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2022 AIA Fellowship

Candidate Carla Bonacci
Organization The Port Authority of NY and NJ
Location Westfield, New Jersey
Chapter AIA New Jersey; AIA Central New Jersey

Category of Nomination

Object 4 > Government

Summary Statement

Carla Bonacci's twenty-year leadership in rebuilding the World Trade Center established planning principles, guided an unprecedented number of diverse stakeholders--the public, private equity, transportation and government--creating the vibrant Campus reflective of its enduring significance.

Education

Pennsylvania State University, University Park, PA, 1 year, Bachelor of Architecture, 1982

Pennsylvania State University, University Park, PA, 4 years, Bachelor of Science in Architecture, 1977-1981

Licensed in:

New Jersey

New York

Employment

The Port Authority of NY & NJ - 8/23/1982 to Present, 39 years

Joseph Vitullo, Architects - Summers 1978-1982



September 30, 2021

Mr. Steven Spurlock, FAIA Jury Chair of Fellows
1735 New York Avenue, NW
Washington, DC. 20006

Subject: Sponsor Letter of Reference for Ms. Carla Bonacci, AIA

Dear Chair Spurlock:

I am extremely pleased to submit this sponsorship letter on behalf of Carla Bonacci, AIA, Assistant Director, Infrastructure & Project Development for the Port Authority of New York and New Jersey (PANYNJ) World Trade Center (WTC) Construction Department, regarding her highly deserved elevation to AIA Fellowship. Carla is an architect who has devoted the past 20 years of her PANYNJ career to rebuilding the post 9/11 WTC Site.

Over that timeframe, Carla in her leadership position, has engaged in coordination with the numerous stakeholders to develop a diverse mixed-use campus consisting of: 1) commercial tower private equity development; 2) master concessionaire retail development; 3) PATH commuter rail, New York City Transit subway and Hudson River ferry transportation systems integration; 4) the Museum and Memorial civic institutions; 5) the Greek Orthodox Church; and 6) New York City DOT streets and blocks. Along with these, Carla has championed rigorous security, sustainability and resiliency programs to support the WTC rebuild. Further, she has worked in collaboration with oversight stakeholders such as the Lower Manhattan Development Corporation (LMDC). The ripple effect of her 20-year multiple stakeholder coordination to ensure that the WTC rebirth not only addressed the stakeholder business end of the rebuild, but also the civic, memorial and urban impact to the residential, city and state government, business and financial districts that surround the WTC site is reflected in the public realm quality of the WTC Campus

During which time she has more than demonstrated dedication to representing the profession and a determined passion for her career service. The WTC 1993 bombing, and 9/11 attack, had a direct emotional impact on PANYNJ staff, who not only lost colleagues and friends, but also lost what had become our home away from home. Many of us who survived that day made a conscious decision to focus our collective energy and dedication to returning the WTC site to the public realm – as the center of Lower Manhattan commerce and transportation. Carla ranks at the very top of that list of PANYNJ staff.

Carla has been a stalwart for leading the rebirth, demonstrated by her selection as one of the recipients of the 2012 Presidential Citation for 'Architects of Healing'. Spanning a 35-year career as an architect at the PANYNJ, I was privileged to be part of a 'succession plan' that enabled me to become the PANYNJ's Chief Architect from 1991 through 2004. I was also privileged to be the executor of an 'architectural trainee program' that enabled the Authority to invite the best young architects coming into the profession to make a career at the now 100-year-old Authority.

As Chief Architect, post 9/11, I was responsible for the design of the transportation component of the Trade Center, specifically the PATH commuter rail system – as well as developing the Transportation Master Plan for Lower Manhattan. Carla, as a key member of the World Trade Center Redevelopment Team – tasked with the WTC rebuild – provided management leadership for this effort, which expanded significantly during the rebuild to include coordination with the above mentioned cultural facilities and private equity development that are now fully integrated into the WTC site. Carla continues to lead multi-disciplinary development and design and construction teams, driving the vision towards completion. – her goal to realize an enduring public place for future generations.

Because of Carla's choice to devote her career to the planning, design, construction and continuing management of WTC site, widening the narrative of one of this country's most significant moments in history – I am extremely pleased to sponsor her elevation to Fellowship.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Davidson".

Robert Davidson, FAIA, NCARB
STV Inc. Aviation + Multimodal Practice Lead

2022 AIA Fellowship Application

Nominee: Carla Bonacci, AIA

“...to elevate those architects who have made a significant contribution to architecture and society and who have achieved a standard of excellence in the profession...”

Object 4: Government

“To insure the advancement of the living standards of people through their improved environment.”



“The way is not always easy, but in order to bring a work through to completion, you will need a strong character, a broad foundation of knowledge and an enormous force of persuasion.”

Santiago Calatrava

1: Summary of Achievements

Carla Bonacci's twenty-year leadership in rebuilding the World Trade Center established planning principles, guided an unprecedented number of diverse stakeholders—the public, private equity, transportation and government—creating the vibrant Campus reflective of its enduring significance.

As Program executive of the World Trade Center, Carla's singular career passion and legacy—both pre- and post-9/11—has been redevelopment of the World Trade Center (WTC). Through 20 years of development, this vast mixed-use complex of commercial, cultural and transportation buildings, owned and operated by the Port Authority of NY & NJ, is a vibrant 16-acre civic environment. At the center of decision-making, Carla's leadership has shaped the revitalized WTC Campus environment. She wrote the Principles of Redevelopment following 9/11, which established the program, goals, and objectives of the future WTC Master Plan, subsequently formulating and executing projects with an unprecedented number of stakeholders, setting the course for the WTC's public-private development. Her sustained efforts to overcome obstacles, achieve balance, and maintain the WTC Master Plan vision have ensured the successful rebuilding of this civic place of iconic significance for millions of annual visitors currently as well as future generations.

REGULATION AND GOVERNANCE. Carla continues to champion the WTC Master Plan, governing project boundaries and criteria for the WTC campus. She continues to promote and administer the WTC Commercial Design Guidelines that enforce a common vocabulary developed to maintain the WTC's iconic identity. Since 2001, Carla has been a key member in the development of associated legal/financial frameworks between the Port Authority and various stakeholders to execute the Master Plan vision. Her perseverance in establishing common infrastructure requirements and organizing shared development responsibilities have optimized the WTC's long-term phased development. She administers Construction requirements that guide and regulate the efforts of thousands of WTC redevelopment design and construction professionals.

TRANSPORTATION AND CIRCULATION. Carla's management oversight has contributed significantly to regional transportation. The WTC Transportation Hub is the nexus linking New Jersey with Lower Manhattan. In the WTC modernization, after the 1993 terrorist attack, her experience managing expanded public space redevelopment – enhancing the pedestrian experience and egress capacity — was vital to safe evacuation of thousands on 9/11. Carla worked extensively with the City and WTC site developers to achieve restoration of the street grid at the WTC campus, and integrate vehicular circulation at street level and below-grade.

BEAUTIFICATION AND URBAN DESIGN. Carla has been an advocate for open public space throughout her career, which included pedestrian circulation and public Plaza improvements to better integrate the pre-9/11 WTC into the surrounding neighborhoods. She played a lead role in establishing WTC site open public space objectives, which was ultimately achieved with significant pedestrian Plaza enhancements around the Memorial. Carla managed the entire implementation of the WTC's streetscape and WTC Liberty Park. The resulting seamless integration of the WTC Campus into the Lower Manhattan urban fabric is her signature achievement. Carla continues to promote design standards to achieve consistency, ensuring overall campus quality.

CONSERVATION AND RESILIENCY. Carla was a principal leader in developing the WTC's Sustainable Design Guidelines, adapting design principles that established baseline commitments applicable to WTC mixed-use development. Carla introduced these commitments a decade prior to the adaptation of LEED, with all commitments ultimately achieved by WTC commercial building development. In the post-Hurricane Sandy environment, Carla managed design and construction of an innovative system of flood mitigation measures that addressed long-term resiliency with no impacts to building design.

PROFESSIONAL OUTREACH. Carla consistently promotes women in architecture and contributes to various organizations in volunteer, appointed, and elected Board positions representing the profession. As an AIA NJ past Chair of its Women in Architecture committee she continues to present AIA-NJ programs that promote professional equity, diversity and inclusion principles. She is an appointed member of the Board of (Zoning) Adjustment in Westfield, NJ., and an elected Board member to the Penn State Stuckeman School of Architecture Alumni Advisory Group,

Carla has brought awareness and exposure of non-traditional roles for architects in executive managerial and governance positions. She has instructed and mentored numerous young professionals and students. And with the added visibility and elevation to Fellowship, Carla will continue to bring her experience and expertise demonstrated in this application to an even wider audience of building professionals to effectuate high quality environments into the future.



“During difficult negotiations for several of the major anchor tenants of the World Trade Center, Carla Bonacci created solutions that balanced access with security. Carla listened, understood the prospects’ logistical and emotional issues, and crafted presentations and, ultimately, protocols that resulted in winning outcomes for all parties, Condé Nast and GroupM might never have come to the Trade Center without her contributions.”

*Mary Ann Tighe, CEO
NY Tri-State Region, CBRE*

2.1 Significant Projects and Work

Urban Design (Rebuilding)



WTC Liberty Park

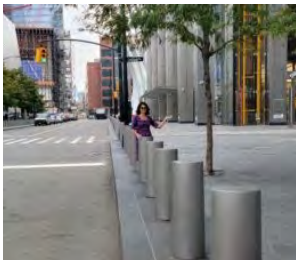
Total Project: ~\$80 million
Construction: ~\$55 million
Completion: 2016, ongoing

A/E of Record: AECOM, Jacobs,
STV joint venture



Liberty Park Landscaping

- PANYNJ Memorial Garden
- Anne Frank Tree Sapling
- Living Wall



WTC Campus Streetscape

Total Project: ~\$254 million
Construction: ~\$100 million
Completion: 2014, ongoing

A/E of Record: AECOM, Jacobs,
STV joint venture



WTC Cultural Buildings Integrated Project Delivery

- Perelman Performing Arts Center
- St. Nicholas Greek Orthodox Church

Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

Organized and directly managed the project team involving more than 100 individuals, including Port Authority staff program and project managers, and consultant design teams, construction managers, and contractors to produce (plan, design, and build) the WTC Liberty Park, a 1.5-acre rooftop green space with pedestrian circulation.

Directed the design and prioritized scope to maintain goals and budgets. Led the community input effort with Community Board 1 and New York City Planning. Coordinated South Bridge interface with Brookfield Properties including legal and property agreements. The design called for a complex assembly of materials and plantings. The Park was built and opened in 2016 (within four years of the first contract award).

Constructed the PANYNJ Memorial Garden at Liberty Park, in remembrance of agency first responders who were lost on 9/11, that was dedicated on the 20th anniversary. Installation and planting of a sapling from the original Anne Frank Tree in Liberty Park.

Organized and directly managed the project team involving more than 100 individuals, including Port Authority staff program and project managers, and consultant design teams, construction managers, and contractors to produce (plan, design, and build) the WTC Streets and Utilities. A consistent advocate during planning phase to establish the street grid, and then to set the common street grade elevations across the Campus.

Oversees project managers and construction inspectors for implementation of capital projects required for major buildings on the WTC Campus, such as the Perelman Performing Arts Center and the St. Nicholas Greek Orthodox Church. Coordinates with stakeholders, their architects, and contractors to facilitate safe and timely construction progress. Resolves design conflicts amongst several different active contracts working within a limited area.



2.1 Significant Projects and Work

Carla Bonacci, AIA

Object 4: Government

Infrastructure (Rebuilding)



WTC Flood Mitigation Program

Total Project: \$100 million
Construction: \$60 million
Completion: 2020
A/E of Record: Baker Engineering; AECOM, Jacobs, STV joint ventures

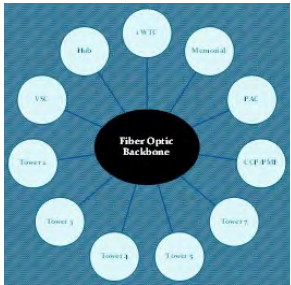
Organized and directly managed the project team involving more than 100 individuals, including PA professional staff, consultants, and contractors to fully produce (plan, design, fund and build) the WTC Flood Mitigation Program. Developed flooding risk threat assessment, modeling storm surge and accelerated sea level rise. Established criteria for flood protection, directed subsequent design, contract packaging and value engineering, tract packaging, and directly managed 15 design and construction contracts to ensure product quality and control delivery.



WTC Campus Security Program

Total Project: Undisclosed
Construction: Undisclosed
Completion: 2014-ongoing
A/E of Record: AECOM

Organized and directly managed agency staff, consultant and contractor teams to plan, design and build components of the World Trade Center Campus Security Program. Addressed planning and traffic engineering coordination issues toward a workable plan to provide additional vehicle screening and monitoring. Worked with WTC Security and City of NY, PAPD, NYPD project staff to configure and construct vehicle barriers, guard booths, video cameras, and related equipment. Managed concurrent contracts for technology and physical improvements with overlapping project stages.



World Trade Center Technology Systems

Total Project: ~\$80 million
Construction: ~\$55 million
A/E of Record: AECOM, Jacobs, STV joint ventures

Organized and directly managed agency staff, consultant, and contractor teams to plan, design and install World Trade Center communications and network backbone. Led consultants to establish criteria for implementation by stakeholders. Installed fiber connections, head-end systems, other backbone equipment, including first responder radio, CCTV software controls, access hardware. Gained concurrence from authorities with jurisdiction for security and safety. Brought multiple design teams together to coordinate connections at interfaces.



World Trade Center Central Chiller Plant

Total Project Cost: \$200 million
Construction Cost: \$150 million
A/E of Record: AKF/MW Group

Organized and directly managed the project team of Port Authority staff program and project managers, and consultant design teams, construction managers, and contractors to plan, design and build the new World Trade Center Chiller Plant. Led the analysis for Chiller Plant capacity. Coordinated with NYS DEP and Riverkeeper to mitigate impacts on the Hudson River, achieve consensus and obtain SPDES (discharge) permit.

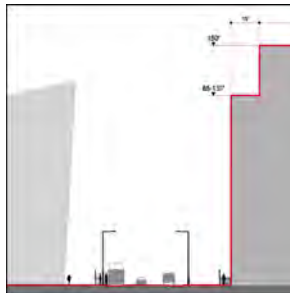


2.1 Significant Projects and Work

Regulation and Governance (Rebuilding)



**World Trade Center
Master Plan (Revisions)**



**WTC Buildings
Design Guidelines**



**WTC Buildings Core & Shell
(Design Reviews)**



**WTC Buildings Security
and Sustainability
(Design Reviews)**

Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

Managed planning interfaces with key external stakeholders to refine the Libeskind Master Plan proposal, to seek accord amongst various planners and “starchitects” and reconcile intensive political and public comments. Subsequently managed staff in the preparation of regular updates to the Master Plan as WTC building designs advanced, in an effort to address major “gaps and overlaps” amongst the various project designs. Twelve (12) official updates to the Master Plan have been recorded and issued for reference by the design and construction staff working on WTC projects.



Led development of commercial design and zoning guidelines for the World Trade Center Campus, establishing boundaries for designing architects, engineers and other building professionals to advance specific project design work. Led coordination efforts with multiple stakeholders on each element of the Design Guidelines. Resolved conflicts amongst teams and maintained integrity of goals and objectives. Conducts project design compliance reviews of applicable guidelines, providing input and comments to facilitate approval to proceed.



Monitors design standards for all WTC projects implemented by the PA and its stakeholder partners (net lessees), consistent with environmental commitments, regulatory approvals and other legal requirements. Facilitates teams responsible for building code reviews and conflict resolution involving code interpretation. Manages staff review of WTC Tenant Construction Applications Reviews for all base building construction, including compliance with technical requirements for new WTC buildings. Leads staff performing construction audit of all tenant construction and certifies work is ready to receive

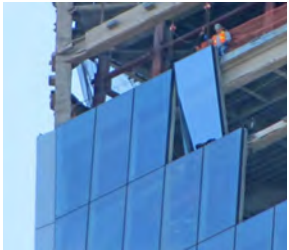


Oversees compliance reviews for security design criteria, including Protective Design Narratives provided by design teams at each stage of design and construction. Oversees the security design and documentation process for compliance with the threat assessment and criteria. Coordinates with all stakeholders and their design teams on submittals and requirements for compliance. Acts as Departmental Information Security Officer (DISO) for the handling of all secure information. Working with PA Legal team, Emergency Management, and architects/engineers to establish process and protocols information security compliance.

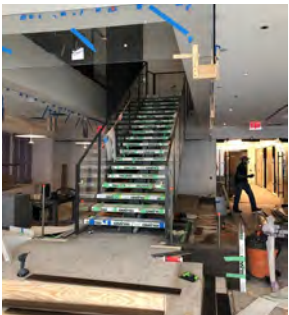


2.1 Significant Projects and Work

Regulation & Governance (Rebuilding)



**WTC Buildings / Core & Shell
(Construction Oversight)**



**WTC Interior Construction
(Construction Oversight)**

Westfield WTC Retail Stores: 90
Occupied Office Space (2021)
Tower 1: 2.7 million sf
Tower 3: 2.2 million sf
Tower 4: 2.5 million sf
Tower 7: 1.7 million sf



**WTC Infrastructure Plan and
Funding Framework**



Carla Bonacci, AIA

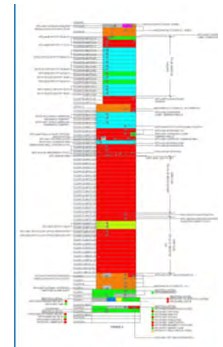
Object 4: Government

Assistant Director, World Trade Center Construction

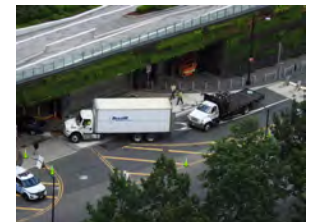
Oversees more than 20 construction engineers and inspectors involved in coordinating all aspects of base building construction by third-party (non-Port Authority) developers and contractors. Based on certifications provided and inspections performed. Provides sign-off of building code compliance to support the formal issuance of Permits to Occupy. This notably includes Towers 3, 4 and 7 built by Silverstein Properties and Turner Construction. Inter-mediate with developers contractors to address and resolve various critical issues including



Performs compliance review and monitoring of these design standards for all WTC projects implemented by the PA and its stakeholder partners (net lessees), consistent with environmental commitments, regulatory approvals and other legal requirements. Oversees more than 20 construction engineers and inspectors involved in coordinating all aspects of interior construction and fit-out by third-party (non-Port Authority) tenants and contractors. Based on certifications provided and inspections performed, provides sign-off of building code compliance to support the formal issuance of Permits to Occupy.



Guided negotiation of stakeholder roles and responsibilities for WTC redevelopment. Identified and evaluated alternative development scenarios in support of executive and inter-agency decision-making. Developed the common infrastructure approach for shared systems and structures. Garnered the consensus of stakeholders and their design teams such that space was sufficiently and optimally arranged. Spear-headed the cost allocation methodologies and funding options to advance the program from design into construction, including concepts of “common infrastructure” and “lateral load premium” to obtain “fair share” funding commitments.



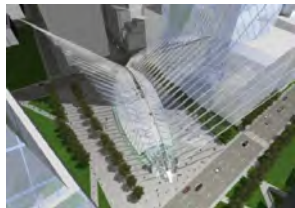
2.1 Significant Projects and Work

Transportation and Planning (Rebuilding)



Temporary WTC PATH Station

Total Project:
Completed: 2003



WTC Transportation Plan and Public Approvals (2002-2006)

- NEPA Process
- Section 106 Process
- Federal Funding



WTC Master Development Agreements (2006-2010)



WTC Site Transition (Spring/Summer 2002)

Carla Bonacci, AIA

Object 4: Government

Deputy Program Director, Major Capital Projects (2002-2006)

Managed immediate site recovery projects, including the WTC site transition and restoration, and temporary WTC PATH Station. Supervised design and initial construction work of the \$300+ million Temporary WTC PATH Station, WTC perimeter fences, and walkways involving extreme fast-track methods. Arranged installation of mosaic "Saetta Iridescente" designed by the Friuli School of Mosaic (Spilimbergo, Italy), temporary Memorial Fence, and organized various graphics for the temporary WTC PATH Station.



Managed the planning and conceptual development of the Permanent WTC PATH Terminal (now known as the WTC Transportation Hub), including supporting the federal environmental review (NEPA) and Section 106 historic resource review processes to obtain project start-up resources, approvals and funding. Participated in the Request for Proposals process that selected Santiago Calatrava to design the WTC Transportation Hub. Established the WTC Hub's design guidelines, sustainability guidelines, and security design criteria, that were referenced in the final EIS and used to completed Hub final design.



Coordinated establishment of an overall WTC site development framework with multiple design and commercial entities, resulting in WTC Redevelopment agreements with the City, LMDC, and SPI, Net Leases with SPI and Westfield, and Project Development Agreements with the Memorial Foundation, MTA, Brookfield, and NYSDOT that remain the foundational documents for the WTC redevelopment.



Collaborates with other senior level internal, public and private sector executives to formulate plans, legal and financial frameworks, and agreements necessary to advance projects and to foster shared commitments and cultivate long-term cooperation. Refined and articulated PA interests, project needs and public interests reflected in the WTC planning principles, NEPA documents, and the WTC Redevelopment Agreements signed by LMDC, SPI, and City of New York.



With completion of WTC Site recovery by NYC in Spring 2002, Carla handled the transition of the WTC site back to PANYNJ control, including coordination with Michael Burton of NYC DDC to establish the initial certificate of occupancy for the new WTC.

2.1 Significant Projects

Public Space and Infrastructure



WTC Public Space Improvements Program



WTC Security Improvements Program



WTC Capital Modernization Program



**The World Trade Center
Supervising Architect**

Carla Bonacci, AIA

Object 4: Government

Manager, WTC Capital Programs (1994-2001)

Developed a \$300 million Public Space and retail Master Plan for redevelopment and expansion of the WTC Mall. Supported solicitation of private development interest, issuance of RFPs. Led the design consultant team in preparation of contract documents for new public corridors and life safety elements. Managed the development of a custom egress model and engineered solution for PATH and to satisfy NFPA 130 egress time.



Managed the design and construction of security improvements, including projects developed following the February 26, 1993 bombing. Fast-tracked design and implementation of CCTV installations within a 6-week period to re-open the WTC. Addressed significant contractor performance issues to recover the schedule, including reassignment of resources to complete the security projects. Completed installations including security access control, operations control center, skylobby fire command, complex-wide fire alarm system upgrade, and PA Police facilities. Among the first commercial office buildings



Directed and expanded a comprehensive program to upgrade the World Trade Center complex physical plant, including 5-year expenditures of nearly \$400 million, including more than 60 contracts completed throughout a fully occupied WTC complex. This effort secured Class A office space leases and helped attract private development interest. Supervised a team of program, project, and construction managers coordinating with PA Engineering staff, A/E/C consultants, and contractors to build base building electrical, HVAC, standby power. Consistently managed the WTC Capital Program performance to within 10% of annual Capital Plan and achieving completion targets, including capital infrastructure required by tenant leases.



Oversaw pilot program for WTC tenant design/build office space projects. Managed various public area and signage projects throughout the WTC complex.

Proposal by Carla Bonacci for repaving of the Austin J. Tobin Plaza at the World Trade Center using custom cut granite pavers.



2.1 Significant Projects and Work

Carla Bonacci, AIA

Object 4: Government

Design and Project Management

Architect, The Port Authority of NY & NJ (1982-1993)



Teleport Industrial Campus
Facility Architect
Staten Island, New York

- 80-acre office park
- 9 building parcels
- 5 completed

Responsible for the design and construction of capital projects and oversight of tenant construction within an office park complex. Managed delivery of campus gateway elements to complete the public area components of the Teleport Master Plan. Set the tone and theme for design consultants to prepare design documents and then managed construction. Oversight of the tenant construction included construction of several 4 story office buildings; Merrill Lynch Data Center, Nomura Securities, Teleport 2 and 3.



**Bathgate Industrial Park
Business Assistance Center**
Project Architect
Bronx, New York

Building Size: 30,000 SF
Completed: 1986

Acted as the design architect and prepared the conceptual design for the building, as well as the architectural contract drawings. Managed the preparation of remaining contract drawings with other engineering design staff. Performed field visits and enforced implementation of the design per contract drawings.



**Newark-Liberty Airport
Building 80**
Project Architect
Newark, New Jersey

Building Size: 107,000 sf

Prepared the preliminary architectural contract drawings for one of three buildings in the Building 80 Maintenance complex. Worked with team of architects and engineers under a design/build contract to finalize the design.



**Goethals Bridge
Operations Center Building**
Project Architect
Staten Island NY—Elizabeth, NJ

Building Size: 2,000 sf
Completed: 1985

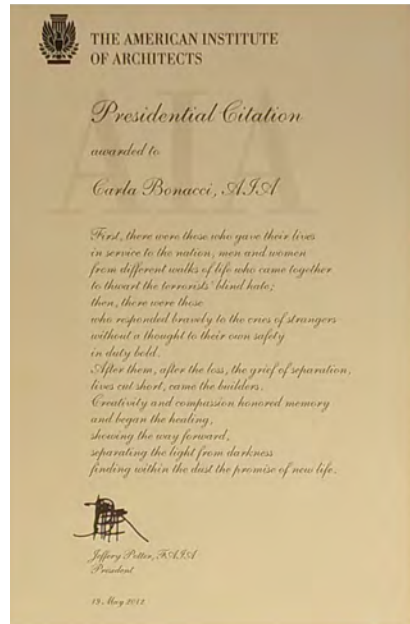
Prepared the architectural contract drawings for one of three buildings in the Building 80 Maintenance complex. Worked with team of architects and engineers to finalize the design.

Building remains in use after 35 years.



2.2 Honors and Awards

Personal Recognition



Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

AIA Presidential Citation

Carla was awarded the AIA Presidential Citation, among architects and builders who had contributed their talents and labor in the decade after 9/11 to repair the devastation. Carla has had the privilege and (possibly unique) distinction of working with and addressing the building designs of all seven noted “Architects of Healing” as their work touched on the public realm of the WTC site.



“First, there were those who gave their lives in service to the nation, men and women from different walks of life who came together to thwart the terrorists’ blind hate; then, there were those who responded bravely to the cries of strangers without a thought to their own safety in duty bold. After them, after the loss, the grief of separation, lives cut short, came the builders. Creativity and compassion honored memory and began the healing, showing the way forward, separating the light from darkness finding within the dust the promise of new life.”

Jeffrey Potter, FAIA (President, AIA-National, 2012)

“Architects of Healing”

- Michael Arad
- Santiago Calatrava
- David Childs
- Robert I. Davidson
- Steven M. Davis
- Craig Dykers

Professional Women In Construction (PWC-NYC) Honoree for 30th Anniversary Gala (2010)

“Tonight we are celebrating the steady rise of women, in numbers and prominence, working the design and construction industry over the past 30 years, and the steady rise of the new World Trade Center... In my daughter’s generation, I hope that women will be running the major design and construction firms, just as they are running projects and contracts today.”

Carla Bonacci, AIA December 10, 2010



2.2 Honors and Awards

Project Recognitions

Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

Building Owners and Managers (BOMA-NY)

Civic Betterment Award (2016)
World Trade Center Liberty Park

Regional Office Building of the Year (1999)
The World Trade Center

World Trade Center Net Lease Transaction (2001)

PANYNJ / Silverstein Properties/Westfield America



PANYNJ Board of Commissioners James G. Hellmuth (Medal) Awards

- World Trade Center Redevelopment Agreements (2007)
- PATH Restoration Program (2004)



2.2 Honors and Awards

Project Recognitions



Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

Advisory Council on Historic Preservation - Partnership Commendation (2009)

ACHP Chairman's commendation for federal Section 106 process to review historic properties. The WTC site is considered eligible for listing on the National Register of Historic Places. Carla consulted with family members and other stakeholders through the Section 106 process to help establish historic resource commitments for the WTC transportation facilities.

U.S. Environmental Protection Agency—Region 2 Environmental Quality Award (2007)

Environmental Performance Commitments established in public statements and signed agreements, both during WTC construction and for design of permanent buildings.

American Council of Engineering Companies (NY) - Gold Award for Engineering Excellence (2017)

World Trade Center Flood Mitigation and Resiliency Program

First I focused down – into the bedrock, into the pit, because I felt that was where the memory of the site also resided, and not only in the development of high rise buildings. Where the other architects referred to the towers that had existed before, I believed the goal was not to re-create the past, but to reinterpret it. Second, where the majority of the other architects presented ideas for megastructures, my aim was to mold the site into a coherent and symbolic whole by designing buildings that would ascend gradually in a pattern. And I wanted not to build just another isolated building here, but to create a new neighborhood, a new harmonious community.

Daniel Libeskind
Breaking Ground: Adventures in Life and Architecture



2.2 Public Service and Mentorship

Government, Education, Professional

Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction



Town of Westfield, New Jersey

Member, Board of (Zoning) Adjustment (2018-)

Appointed to the Town of Westfield Board of Adjustment, Carla has served to adjudicate requests for residential and commercial zoning variances under NJ Municipal Land Use Law. The town of Westfield has a population of 30,000 over 3,500 acres. The BOA is comprised of 7 members and hears more than 40 cases annually.



Penn State Stuckeman School of Architecture

Board Member, Alumni Advisory Group (2021 -)

The Penn State Stuckeman School AAG connects architecture students with alumni. Elected to the Board in 2021, Carla will share her expertise and experience to assist the next generation of architects acclimate to the profession.

- *The Practice of Architecture*, panel discussion on career paths and professional advice for architecture students.
- *Vertices*, a forthcoming electronic magazine featuring Penn State architecture alumni profiles and projects



Chair, Women in Architecture Committee

(1991-92)

- **Influence & Interest: Women's Contributions to New Jersey's Built Environment.** Organized conference workshops directed by leading NJ women involved in the state's key design and planning issues on the environment, education and economy.



AIA-NJ Equity in Architecture Lecture Series

Guides for Equitable Practice (2020-)

"Women in Architecture: Focusing on The Right Mix" (posted article 2019)



2.3 Presentations and Publications

Featured Speaking Engagements



Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

LOWER MANHATTAN T+15: LESSONS ON URBAN REBUILDING POST 9/11 Columbia University Center for Urban Real Estate
May 9, 2017

The Public Realm and Memorials

A panel discussion moderated by Paul Goldberger, with Michael Arad, Carla Bonacci, Alexander Garvin, Frank Sciamè

AIA-NY / NY New Visions & Port Authority Talk Progress at WTC
The Steven L. Newman Real Estate Institute Baruch College,
December 9, 2015

Urban Land Institute, St-Louis-Heartland Region
October 22, 2014

ACEC-NY Fall Conference, 9/11 Panel
The World Trade Center Past, Present, and Future
September 14, 2021

ACEC-Tri State (NJ, NY, PA) Fall Conference,
September 23, 2019. Atlantic City NJ
Panel discussion from those that lived through the tragedy of 9/11 and then tasked with the reconstruction of the World Trade Center. This

ASHE-NY "Grid & Gird - WTC Streets Infrastructure", 2019

Regional Plan Association, World Trade Center Master Plan and Infrastructure

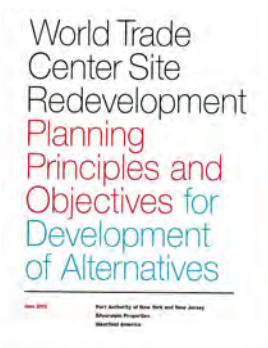
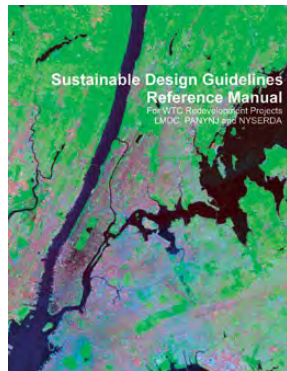
"Retiring Ground Zero: the Once and Future World Trade Center," Summit Old Guard, January 6, 2015

Women's Transportation Seminar



2.2 Presentations and Publications

Published Articles and Lectures



Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

“WTC Campus Safety and Security Through Environmental Design”

1 October, 2021 (AIA-NJ online)

“Carla Bonacci, AIA, is Focusing On The Right Mix”

29 May 2019 (AIA-NJ online)

“Battening Down the World Trade Center Hatches”

28 October 2019 (PANYNJ Portfolio online)

“Vertices” an e-magazine of alumni profiles and projects for Penn State architecture students (forthcoming 1Q 2022 - PSU online)

WTC Infrastructure and Project Development MCP Summer Intern Lecture Series (2020-21)

- World Trade Center Historic Resources
- WTC Development Guidelines & Architecture
- WTC Campus Security and Technology
- Climate Change & WTC Resiliency
- WTC Tenant Construction and PA Requirements
- WTC Streetscape and Public Spaces
- Building for Operations

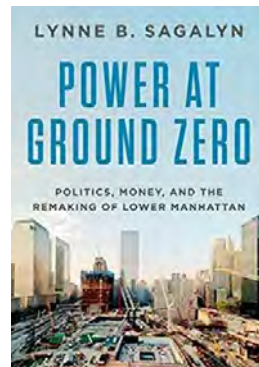
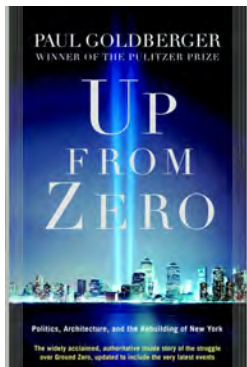
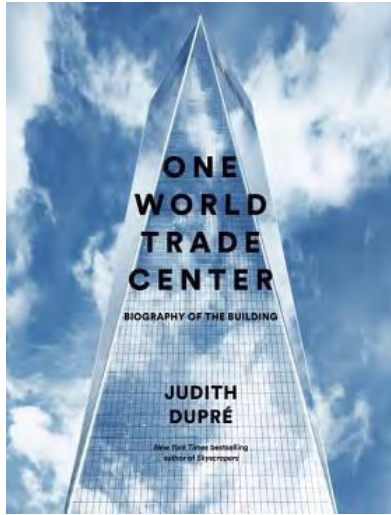
World Trade Center Project Delivery Methods Guest Lecturer, Pratt Institute (2017-2019)

“Very much impressed with Carla’s presentation, sharing her knowledge as an architect in the position of program executive at the World Trade Center. Our students gained the perspective of the importance of understanding construction process to achieve the optimal design quality for the project.”

Gus Maimis, Senior Vice President, STV
Adjunct Instructor, Pratt Institute

2.3 Presentations and Publications

Quoted in Publications and Media



Carla Bonacci, AIA

Object 4: Government

Assistant Director, World Trade Center Construction

“One World Trade Center: Biography of the Building”
by Judith Dupre (2016)

“At the Junction of Security and Resiliency” Engineering News Record, October 2019

“Lower Manhattan’s Sparkling New Liberty Park Is Now Open” Gothamist, 29 June 2016

“Liberty Park, New Downtown Green Space” Tribeca Tribune, 31 January 2014

“Witnesses to 9/11, Devoted to Rebuilding the World Trade Center”
Engineering News Record, 12 September 2011

“World Trade Center Women are Celebrated at PWC Gala”
Real Estate Weekly, 22 December 2010

“Site, Not Remnants, Sanctifies Ground Zero, Officials Say”
N.Y. Times, 13 February 2004

“BLOCKS: For Construction at Trade Center Site, the Future is Now”
N.Y. Times, 10 October 2002

“Architects in Public Agencies” Oculus Magazine, December 1986

Selected Books About WTC Rebuilding

“Up From Zero” by Paul Goldberger

“Power at Ground Zero” by Lynn Segalyn





“I think the impact was on the whole world. Everything changed in architecture after that. People were no longer willing to do it as before. And I think that was sort of one of the focal points that this competition gave to the world that that architecture is important. Planning is not a private business, it should be determined by a democratic voice of all the different interests, which includes developers and agents, the people, you know, all sorts of different constituencies.”

Daniel Libeskind

3: List of Exhibits

Carla Bonacci, AIA (Object 4: Government)

3.1 Regulation and Governance

3.1.1 Master Plan

3.1.2 Building Development Guidelines

3.1.3 Security Design Guidelines and Campus Security Plan

3.2 Transportation and Circulation

3.2.1 Infrastructure Development Program

3.2.2 WTC Site Restoration and Temporary PATH Station

3.3 Beautification and Urban Design

3.3.1 WTC Campus Streetscape

3.3.2 Liberty Park

3.3.3 Public Space Improvements

3.4 Conservation and Resiliency

3.4.1 Flood Mitigation and Resiliency

3.4.2 Sustainable Development Frameworks

3: Exhibits

3.1.1

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Assistant Director, WTC Construction*

Architects / Planners: *Studio Daniel Libeskind
The Port Authority of NY & NJ*

Completion Dates: *2005-2020*

World Trade Center Campus Master Plan Program

- National September 11 Memorial Plaza and Pools 5 acres
- WTC Transportation Hub 900,000 sf
- Commercial Office Space (5 Towers) 10,000,000 sf
- Retail Space (multi-level) 400,000 sf
- Below-Grade Infrastructure Space 3,000,000 sf
- Cultural Buildings
 - ◊ September 11 Memorial Museum and Pavilion
 - ◊ Perelman Performing Arts Center
 - ◊ St. Nicholas Greek Orthodox Church

Impact. *Carla was the PANYNJ's lead project executive working with Studio Daniel Libeskind and the Lower Manhattan Development Corporation to develop, coordinate and issue the initial WTC Site Master Plan in 2004, which set the course for redevelopment of the WTC Campus. Over the next 15+ years, Carla has been responsible for the continued coordination of the WTC Master Plan with and for WTC stakeholders, working through myriad "gaps and overlaps" to issue record updates to the Master Plan for reference and guidance to WTC owners and developers, and the hundreds of planners, architects and engineers producing the designs and completed projects. Carla's steadfast stewardship of the WTC Master Plan has been essential to transforming its vision into reality.*

I have personal knowledge of the Nominee's responsibility for the project listed above: Project under direction of Nominee.

Daniel Libeskind
Founder Studio Daniel Libeskind, FAIA

WORLD TRADE CENTER MASTER PLAN

REGULATION AND GOVERNANCE



Synopsis. The WTC Master Plan comprises the overall land use and development plan for the World Trade Center site, that is owned by the Port Authority of New York and New Jersey (PANYNJ). Daniel Libeskind was selected to further develop the original WTC Master Plan ("Memory Foundations") concept in February 2003. Working under the direction of the PANYNJ and the Lower Manhattan Development Corporation (LMDC), Libeskind issued a refined Master Plan in 2004 that was adopted by the agencies and became the basis for property interests, public reviews, funding, and approvals needed to advance all of the subsequent development at the WTC site.

Challenges. The post-9/11 WTC Master Plan was an unprecedented product of often competing and conflicting public and political agendas, aspirations, and needs, that also had to address physical constraints and legal requirements, to provide a balanced and cohesive vision for the redevelopment of the World Trade Center. Since 2004, revisions and adjustments to the WTC Master Plan have been continually necessary to accommodate development changes, new designs, and actual construction in place — while still maintaining the original vision.

Outcomes. The twelve official updates of the WTC Master Plan have provided a record snapshot of both stabilized conditions and future plans during the fifteen years of phased development. By 2021, more than 80% of the buildings and grounds of the WTC Campus will be completed.

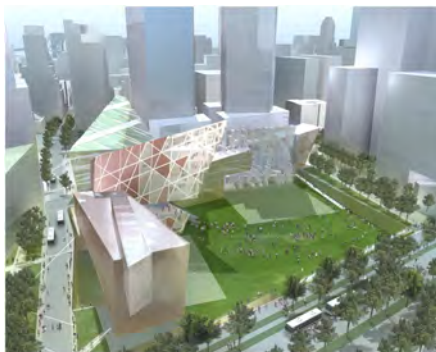
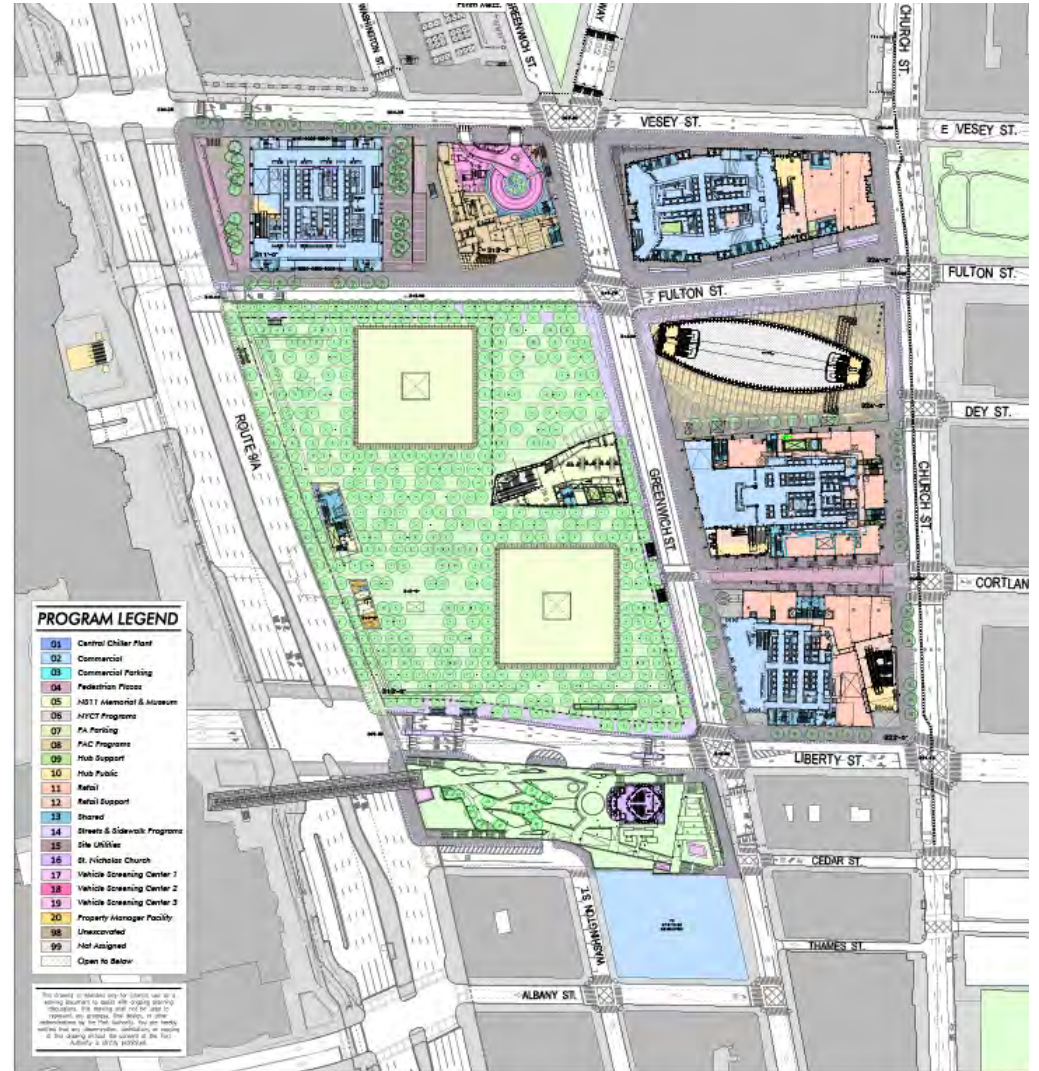
WORLD TRADE CENTER MASTER PLAN

Exhibit 3.1.1 (Continued)



Above: Daniel Libeskind "Memory Foundations" Proposal (February 2003)

At Right: WTC Campus Master Plan, Version 12 (October 2020)



3: Exhibits

3.1.2

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Assistant Director, WTC Construction*

Architects / Planners: *Studio Daniel Libeskind
The Port Authority of NY & NJ*

Completion Dates: *2005-present*

Impact. Carla was the PANYNJ's lead project executive working with Studio Daniel Libeskind to develop the WTC PATH Terminal Design Guidelines (2004), and the Commercial Design Guidelines (2006). She co-chaired the inter-agency group charged with formulating the CDG's applicable to the WTC's office, retail, and cultural buildings to be built by external developers. The CDG framework ensures conformance with the Master Plan vision — most prominently, the cascading heights and building points for the five WTC Towers in the Lower Manhattan skyline. Carla has since been responsible for promulgating and administering the CDGs: providing design guidance to architects developing new building designs, ensuring adequate open space and accessibility is provided for public use, and performing formal compliance reviews of building massing, footprint, façade and paving materials, and signage for quality and consistency with the overall WTC Campus, prior to approval of designs for construction.

I have personal knowledge of the Nominee's responsibility for the project listed above: Project under direction of Nominee.

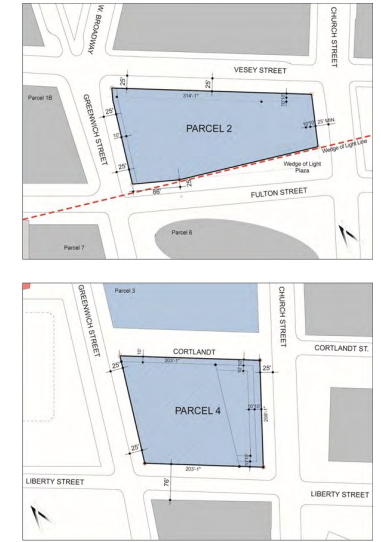
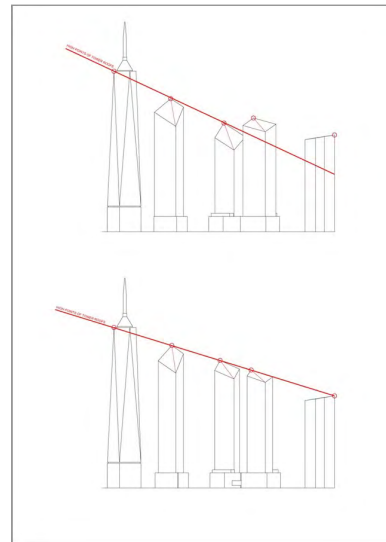
Carla Swickerath
Partner, Studio Daniel Libeskind

I have personal knowledge of the Nominee's responsibility for the project listed above: Project under direction of Nominee.

Timothy G. Stickelman
Assistant General Counsel of the Port Authority of NY and NJ
(1986-2018)

WORLD TRADE CENTER DEVELOPMENT GUIDELINES

REGULATION AND GOVERNANCE



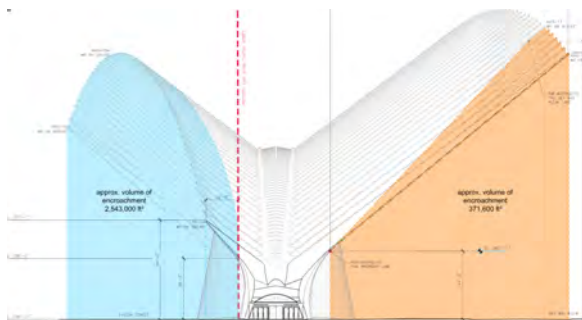
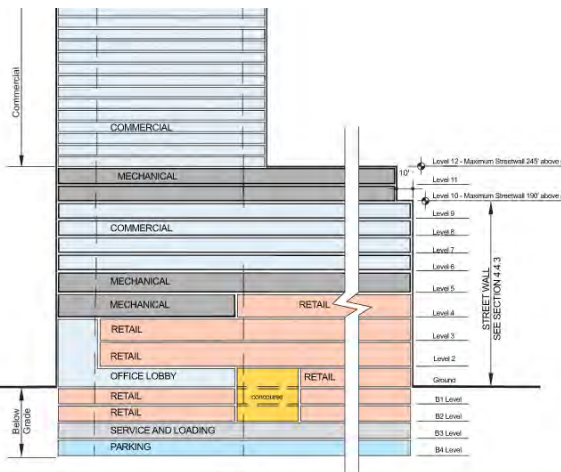
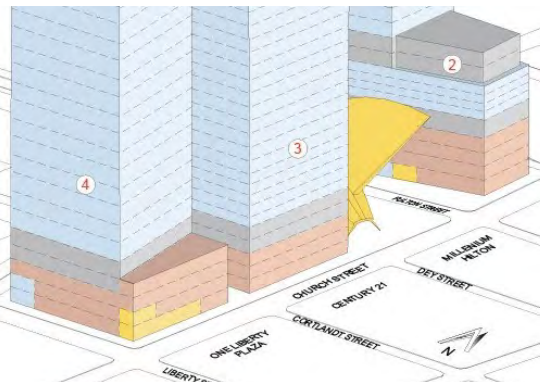
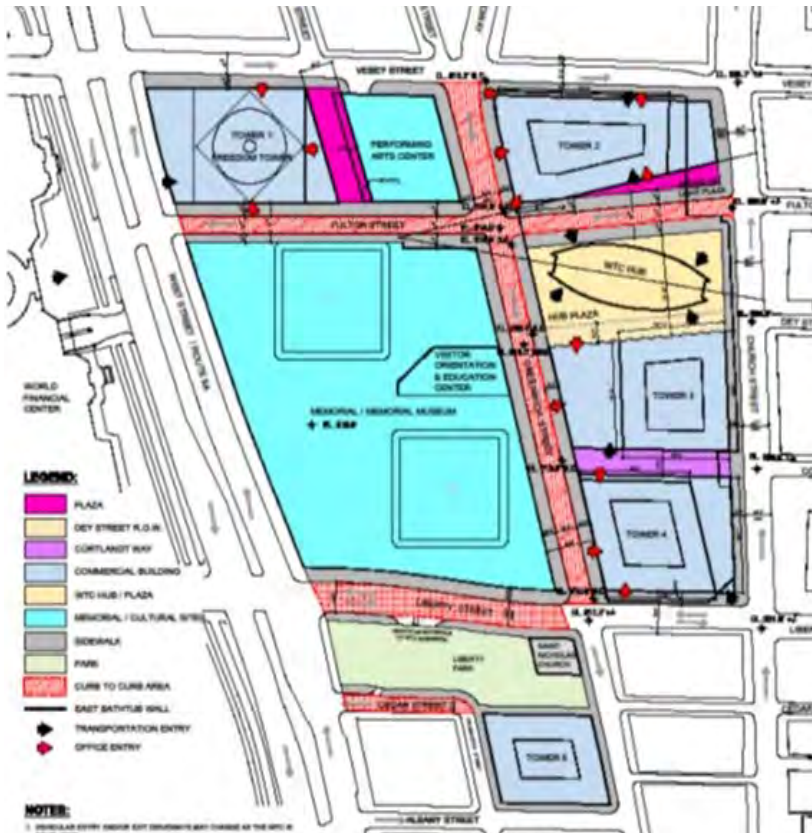
Synopsis. As the municipal entity with jurisdiction and ownership of the World Trade Center site, the Port Authority of New York and New Jersey (PANYNJ) is responsible for ensuring that development of the WTC complies with applicable laws, codes and regulations. The WTC's Commercial Development Guidelines issued by the PANYNJ specifically interpret the WTC Master Plan vision, and also reflects the WTC's multi-party development approvals, General Project Plan, and associated legal agreements governing redevelopment of the WTC. The CDG document establishes the maximum building heights, shapes, and setbacks, that are equivalent to local zoning for the WTC Campus. The CDGs are incorporated by reference in the WTC's foundational agreements between the PANYNJ, Lower Manhattan Development Corporation (LMDC), City of New York, and Silverstein Properties (SPI).

Challenges. The development of the CDG document required substantial coordination and negotiation amongst an interagency and interdisciplinary group of developers, planners, architects, surveyors, and attorneys to interpret and illustrate a complex framework of land use and development approvals, legal agreements, and property dispositions at the WTC. These intensive design reviews are re-engaged as iterations of new building designs are proposed by prominent developers and architects, and enforcement of CDG principles is weighed together with other commercial, political, and design priorities.

Outcomes. The WTC's initial development guidelines have shaped design and construction of the WTC Campus over the last 15 years. With more than 80% of the WTC Campus development areas complete in 2021, the original Master Plan's vision of commercial buildings respectfully framing the Memorial Plaza has been successfully realized. The CDG's will remain the model for the remaining development.

WORLD TRADE CENTER DEVELOPMENT GUIDELINES

Exhibit 3.1.2 (Continued)



Above: The WTC Dimensioned Site Plan (2006) executed by the PANYNJ NYC, LMDC, and Silverstein, which designated uses and set boundaries for the public rights-of-way (streets and sidewalks) and each of the WTC's development parcels and building footprints.

Top Middle: Blocking and stacking diagrams excerpted from the Commercial Design Guidelines, illustrating Tower setback and podium requirements for Tower 3 and Tower 4 designs.

At Right: Diagram illustrating an "air rights" easement for the WTC Transportation Hub Oculus structure with "wings" that extend above City sidewalks.

3: Exhibits

3.1.3

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Assistant Director, WTC Construction*

Engineer / Consultant: *Robert Ducibella
(Ducibella, Venter, Santore)*

Completion Dates: *2002-present*

WTC Campus Security Program (Selected Components)

- Perimeter Sidewalk Bollards
- Vehicle Authentication and Screening Systems
- Access Control Systems
- Closed Circuit Television Camera Systems
- Security and Emergency Operations Command Centers

Carla is the PANYNJ's lead project executive working with security consultant Robert Ducibella to address both the technical design criteria for WTC buildings and structures, and the associated implementation and compliance reviews necessary to maintain these rigorous standards throughout successive projects and design teams for WTC developments. Carla's experience in producing post-1993 WTC security improvements was essential to address how designers convert security design standards into completed projects. She is also keenly sensitive to shaping projects for minimal disruption to the built environment and public user experience. Through her vigilance and guidance for more than 20 years, the buildings, structures and systems throughout the WTC Campus have been constructed to the highest level of building security design standards and adaptable to future threats. The WTC's criteria have become new benchmarks for other facilities.

I have personal knowledge of the Nominee's responsibility for the project listed above: Project under direction of Nominee.

Robert Ducibella
Founder and Senior Principal Emeritus
Ducibella, Venter, Santore

WORLD TRADE CENTER SECURITY DESIGN CRITERIA

REGULATION AND GOVERNANCE



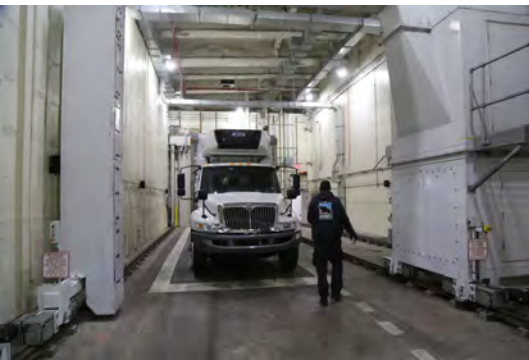
Synopsis. Following 9/11, the WTC's security strategy and design criteria were developed to provide baseline requirements for buildings, structures, open spaces and systems. All WTC base building projects submit comprehensive plans and designs for PANYNJ review which address applicable security design criteria including blast resistance, progressive collapse prevention, glazing hazard mitigation, critical system survivability, unauthorized access detection, as well as fire protection and emergency evacuation standards above typical building codes. There is ongoing follow-up through final design, and certifications upon completed construction that the building complies with applicable security criteria.

Challenges. No benchmark criteria previously existed for "super tall" buildings or mixed use complexes—these were developed first for the WTC. Robust security requirements entail design constraints and cost premiums that require careful handling with developers and designers. New or increased risk threats can emerge requiring re-examination and analysis, leading to criteria adjustments.

Outcomes. The feasibility of resuming commercial activities and office occupancy at the WTC after 9/11 rests on the confidence that security and safety at the WTC campus has been accorded the highest priority attention and resources. New technologies first utilized at the WTC are now being accepted and applied elsewhere to dramatically improve situational awareness and response capabilities.

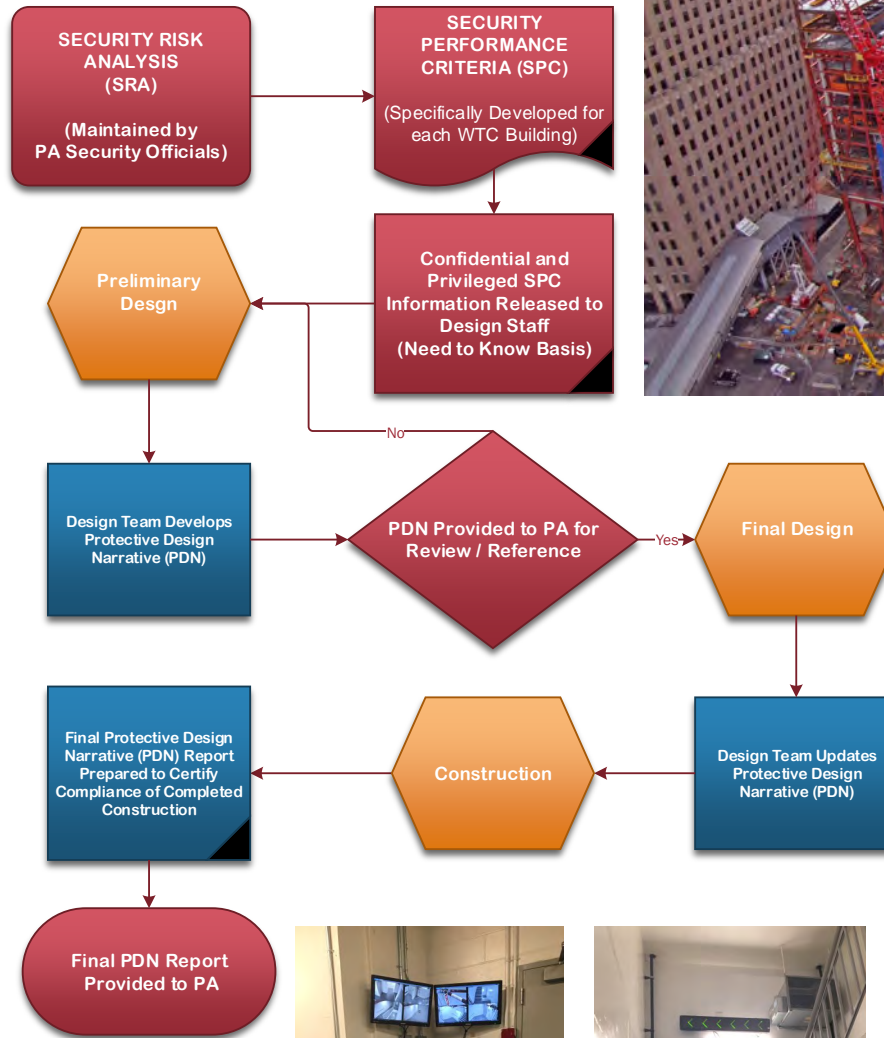
WORLD TRADE CENTER SECURITY DESIGN CRITERIA

Exhibit 3.1.3 (Continued)



Top: Smart sensors installed on the WTC Memorial Plaza.

Above: Vehicle screening facility with vehicle scanning equipment.

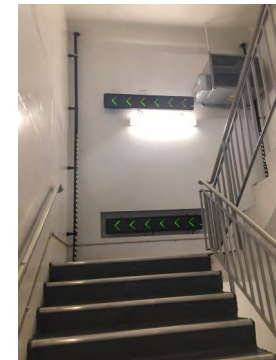


Top Center: Typical security design review process applicable to all WTC buildings.

Top: Steel reinforcement at the base of One WTC.

Below Center: Intelligent monitoring for emergency evacuation.

Directly Below: Design incorporating stand-off distance to mitigate potential risks.



3: Exhibits

3.2.1

WTC INFRASTRUCTURE DEVELOPMENT PROGRAM

TRANSPORTATION AND CIRCULATION

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Assistant Director, WTC Construction*

Architects / Engineers: *Downtown Design Partnership
Liberty Security Partners
(AECOM, STV)*

Completion Dates: *2005-2010*

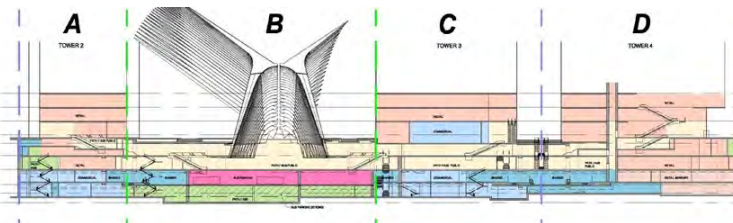
WTC Below-Grade Infrastructure

- East Bathtub 27 million cu. ft. volume, 2.4 million sf
- South Bathtub 5.3 million cu. ft. volume, 250,000 sf
- Vehicle Parking 450+ spaces
- Interior Roadways 2,500 lineal feet
- Central Fan Plant 560,000 cu. ft. per minute (CFM) capacity
- Electrical Service 70 megawatts capacity

Impact. *Carla was the PANYNJ's front-line program director leading development and negotiation of infrastructure programs for the WTC Campus. She introduced and organized common/shared and exclusive infrastructure components and innovated cost-sharing methodologies (such as "lateral load premiums") amongst WTC stakeholders. Carla determined the scoping and obtained funding for two new "bathtubs" to accommodate the massive WTC infrastructure needs below-grade and to facilitate a peaceful WTC environment and aesthetic at street level. Through her efforts, the up-front multi-billion dollar investments to complete the WTC Infrastructure program now supports and underwrites the phased development, leasing and occupancy/use of the WTC Campus buildings already completed, as well as the planned future developments.*

I have personal knowledge of the Nominee's responsibility for the project listed above: Project under direction of Nominee.

David Worsley
Executive Vice President, Design & Construction



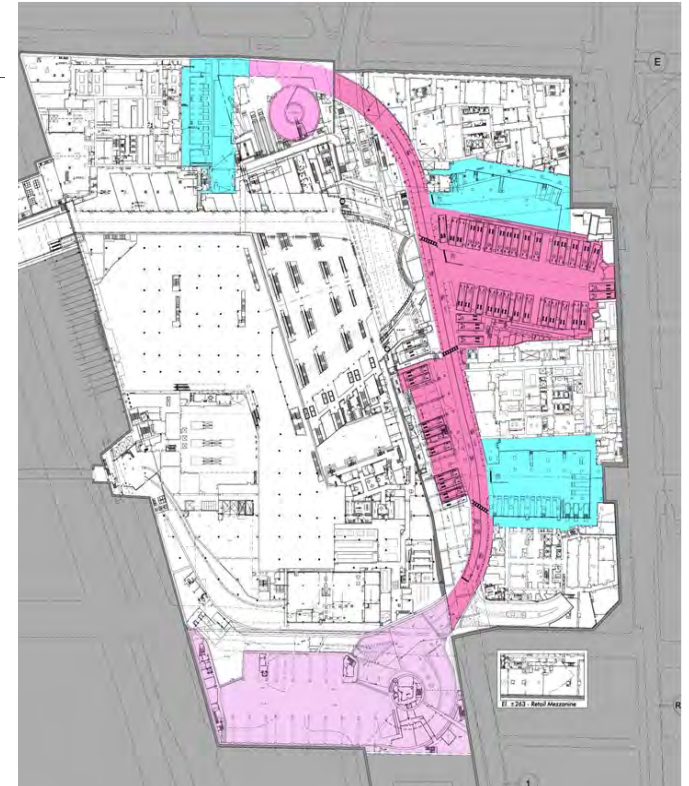
Synopsis. The full WTC development program of millions of square feet of commercial office and retail space, the 9/11 Memorial and Museum, and a Transportation Hub accommodating up to 250,000 daily users, is and will be made possible by the underlying WTC infrastructure. The buildout of adequate spaces and system capacities to support the WTC's buildings required substantial investment of time and resources to "build down before building up." Two new "bathtub" slurry wall structures containing more than 3 million square feet of multi-level spaces was created below-grade. The South Bathtub contains the WTC's main vehicle entrance and screening facilities for one thousand daily vehicles. The East Bathtub contains the Transportation Hub's primary circulation corridors and "mixing bowl" within the Oculus space, retail spaces, operations spaces, mechanical and electrical plants. The East Bathtub also includes Tower foundations, along with loading docks and parking areas supporting Towers 3 and 4 (and future Tower 2) interconnected by a below-grade roadway system.

Challenges. The forecasting of infrastructure needs for the WTC as a new "city within the city" and the layout and stacking of equipment rooms, roadways, and corridors required extensive planning and coordination amongst the Hub, Memorial, commercial developers and design teams. With much of the West Bathtub dedicated to the WTC Memorial/Museum, the creation of two new bathtubs and the infrastructure installations required tremendous commitment, funding, and patience.

Outcomes. The WTC's essential infrastructure has been completed with capacity and expandability to support the full WTC Master Plan development program. The quality of the public experience at the WTC Transportation Hub is amplified by the scale of space and support infrastructure.

WORLD TRADE CENTER INFRASTRUCTURE DEVELOPMENT

Exhibit 3.2.1 (Continued)



Above: Composite plan of the below-grade roadway network connecting 3 bathtubs and office tower loading docks and parking areas.

Below: WTC Oculus interior space

Top: Interconnection between the original West Bathtub with the new East Bathtub required the underpinning of the subway line that bi-sects the WTC site.

Above: Two new WTC bathtubs (East and South) were created by excavating more than 70 feet deep to create infrastructure space.

Right: Electrical spot network



3: Exhibits

3.2.2

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Deputy Program Director,
PANYNJ Priority Capital Programs*

Architect: *Robert I. Davidson
PANYNJ Chief Architect*

Engineers: *PA Engineering Department*

Completion Dates: *2002-2004*

WTC Site Restoration and Temporary WTC PATH Station

- Station serving two PATH lines, capacity of 50,000 users
- Site perimeter fence and public viewing area
- Temporary pedestrian walkways and bridges
- Site access logistics and control for workers and vehicles
- Interim family viewing area and initial 9/11 commemorations

Impact. *In the immediate aftermath of 9/11, Carla was the PANYNJ's front-line program manager coordinating restoration of the WTC site area, and the design of the Temporary WTC PATH Station, and later focused on the initial WTC planning. Carla handled the return of the WTC site back to PANYNJ control and led the design of interim office space for agency headquarters, even as she continued to mourn colleagues and staff lost on 9/11. She also coordinated the delivery and installation of a 100-foot long mosaic donated from Italy, and the production of sign panels with names of 9/11 victims. Her immediate "know-how" was instrumental to the timely accomplishments during this critical transition period prior to redevelopment of the WTC. Carla's energy and spirit inspired many of those working with her.*

I have personal knowledge of the Nominee's responsibility for the project listed above: Project under direction of Nominee.

Anthony G. Cracchiolo, P.E.
Director, Priority Capital Programs, PANYNJ (1998-2006)

WTC SITE RESTORATION AND TEMPORARY PATH STATION

TRANSPORTATION AND CIRCULATION



Synopsis. Following the completion of post-9/11 rescue and recovery activities by the City of New York, the World Trade Center site was returned to the control of the PANYNJ in July 2002. Two immediate programs were advanced: 1) construction of a temporary PATH station to restore transit service between New Jersey and Lower Manhattan, and 2) provide interim improvements to stabilize the site and facilitate pedestrian circulation around devastated area. The temporary WTC PATH station was built to a capacity of up to 50,000 daily riders, with the same track and platform configuration as the pre-9/11 facility. The temporary station utilized a functional layout and design, and featured a signature canopy on Church St that was also an early public viewing area for the site. Panels with names of those who were killed on 9/11 as well as other visitor information.

The Temporary WTC PATH Station also proved to be a template for the initial Lower Manhattan Transportation Plan concept that was framework for the post-9/11 redevelopment of Lower Manhattan's mass transit infrastructure. The Transportation Plan provided for a central intermodal pedestrian connection between ferries, two PATH lines, and more than a dozen NYC subway lines, anchored by the World Financial Center (now Brookfield Place) and the Fulton Street Transit Center, with the World Trade Center as the central hub. The primary features of this Transportation Plan were ultimately adopted, designed and constructed as part of the WTC Master Plan and WTC Transportation Hub.

Challenges. The agency's staff worked from makeshift offices and dispersed in locations in both states. The intense public and political scrutiny and pressures of that time to complete the physical and planning work was offset by the thousands of extremely motivated individuals contributing daily.

Outcomes. The stabilization of the WTC site and temporary WTC PATH station were completed as of November 2003, within 18 months of the PANYNJ resuming control. The restoration of transit service sparked the Lower Manhattan's post 9/11 recovery, with portions of the temporary station remaining in service through 2010.

WTC SITE RESTORATION AND TEMPORARY PATH STATION

Exhibit 3.2.2 (Continued)



Above: WTC site returned to PANYNJ in July 2002.
Left: Temporary WTC PATH Station, October 2003.
Right: Temporary PATH Station Entrance and WTC Site Perimeter Fence on Church Street.
Bottom: Lower Manhattan Transportation Concept Plan (2003), a precursor to the eventual WTC Master Plan and WTC Transportation Hub.



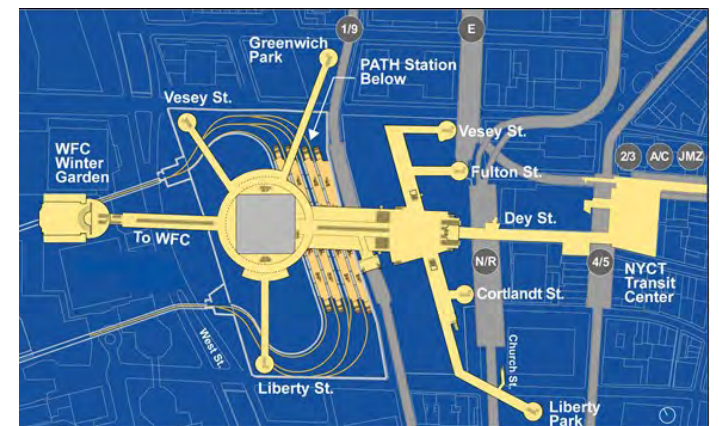
Publication:

"Ground Zero's Ephemeral Elegance" N.Y. Times, 27 February 2004.

"Again, Trains Put the World In Trade Center" N.Y. Times, 24 November 2003

"Look Up, and Trade Center's Story Is Readable Again" N.Y. Times 13 September 2003

"For Construction at Trade Center, the Future Is Now" N.Y. Times, 10 October 2002.



3: Exhibits

3.3.1

WORLD TRADE CENTER CAMPUS STREETScape

BEAUTIFICATION AND URBAN DESIGN

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Assistant Director, WTC Construction*

Architect: *Downtown Streetscape Partners
(AECOM, Jacobs, STV)*

Completion Dates: *2013-present*

World Trade Center Campus Streetscape

14,645	lineal feet (2.7 miles) of Sidewalks
5,470	lineal feet (more than 1 mile) of Roads
1,500	Perimeter Sidewalk Bollards
100	Trees
8	Secured vehicle entry/exit points (sally ports)

Impact. *Carla is the PANYNJ executive responsible for all aspects of planning, design, and construction of the WTC Campus Streetscape. Carla’s expertise in the commuting patterns and circulation routes around the WTC area was essential to the informed design and layout of the new street grid — most notably the restoration of Fulton Street and Greenwich Street through the WTC Campus. Carla was especially instrumental in directing the design and construction of critical streets infrastructure, including utility connections and security equipment, in a manner that complements and maintains the overall aesthetic and appearance of the WTC Campus. Under Carla’s guidance, the WTC’s streetscape now appears as a seamless fabric, even though the actual construction was performed by many different parties, and at many different times and locations as the construction is completed around the WTC Campus.*

I have personal knowledge of the Nominee’s responsibility for the project listed above: Project under direction of Nominee.

Dominic Parisi, P.E.
President, P.J. Scariano (Contractors)

Synopsis. The urban identity of the WTC Campus is defined by its streetscape elements, which comprise the street grid, sidewalk paving, utility poles, and landscaping, that interconnect and tie the Campus buildings together. The dimensions, view corridors, materials and paving set boundaries and visual cues between the mixed uses and activities on the WTC Campus. The subsequent WTC Campus Security program was layered in with the original WTC Streetscape, adding significant equipment installations needed to monitor, control, and screen vehicle access onto the WTC Campus.

Challenges. Proper alignment of streets and views to promote integration of the WTC Campus with the surrounding area, and maintaining the uniform district (rather distinguishing individual buildings) requires rigorous reinforcement amongst individual architects. Implementation of planned street grades, incorporating a 20 foot elevation change (east-west) across the WTC campus also necessitated constant diligence as structures were being built up underneath prior to Street construction. Creative solutions were often necessary to resolve just-built conditions maintain the smooth fabric.

Outcomes. The modern and elegant “look and feel” of the WTC Campus setting and its re-integration with the neighborhood has been successfully accomplished. The perception and experience at the WTC Campus achieves the goals of remaining open and connected, despite the significant security installations. The remaining WTC Streetscape will be completed with future Tower 2 and Tower 5 buildouts.



WORLD TRADE CENTER CAMPUS STREETScape

Exhibit 3.3.1 (Continued)



Left: The WTC Master Plan and Streetscape Program provides for wide sidewalks and trees.

Right: Landscape and hardscape plan for the WTC Campus.



Below: Excerpts of WTC Streetscape design guidelines. Specifications for tree types and granite pavers and patterns, utility poles, bollard covers are applied uniformly across the Campus, even though actual construction was performed by disparate parties spanning nearly a decade.



Publications:

"For Trade Center Builders, the Future Starts With A Very Old Number" N.Y. Times, 15 October 2005

"Traffic Flow Is Crucial Part of Debate at Trade Center" N.Y. Times, 15 December 2003



3: Exhibits

3.3.2

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Assistant Director, WTC Construction*

Architect: *Joseph E. Brown*

Engineers: *Downtown Streetscape Partners
(AECOM, Jacobs, STV)*

Completion Date: *2016*

World Trade Center Liberty Park

- Approximately 70,000 sf elevated space with garden areas
- Seating and standing capacity for 750 people
- 19 Planters -Ultra-High Strength Performance Concrete (UHPC)
- 3,000 cubic yards of sand and soil
- 10,000 plantings including trees, shrubs, perennials
- 335-foot long x 25-foot tall green “Living Wall”

Impact. *Carla is the PANYNJ executive responsible for all aspects of planning, design, and construction of the WTC Liberty Park. From the early WTC planning process, Carla was a primary advocate for a significant public space to reconstitute some of the (pre-9/11) Tobin Plaza functions for community residents and office workers. Liberty Park was conceived, designed and adjusted to accomplish multiple public and design objectives within a modest budget.*

Liberty Park was fully realized through Carla’s leadership and steadfast vision over the course of a decade, navigating complex property arrangements necessitating re-designs, intricate fabrication details and construction challenges—to complete this civic amenity for the WTC Campus that has been well received by the Lower Manhattan community.

I have personal knowledge of the Nominee’s responsibility for the project listed above: Project under direction of Nominee.

Christa Rotolo
Senior Project Manager, Tishman Construction Corporation

WORLD TRADE CENTER LIBERTY PARK

BEAUTIFICATION AND URBAN DESIGN



Synopsis. Liberty Park is an approximately 1.5 acre green space on the southern portion of the WTC campus, and built atop the roof structure of the WTC’s primary service vehicle entrance. The Park spans approximately 700 feet anchored on the east by the St. Nicholas Greek Orthodox Church at Greenwich St, and connects with the South Bridge to Brookfield Place. The design elements of Liberty Park feature planters and benches formed with Ultra-High Performance Concrete, native trees, and thousands of other plantings — trees, shrubs, and flowers. Above the green Living Wall that masks the vehicle entrances, there is seating facing the Memorial with direct overlook. Notable installations at Liberty Park include the Koenig Sphere damaged on 9/11, the America’s Response Memorial (Trust De Oppresso Liber), and a tree sapling from the original Anne Frank tree.

Challenges. The design concept for Liberty Park needed to be elegant and interesting, while remaining complementary to the Memorial and blending with the surrounding area. The functional requirements of pedestrian circulation, garden areas, seating, and site views, also had to accommodate structural requirements for the adjacent Church, South Bridge, and Vehicular Security Center below.

Outcomes. Liberty Park opened for public use in June 2016, with all portions completed except for portions adjoining the St. Nicholas Greek Orthodox Church at the northeastern corner that is being coordinated for completion in 2021. The Koenig Sphere was relocated to Liberty Park in 2018. Liberty Park’s serene space and its panoramic views of the WTC Campus and soaring Towers offer great hope for the future.

WORLD TRADE CENTER LIBERTY PARK

Exhibit 3.3.2 (Continued)



Publications and Recognitions.

“Elevated Park at Trade Center Site Comes Into View” N.Y. Times 20 November 2013

“Touches of Whimsy at World Trade Center’s Liberty Park” N.Y. Times 27 June 2016

“Lower Manhattan’s Sparkling New Liberty Park Is Now Open” Gothamist 29 June 2016

Building Owners and Managers (BOMA) - NY— Civic Betterment Award (2017)



3: Exhibits

3.3.3

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Manager, WTC Capital Programs*

Architects: *Davis Brody Bond*

Engineers: *Leslie E. Robertson Associates
J. R. Loring Associates
PANYNJ Engineering Department*

WTC PUBLIC SPACE IMPROVEMENTS

- New granite stone repaving of 3.5 acre Austin J. Tobin Plaza.
- Rehabilitation of the Plaza fountain and Koenig Sphere.
- New public pedestrian corridors and public restrooms
- Concourse sprinklerization and ceiling lighting improvements
- Concourse and Mall new terrazzo flooring
- New canopies, public wayfinding and signage system

Impact. *In the aftermath of the 1993 terrorist attack, Carla was the lead project manager in the development of a WTC Public Space Master Plan working with Davis Brody Bond, and applied her planning and design expertise to identify redevelopment opportunities within the constraints of the existing complex. Many of these ideas were conveyed to solicit private development interest, and Carla was also able to implement projects as the Manager of WTC Capital Programs to re-invigorate the Concourse and Plaza public spaces. Carla developed WTC Retail Design Guidelines which standardized the “storefront look” that required for all new Mall tenants. The refreshed public spaces facilitated the leasing of the WTC Mall and activation of the massive Tobin Plaza as an energetic open space for Lower Manhattan.*

I have personal knowledge of the Nominee’s responsibility for the project listed above: Project under direction of Nominee.

Anthony G. Cracchiolo
Assistant Director, WTC Capital Programs (1995-1998)

WTC PUBLIC SPACE IMPROVEMENTS (PRE-9/11)

BEAUTIFICATION AND URBAN DESIGN



Synopsis. Following the 1993 terrorist attack, a comprehensive modernization program was undertaken for World Trade Center primarily to upgrade its aging physical plant including electrical, mechanical and elevator systems. The PANYNJ also began a Public Space Master Plan to ascertain and leverage opportunity for private sector investment in the complex. Although the WTC Public Space Master Plan redevelopment was not advanced, significant “early action” projects were implemented including carving out new pedestrian corridors on the Concourse to enhance emergency egress capacity, new public signage and wayfinding system, and the rehabilitation of Tobin Plaza.

Challenges. The redevelopment of WTC public spaces, as envisioned in the Public Space Master Plan could not advance without significant private sector investment (ultimately, the entire WTC complex was net leased to Silverstein Properties). However, significant public space improvements were selected to enhance life safety and optimize the “curb appeal” of the WTC complex.

Outcomes. Most of the WTC Public Space Improvements were completed to support the full occupancy of the WTC office and retail space achieved as of 2001. These improvements also increased the overall asset value of the WTC complex leading up to the WTC net lease process.

WTC PUBLIC SPACE IMPROVEMENTS (PRE-9/11)

Exhibit 3.3.3 (Continued)

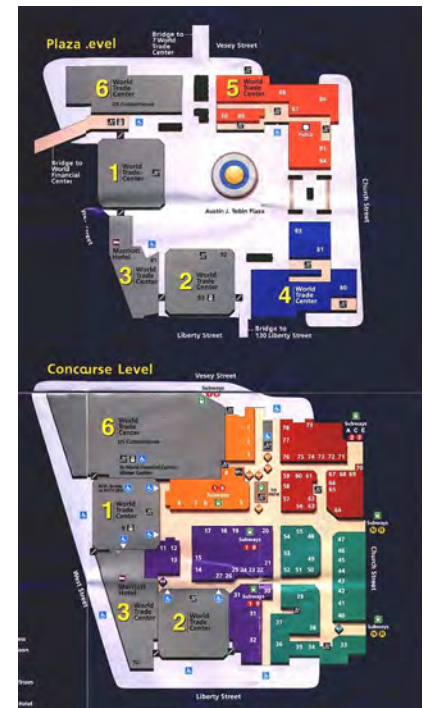
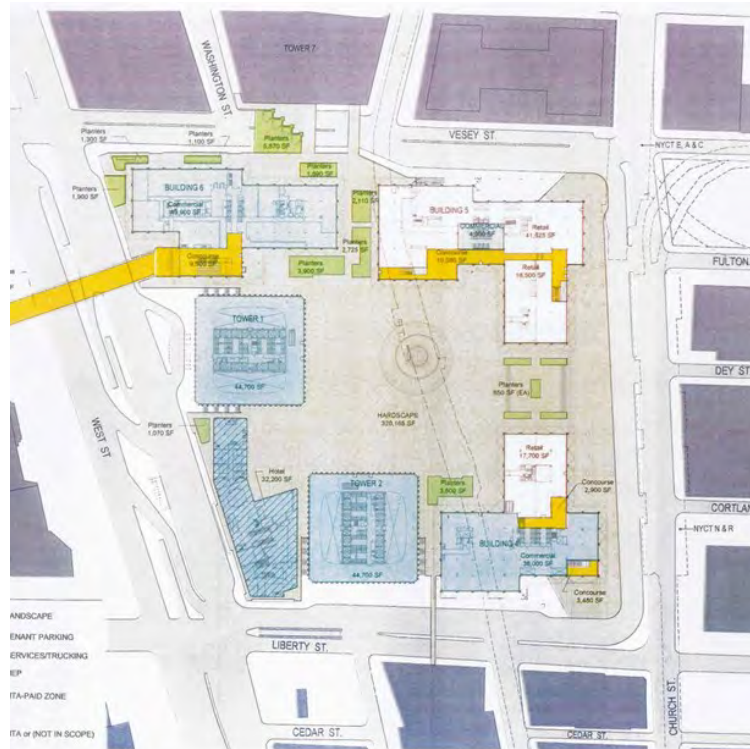


Center Right: Plaza level corridor upgrades and new pedestrian circulation.

Above and Below: Concourse level ceiling and lighting upgrades at following sprinkler installation.

Top Right: New exterior sign pylon.

Bottom Right: WTC Mall map, fully leased retail areas following completion of public space upgrades.



Publication:

"From Zen Garden to Piazza, A Plaza Gets A New Look" N.Y. Times 20 June 1999.

"At the World Trade Center, Things Are Looking Up" N.Y. Times, 31 May 1998.

"Port Authority to Build Skating Rink Between Towers of the World Trade Center" 13 December 1995

"Attuning a Huge Concourse to Upscale Trade" N.Y. Times, 26 February 1995.

"Trade Center Makes Plans to Refurbish Public Areas" N.Y. Times 11 March 1994.

3: Exhibits

3.4.1

WTC FLOOD MITIGATION AND RESILIENCY PROGRAM

CONSERVATION AND RESILIENCY



Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Assistant Director, WTC Construction*

Architects / Engineers: *Michael Baker International
Downtown Streetscape Partners
Downtown Design Partnership
Liberty Security Partners
(AECOM, Jacobs, STV)*

Completion Dates: *2014-2020*

WTC Flood Mitigation System

- Designed to 100-year flood risk (with accelerated sea level rise)
- 3,000 lineal feet of perimeter flood barriers (5-8 feet tall)
- 75 custom barriers at building doors and surface openings
- 140 custom barriers at below grade critical rooms, roadways
- 12 additional sump pumps and piping, 4 mobile pumps

Impact: *Carla is the PANYNJ executive responsible for all aspects of planning, design, and construction of the WTC Flood Mitigation Program. Carla has galvanized staff, consultants, and contractors to develop an innovative and customized flood protection system for the WTC Campus without impacting its architectural character and aesthetics. She leveraged the use of existing perimeter bollards to provide for a robust barrier system that could also be readily deployed, and directed analysis to determine optimal strategies and solutions to prevent water intrusion. Carla's unique expertise has produced this special system that protects the WTC's assets and critical operations, while conserving the hard won design qual-*

I have personal knowledge of the Nominee's responsibility for the project listed above: Project under direction of Nominee.

Sara Oliver, P.E., Project Manager
Michael Baker International

Synopsis. Hurricane Sandy in October 2012 devastated Lower Manhattan and the WTC site, which was inundated with an estimated 125 million gallons of flood water and causing hundreds of millions of dollars in damage and disrupted PATH mass transit service for a month. While effectuating recovery and long term repairs, the PANYNJ also advanced a flood mitigation program to protect against future flooding and storm surge risks. A design strategy of three "rings of protection" was developed for the WTC Campus: a perimeter ring at sidewalk bollards, an inner ring at building entries, and a third ring at doorways of below grade critical infrastructure rooms. The three ring strategy optimized the protection level, redundancy, deployment flexibility, un-obtrusiveness and overall cost of the system.

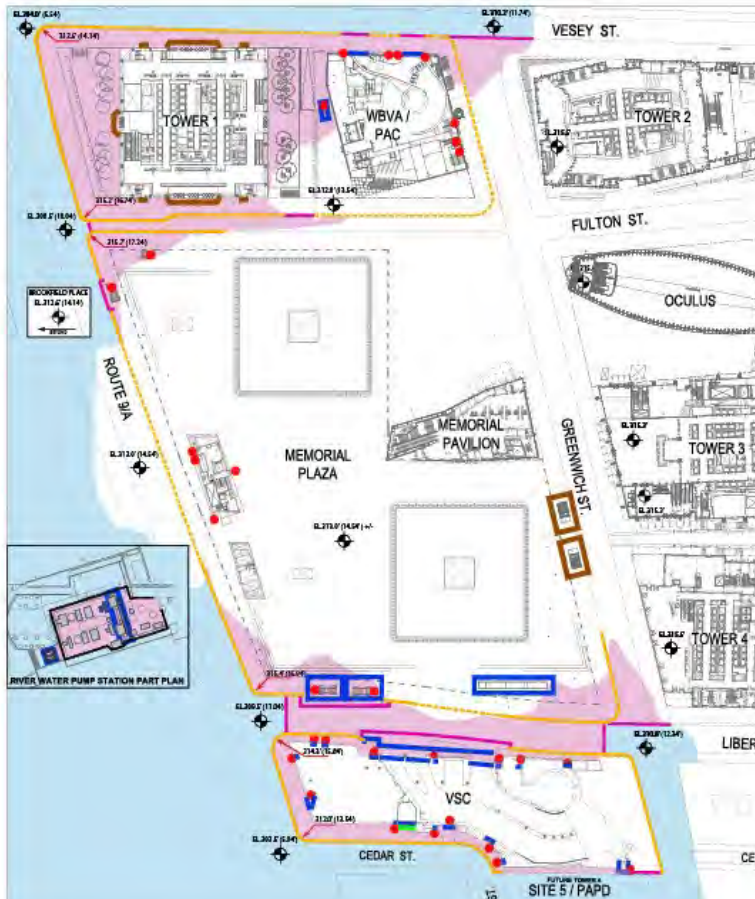
Challenges. The WTC flood mitigation system required more than a dozen different types of barrier products, including flexible and rigid membrane barriers each custom designed to retrofit existing openings. There were some products first used at the WTC Campus, which required rigorous testing and adjustments to meet the design requirements.

Outcomes. The initial portions of the BPS was completed prior to the opening of One WTC in late 2014, with other segments and barrier installations completed through 2020. The overall system is now fully completed (with one remaining segment to be completed with the Performing Arts Center.)

The extensive use and testing of the various flood barrier products used at the WTC Campus has also helped expand the market of U.S. manufacturers and installers for these types of systems and equipment to meet the increasing demand for this type of infrastructure at other facilities.

WTC FLOOD MITIGATION AND RESILIENCY

Exhibit 3.4.1 (Continued)



Above: Bollard Protection System deployed at One WTC.

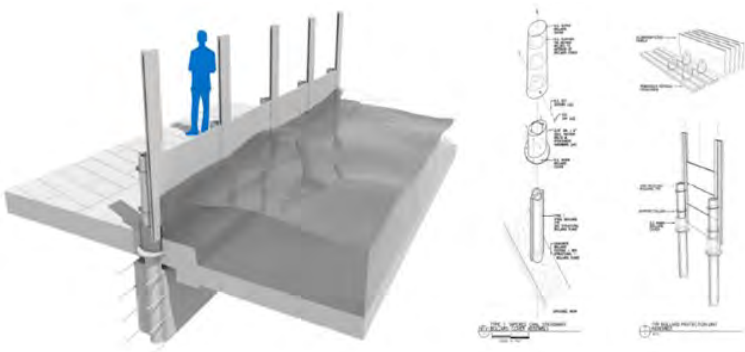
Left: Diagram of the WTC’s 100-year flood risk (with accelerated sea level rise). Unmitigated condition (pink shaded areas), and with flood mitigation improvements in place (blue shaded areas). Perimeter bollard protection system (gold highlights).

Top Right: Horizontal flexible membrane barrier across stairway.

Middle Right: Barrier system with flexible and rigid barriers at driveway opening.

Left: Innovative Bollard Protection System (BPS) adapts existing sidewalk bollards for use as posts to support removable flood logs.

Right: Flexible membrane barrier across below-grade roadway, used to divert water from critical infrastructure rooms.

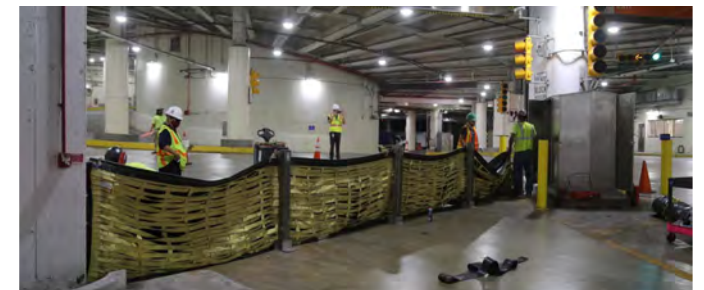


Publication and Recognition

“WTC Design at the Junction of Security and Resilience” Engineering News Record, 12 December 2019

“Battening Down the WTC Hatches” PA Portfolio (Online), 28 October 2019

ACEC-NY, *Excellence in Engineering Gold Award* (2017) - WTC Flood Mitigation and Resiliency Improvements



3: Exhibits

3.4.2

Carla Bonacci, AIA (Object 4: Government)

Nominee Role: *Deputy Program Director,
Priority Capital Programs*

Architects / Engineers: Croxton Collaborative

Completion Dates: 2005

WTC Sustainable Development Guidelines—Key Features

- Urban Environmental Quality Objectives
- Whole System Compliance
- Flexible Range of Options
- Integration of Building Design & Tenant Construction

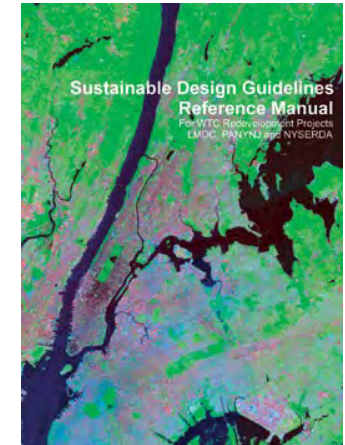
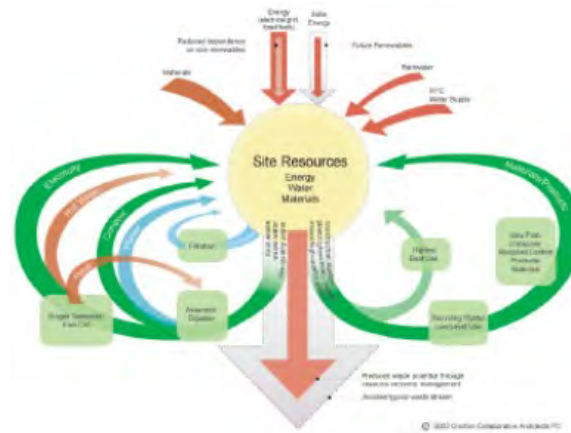
Impact: *Carla was the lead program executive for the PA-NYNJ who co-chaired (with the Lower Manhattan Development Corporation) the interagency committee tasked with developing the site-wide sustainable development guidelines applicable to all of the World Trade Center’s mixed-use buildings and spaces. She worked with Randy Croxton to prepare the Sustainable Design Guidelines Reference Manual (SDG) that broke new ground in applying sustainable design concepts to developments such as the WTC Memorial and the WTC Transportation Hub. Carla was a key driver for collaboration and consensus-building within the SDG committee, and then a champion for incorporating the SDG’s as part of the formal Environmental Impact Statements and in the actual WTC development agreements. Carla maintained her leadership over the next 15 years in guiding staff, stakeholders, and their design teams in implementation and implementation and compliance reviews necessary to maintain these standards continues throughout successive projects.*

I have personal knowledge of the Nominee’s responsibility for the project listed above: Project under direction of Nominee.

Randolph R. Croxton, FAIA, LEED AP
Croxton Collaborative Architects, PC

WORLD TRADE CENTER SUSTAINABLE DEVELOPMENT

CONSERVATION AND RESILIENCY



Synopsis. As the World Trade Center Master Plan was being formulated, the identification of achievable sustainable design commitments for all WTC stakeholders was essential to advance the project development approvals, agreements and actual project designs. An interagency committee involving 30 individuals from the various WTC stakeholders and design consultants spent months hammering out ‘whole system’ goals, objectives, strategies and methods to achieve consistency, balance and metrics — applicable to the office towers as well as the transportation and Memorial facilities to be developed. The committee’s work product was the Sustainable Design Guidelines (SDG) prepared by Croxton Collaborative, and was the most comprehensive sustainable criteria established to that date for a mixed-use complex with mass-transit and high development density. Realizing the immense scale of the project, the guidelines not only address the structures individually but also take into account the integration of each component, shared systems, and the site’s overall impact on the environment.

Challenges. Full stakeholder participation and “buy-in” were key factors to building consensus for site-wide guidelines that could stand the test of time. Broad implementation therefore focused on key objectives for the main elements of sustainable design. Through proactive management plans and conservation initiatives, a framework could be established to measure compliance as the respective projects continued to develop, and the guidelines became embedded into design specifications.

Outcomes. The SDG’s set the direction and tone for WTC’s sustainable development through 52 integrated urban scale mixed use sustainable guidelines, including relevant portions of U.S. Green Building Council’s LEED® Green Building Rating System™, as well as standards in NY State Executive Order 111. The main innovation / leadership of the SDG was that over half (28) of the specified guidelines were original. The WTC projects have since advanced and achieved a minimum of LEED Gold accreditation for all of the building core and shell items.