includes a monument to victims whose remains are unidentified. An opening approximately 50 feet by 50 feet would allow daylight into the space below. This opening would be created within the pool of the northern void (approximately 30 feet below grade).

The Memorial Center, an interpretive museum housing artifacts from the events of September 11, would be located below grade to the west of the south tower footprint (southern void). This approximately 50,000-square-foot space may have multiple entrances and exits and would permanently exhibit the stories of that day.

1.7 SAFETY AND SECURITY

The Proposed Action would promote security upgrades and improved safety. An objective of the Proposed Action 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 would 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 program failures and emergency conditions, and to support preparedness through response plans and systems.

The safety and security design elements that would be in place at the Project Site are discussed in this *section* and include generally recognized modern standards that are present in the reconstruction of 7 WTC, as voluntarily adopted by Silverstein Properties, and would be incorporated throughout the Project Site.¹ The planning and design for the Project Site would 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.

1.7.1 CONSTRUCTION SAFETY AND SECURITY

As part of the construction plan for the Project Site, the Port Authority will develop a detailed Health and Safety Program (HASP) to be implemented throughout all aspects of the project's construction. The HASP, actually a compendium of several HASPs specific to particular areas of construction and activities, would require that each contractor develop a plan governing their work for Port Authority review prior to implementation and commencement of any construction activity. The HASPs would require compliance with all applicable laws and regulations.

The HASPs would identify all preventive and emergency response procedures to be implemented in managing and controlling hazards and safety issues. The HASP would also describe methods to protect construction workers, the public, and the environment. Specific measures would 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 would include inspections, self-assessments, and testing to identify problem areas. For oversight, Port Authority would implement an audit program to monitor all contractors for conformance with their individual HASP, as well as the project-wide HASP.

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

1.7.2 EMERGENCY SAFETY

The Proposed Action would meet or exceed safety standards expressed by applicable building codes and guidelines. When the provisions of the applicable codes do not apply to 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.

Ongoing research and extensive work with specialty security and fire safety consultants would lead to the development of a security system on the Project Site that advances the state of the art.

¹ 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.



West slurry wall 1



Box beam column base 2

The design of security and safety systems would consider the unique configurations, level of needed protection and threat likelihood for each building, structure or public space. Emergency response systems would 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 would allow for a more comprehensive overall compound design for safety and security on the site. Additional life safety measures that would be implemented in the Project Site may not be discussed or mentioned in this document for security reasons.

The design of all structures on the Project Site is expected to incorporate life safety provisions that would 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), would alert occupants and visitors in the event of an emergency. Emergency power would be provided for all life safety systems. Tall buildings as well as other applicable buildings within the Proposed Action would 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 would 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 would be limited, as expressed by applicable codes and standards.

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

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

A fire strategy would be developed for the Project Site through a combination of prescriptive requirements and performance-based engineering. Specific standards and codes would be observed such as maximum distance traveled for egress and maximum compartment size for containment of fires. Sprinklers, standpipes and extinguishers would be available in accordance with code requirements. The Project Site would 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 would be in place to create an atmosphere which would enhance egress and emergency response operations, including underground portions of the concourses and buildings. Stairway pressurization would be provided for stairways serving areas 75 feet above grade or higher. In addition, detailed analyses of integrated systems would 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 would be used or an expert or team of experts would be consulted to propose an appropriate solution to the authorities having jurisdiction over the relevant activities. Careful consideration would 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 would 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 would 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 would exceed those required by building code, allowing for more rapid evacuation and emergency response access. Exit stairs would have emergency lighting redundancy, would be widely separated and pressurized to resist smoke intrusion. Additional measures such as photoluminescent and electroluminescent marks would further enhance the usability of exit stairs in case of emergency. At each floor, stair landings would provide a refuge space for a wheelchair occupant. The egress system would be designed for redundancy, with interconnecting corridors allowing alternative exit options in the event of a blockage or other hazard. Exits would flow directly to the exterior of buildings, eliminating the confusion associated with exiting through the building lobby. The building structure would be further strengthened through increased redundancy in the supporting steel assembly. This steel would be protected from heat and deformation by fireproofing material with a high level of durability and effectiveness, at least twice that required by the building code requirements.

1.7.3 OPERATIONAL SAFETY AND SECURITY

Safety and security considerations would be reflected in the operation of the elements of the Proposed Action. The facilities for operational activities would 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 would 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, would 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 would be implemented in the Project Site *are not* discussed in this document for security reasons.

When appropriate, security standards published by the U.S. Government would serve as a guideline for design of the structures and spaces within the redeveloped site. A design goal of each component of the Proposed Action would be to achieve a high level of security and safety. High rise buildings, hotel facilities, retail spaces and cultural and memorial spaces would be evaluated with respect to their individual security and safety needs and parameters. Architectural design features, structural design, and construction material selection would 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 Proposed Action would 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 would be designed to achieve secure protection from an explosive event threats by stressing visible security at sensitive locations. Persons entering secure areas and locations within the Project Site would be subjected to screening for explosives, flammables or firearms at visible security checkpoints at sensitive positions. Airborne contaminant monitoring and detection would allow emergency response to noxious threats as well as providing a positive identification of safe conditions. Local point-of-use water filters would also be suggested.

It is anticipated that the Port Authority Police Department (PAPD) or other appropriate agency would be responsible for policing the Project Site, with NYPD support for emergency situations. The PAPD (or other appropriate agency) would 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 Proposed Action would create an increased demand for service which would 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 (R&D) 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 (DTAP) 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 would 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.

1.8 OTHER LOWER MANHATTAN RECOVERY PROJECTS

1.8.1 GOVERNOR'S IMMEDIATE ACTION ITEMS

On April 24, 2003, Governor Pataki identified independent short-term capital projects to improve accessibility in and around Lower Manhattan and to enhance the quality of life for the many different communities in Lower Manhattan. At the Governor's request, LMDC has provided funding or proposes to provide funding, with HUD assistance, for the following projects identified with the help of the Mayor's Office and business and community leaders:

- Pedestrian Crossings of West Street—Improvements to the Liberty Street pedestrian bridge and temporary Vesey Street pedestrian access and crossing were completed in the late fall of 2003, in conjunction with the opening of the temporary WTC PATH station.
- Streetscape Improvements—The Alliance for Downtown New York's (Downtown Alliance) Streetscape program is being put into place along Broadway between City Hall Park and Battery Park.
- Greenmarket—The Greenmarket that operated at the WTC reopened in June 2003 at Liberty Plaza.
- New York Stock Exchange Area Security—Improvements will be made to maintain the security of the area while beautifying the area and making it more accessible.
- Millennium High School—A contribution to the new school in renovated office space at 75 Broad Street supported its opening in Lower Manhattan in early September 2003.
- Open Spaces—Contributions will be made to fund enhancements of open spaces throughout Lower Manhattan—in Chinatown, the Lower East Side, Tribeca, and elsewhere as called for by Mayor Michael Bloomberg's *Vision for a 21st Century Lower Manhattan*.
- Hudson River Park—LMDC will work with the state and the city to implement certain recreational facilities in the park in its segment near Tribeca.

Other initiatives announced by the Governor are also underway, including a marketing campaign for Lower Manhattan shopping, restaurants, and cultural institutions. In addition, LMDC and ESDC are providing funding for certain infrastructure and utility improvements in Lower Manhattan.

1.8.2 7 WORLD TRADE CENTER

The first post-September 11 redevelopment project at the WTC complex began with 7 WTC in the spring of 2002. The project was undertaken by the Port Authority, Con Edison, and Silverstein Properties in cooperation with the city, ESDC and LMDC. The replacement

structure, now in construction, will have a gross floor area of approximately 1.685 million square feet (240,000 square feet smaller than the original 7 WTC building), including approximately 76,500 square feet dedicated to the Con Edison substations and their support facilities to replace the substations destroyed on September 11. The first substation is expected to be completed in 2004, and the 7 WTC replacement building is expected to be completed in 2005. The replacement building is configured on the west end of the original 7 WTC Site in order to open the Greenwich Street view corridor to the south and to preserve the option of opening Greenwich Street to pedestrians and possibly through traffic (see Figure 1-7). The project was the subject of its own environmental review completed in 2002.

1.8.3 PERMANENT WORLD TRADE CENTER PATH TERMINAL

The Port Authority is planning for a permanent WTC PATH Terminal that would restore full PATH operations to the WTC Site, provide year-round indoor pedestrian connections to surrounding streets, BPC, and improve passenger egress from platforms and permit use of 10-car PATH trains. It would have one more track than the temporary WTC PATH station (for a total of five), and its platforms would be longer to the north and south than the temporary station. The level above the tracks would be devoted to mezzanine and fare collection facilities. Above the mezzanine would be a pedestrian connection between the mezzanine, surrounding streets, and BPC at the World Financial Center. The permanent WTC PATH Terminal is a project independent of the Proposed Action and is undergoing a separate environmental review with the FTA as the federal lead agency. The draft scope contemplates that construction is expected to begin in 2004/5 and to be completed by 2009.

1.8.4 ROUTE 9A RECONSTRUCTION

The New York State Department of Transportation (NYSDOT) and the Federal Highway Administration (FHWA) are currently considering the reconstruction of Route 9A south of Chambers Street, with either at-grade design improvements or a short below-grade bypass for vehicular through traffic. Reconstruction of Route 9A is a project independent of the Proposed Action and will undergo its own environmental review by NYSDOT and FHWA.

1.8.5 FULTON STREET TRANSIT CENTER

The Fulton Street Transit Center is a project being undertaken by FTA and MTA/NYCT. It would rehabilitate, reconfigure, and enhance the multilevel complex of subway stations serving nine different lines, with improved platforms, mezzanines and connecting corridors, and a new central concourse with a new above-ground presence. That facility has a proposed below-grade pedestrian connection under Dey Street to the permanent WTC PATH Terminal. The Fulton Street Transit Center is projected to be completed in 2008–2009. The Fulton Street Transit Center is a project independent of the Proposed Action and is undergoing a separate environmental review by MTA/NYCT and FTA.

1.8.6 SOUTH FERRY TERMINAL SUBWAY STATION

The South Ferry Terminal Project is being proposed by FTA and MTA/NYCT. The project would reconstruct the existing South Ferry subway station to create a new terminal that would eliminate the physical and operational deficiencies of the existing station and improve connections to the N/R subway line and the Whitehall Ferry Terminal. South Ferry is the southern terminus of the MTA/NYCT No. 1/9 subway lines that serve the full length of the west

side of Manhattan and extend from South Ferry to 242nd Street in the Bronx. Construction is anticipated to be complete in September 2007. The project is independent of the Proposed Action and is undergoing a separate environmental review by MTA/NYCT and FTA.

1.8.7 OTHER MASS TRANSIT PROJECTS

LMDC is exploring various major public transit initiatives, such as a ferry service linking Lower Manhattan, Midtown, Yonkers, and Haverstraw, as well as rail access from Lower Manhattan to the airports.

1.9 ALTERNATIVES TO THE PROPOSED ACTION

Throughout the process of planning for development, public desire for the inclusion of certain program and design elements has been well documented. The Proposed Action represents the program which most appropriately balances the need for remembrance of the events of September 11 with the need to rebuild what was lost on that day. Although the Alternatives to the Proposed Action will be described and analyzed in detail in Chapter 23, it is important here to introduce each alternative in context with the Proposed Action, and to indicate the reasons for its inclusion in this FGEIS.

1.9.1 NO ACTION ALTERNATIVE

The No Action Alternative stems from the methodology inherent in environmental impact analyses, and is included as a standard impact alternative against which proposed projects are assessed. Under the No Action Alternative for this action, none of the proposed Memorial or other 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. This alternative would not incorporate the *Southern* Site, which would proceed to be developed as private market conditions allowed. The impacts of this alternative are discussed throughout this FGEIS under “The Future Without the Proposed Action—Current Conditions Scenario.”

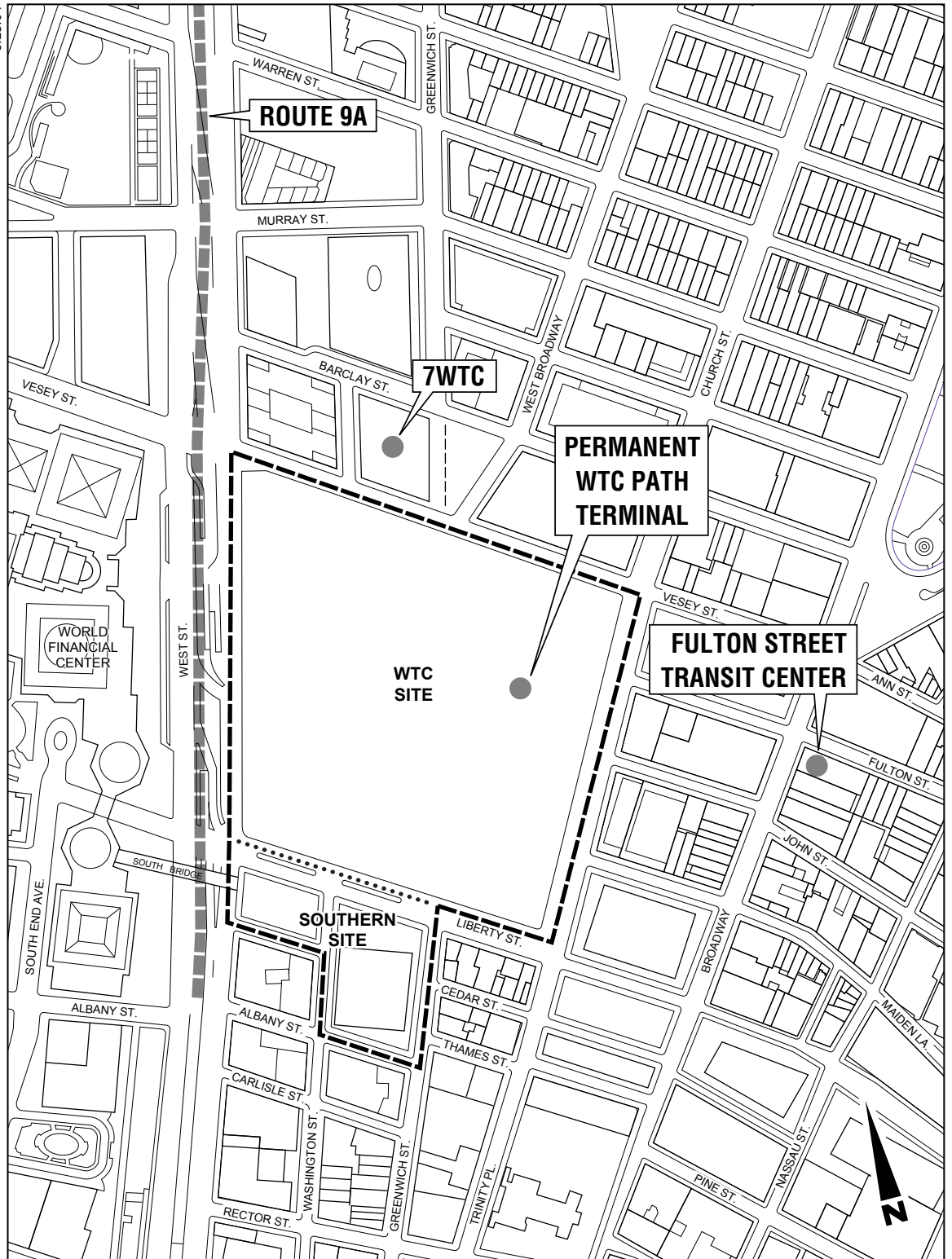
1.9.2 MEMORIAL-ONLY ALTERNATIVE


One view represented early on in the public dialogue was the desire for no programmatic development at the site except for a Memorial and related museum. Although there was a widespread call for rebuilding a balance of commercial and cultural uses with a Memorial at its core, LMDC considered the Memorial-Only Alternative and analyzes it in this FGEIS.

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. The *Southern* Site would not be included as part of the project site under this alternative. Greenwich and Fulton Streets are assumed to be extended for both vehicles and pedestrians. The permanent WTC PATH Terminal and other interim improvements would also be completed

1.9.3 RESTORATION ALTERNATIVE

Another view represented during the initial public process sought to rebuild the Twin Towers exactly as they once stood. Public outreach campaigns further informed this viewpoint as the result of Advisory Council meetings, hearings, the Federal Hall exhibit, and *Listening to the City*



 Project Site

0 200 400 FEET
SCALE

meetings clearly indicated a preference for preserving or recognizing the Twin Tower footprints within the Memorial context. LMDC reconciled the call to restore the Twin Towers with the desire for an appropriate Memorial setting by considering an alternative that would seek to restore the likeness of the Twin Towers in the northeast quadrant of the WTC Site.

The Restoration Alternative would restore the WTC Site substantially as it existed before September 11, 2001, with updated technology and relocated foundations for the reconstructed Twin Towers. Under this alternative, the *Southern* Site would not be included. As with the other alternatives, the permanent WTC PATH Terminal and interim improvements would be completed independently.

Carrying over the footprint relationship of the former towers to new construction would preclude the reopening of Fulton and Greenwich Streets that is part of the Proposed Action. In addition, bus parking and security would need to be located on-site, presenting issues in terms of separation of uses as well as safety concerns. The only feasible location for the rebuilt towers would place the streetwalls close to the street and sidewalks along Church and Vesey Streets. This alternative would concentrate retail *below grade*, and remaining program elements would be concentrated on the northwest and southeast portions of the site in order to maintain an appropriate setting for the Memorial in the southwest quadrant of the WTC Site.

1.9.4 REBUILDING ALTERNATIVE

The Rebuilding Alternative will analyze the THINK team's World Cultural Center concept as the design which, besides the Libeskind Memory Foundations plan, best fulfilled the purpose and intent of the *Innovative Design Study*. The THINK design could be considered the most likely design alternative to be developed if the Libeskind concept were not to move forward.

The World Cultural Center design would create two open-lattice towers built around the footprints of the former towers. A memorial would be located at 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 at the heart of the two towers, and extend across Route 9A to BPC. Commercial development would take place in office towers surrounding the memorial site. Fulton and Greenwich Streets would be extended for pedestrian and vehicular traffic. Overall, this proposal would create approximately 11,644,000 square feet of built space, including an 80,000-square-foot memorial (with 3.2 acres of additional area), 780,000 square feet of cultural space, 8.6 million square feet of office, 1 million square feet of retail, and 658,000 square feet of hotel/conference space. Also created would be 14.3 acres of open space and other areas for transportation, transit, and other uses.

1.9.5 WTC SITE-ONLY ALTERNATIVE

The initial WTC Memorial and Redevelopment Plan conceived of four towers containing 10 million square feet of office space and all other program elements to be located entirely on the WTC Site. This initial plan was refined in September 2003 to add development of the *Southern* Site. LMDC established the WTC Site-Only Alternative to analyze the initial plan based on public and commercial considerations.

1.9.6 ENHANCED GREEN CONSTRUCTION ALTERNATIVE

In response to strong public sentiment for sustainable and green design, construction, and function at the Project Site, LMDC and the Port Authority have sought from the beginning to

advance sustainable environmental excellence. Sustainable environmental design generally addresses energy utilization, air emissions, water utilization, materials management and outdoor and indoor environmental quality. To that end, LMDC established a working “green group” consisting of environmental design and construction practitioners, advocacy groups, and government officials dedicated to identifying and establishing potential measures of sustainability that could be incorporated into the redevelopment of the Project Site.

As a result of these efforts, LMDC has developed a series of *Sustainable Design Guidelines* that establish a blueprint for sustainable design to be incorporated into the future structures and practices on the Project Site. Sustainability principles are discussed in detail in Chapter 12, “Infrastructure,” and are attached as Appendix A. The guidelines address in a comprehensive way the overall objectives for potential sustainable measures on the Project Site.

Since many sustainable design measures have been incorporated into the proposed project, including the wind turbines proposed at the top of the Freedom Tower, this alternative considers the environmental benefits and costs of noteworthy measures and practices *not* already incorporated into the Proposed Action, and describes the reasons why they have not been employed. These include:

- Movement of goods and waste via PATH;
- Waterborne goods and waste handling;
- Use of photovoltaic cells;
- Biofuel and composting facility;
- On-site co-generation of electricity.

1.9.7 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 Proposed Action in order to reduce or avoid unmitigated significant environmental impacts of the Proposed Action in 2009 and 2015, while still satisfying the overall purpose and need of the Proposed Action. As the analyses in Chapter 13A, “Traffic and Parking,” Chapter 13B, “Transit and Pedestrians,” Chapter 21, “Construction Impacts,” and Chapter 22, “Mitigation Measures,” make clear, the principal adverse environmental impacts of the Proposed Action reflect (1) high background traffic levels in the vicinity of the Project Site in both 2009 and 2015; (2) the addition of a tremendous number of visitor trips to the Memorial in both of these years; and (3) the cumulative effects of the Proposed Action and other Lower Manhattan recovery projects during the 2006 construction period.

Defining a Reduced Impact Alternative therefore presents a number of challenges. The Memorial and museum are fundamental to the goals of the Proposed Action, 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 within the Project Site has already been effectively reduced by approximately 15 percent below pre-September 11 levels because of the proposed 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 Proposed Action 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 even 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 Proposed Action and would likely produce about the same number of significant impacts as the Proposed Action.

On balance, a Reduced Impact Alternative is unlikely to sufficiently reduce traffic and construction impacts to avoid or mitigate any of the Proposed Action's significant environmental impacts. However, such an alternative could make more difficult the realization of the Proposed Action's goals. 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 as compared to the Proposed Action. 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 of the Proposed Action 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 Proposed Action to contribute to the renewed economic vitality of Lower Manhattan.

1.9.8 AT-GRADE-ACCESS ALTERNATIVE

Under this alternative, vehicular circulation for Freedom Tower, the performing arts center, and cultural uses, as well as for the Memorial and Memorial Center, would be separated from, the remainder of the Project Site's below-grade network. 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. Other features and components of this alternative would be the same as with the Proposed Action.

Delivery vehicles would enter along the south side of Vesey Street between Washington and Greenwich Streets and take elevators down to the loading docks. Prior to entering the elevator area, vehicles would be inspected along the east curb lane of Washington Street between Barclay and Vesey Streets, or at another location to be selected on or in the immediate vicinity of the site. Additional queuing and possibly curbside drop-offs and pick-ups would need to be accommodated along Barclay and Vesey Streets. Trucks would move eastbound on Vesey Street, northbound on Church Street, and westbound on Barclay Street. A signal would be added at the intersection of Vesey and Washington Streets. Trucks could also approach the Washington Street screening area by traveling eastbound on Murray Street, southbound on Greenwich Street, and westbound on Barclay Street.

Overall, the At-Grade Loading Alternative would permit construction of Freedom Tower and the performing arts center to proceed in advance of completion of the larger sub-grade infrastructure, access, and loading facilities planned for the balance of the Project Site, and could permit earlier completion of the Memorial, Memorial Center and cultural facilities. In addition to simplifying the construction of these components for sub-grade portions of the Proposed Action that would have been associated with expanded sub-grade access and loading facilities. On the other hand, this alternative would result in increased traffic congestion on Vesey, Barclay, and Washington Streets immediately north of the Project Site and would require further analysis and mitigation measures to address that congestion and its potential effect on neighborhood character.

1.9.9 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 Proposed Action. A cooling tower removes heat from water that has been used in an air conditioning system. The water is cooled by contact with air, causing a small amount of the water to evaporate and the rest of the water to be cooled. The refrigeration plant contains the condenser, compressor and evaporator. From the refrigeration plant the cooled water circulates throughout the building by pipes and back to the cooling tower. Use of conventional cooling towers would replace the proposed reactivation of the Hudson River 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 Proposed Action. However, this alternative would avoid the potential adverse impacts on aquatic organisms of the CWIS described in Chapter 18, "Natural Resources." On the other hand, this alternative would forego the energy efficiency for which the CWIS was designed, would consume significant quantities of potable water and electricity, and would also require substantial amounts of space in each of the office towers and other principal structures of the Proposed Action, with the potential for new or increased adverse impacts on visual resources and shadows.

1.10 STATUS OF THE PROPOSED ACTION

1.10.1 AGENCY ACTIONS AND APPROVALS

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

1.10.2 FEDERAL

- Advisory Council on Historic Preservation (ACHP)—review under Section 106 of National Historic Preservation Act
- Department of Housing and Urban Development (HUD)—funding and action plan approval
- Department of Transportation, Federal Aviation Administration (FAA)—review of building heights
- 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
- Federal Emergency Management Agency (FEMA)—possible funding approval
- Federal Communications Commission (FCC)—licensing of broadcast antenna

1.10.3 BI-STATE

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

1.10.4 STATE

- Lower Manhattan Development Corporation (LMDC)—general project plan approval and implementation; possible 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 National Historic Preservation Act and State 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 pedestrian passageway and appropriate related transportation approvals (with the New York Metropolitan Transportation Council)

1.10.5 NEW YORK CITY

- New York City Planning Commission—Coastal Zone Consistency review
- New York City Department of Transportation—review of possible signage, street signal timing and street direction changes

In addition, the inclusion of some or all of the *Southern* Site in the Proposed Action may require agreement, approval, or consent of the City of New York. *