

Torres Rojas, Genara

From: mekern9@gmail.com
Sent: Tuesday, March 03, 2015 11:39 AM
To: Duffy, Daniel
Cc: Torres Rojas, Genara; Van Duyne, Sheree; Ng, Danny
Subject: Freedom of Information Online Request Form

Information:

First Name: Michele
Last Name: Kernan
Company: Construction
Mailing Address 1: 713 Utica Street
Mailing Address 2:
City: Oriskany
State: NY
Zip Code: 13424
Email Address: mekern9@gmail.com
Phone: 3152697888
Required copies of the records: Yes

List of specific record(s):
Contact Documents and applications for PATH between the Port Authority and the Federal Transit Administration.

Torres Rojas, Genara

From: Michele Kernan [<mailto:mekern9@gmail.com>]
Sent: Tuesday, March 03, 2015 4:03 PM
To: Duffy, Daniel
Subject: Re: Freedom of Information Request Reference No. 15836

Hello,

Specifically, Construction Agreement (CA) The CA was signed on April 25, 2006. A Revised and Restated Construction Agreement (RRCA) was executed on September 18, 2012. The RRCA establishes a Required Completion Date (RCD) of December 17, 2015, and commits \$2.872 billion in federal funding to the PATH Hub project. The RRCA establishes a not-to-exceed amount of \$3.995 billion for the project.

Does this help with what specific document?

Thank you,

Michele

Enclosure

THE PORT AUTHORITY OF NY & NJ

FOI Administrator

March 25, 2015

Ms. Michele Kernan
713 Utica Street
Oriskany, NY 13424

Re: Freedom of Information Reference No. 15836

Dear Ms. Kernan:

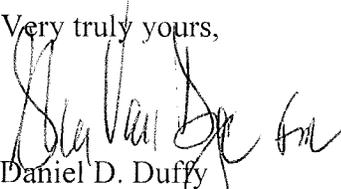
This is in response to your March 3, 2015 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code", copy enclosed) for copies of contact documents and applications for PATH between the Port Authority and the Federal Transit Administration. Specifically, Construction Agreement (CA) The CA was signed on April 25, 2006. A Revised and Restated Construction Agreement (RRCA) was executed on September 18, 2012. The RRCA establishes a Required Completion Date (RCD) of December 17, 2015, and commits \$2.872 billion in federal funding to the PATH Hub project. The RRCA establishes a not-to-exceed amount of \$3.995 billion for the project.

Material responsive to your request and available under the Code can be found on the Port Authority's website at <http://www.panynj.gov/corporate-information/foi/15836-O.pdf>. Paper copies of the available records are available upon request.

Pursuant to the Code, certain portions of the material responsive to your request are exempt from disclosure as, among other classifications, security.

Please refer to the above FOI reference number in any future correspondence relating to your request.

Very truly yours,



Daniel D. Duffy
FOI Administrator

Enclosure

4 World Trade Center, 18th Floor
150 Greenwich Street
New York, NY 10006
T: 212 435 3642 F: 212 435 7555

**PERMANENT WTC PATH TERMINAL PROJECT:
CONSTRUCTION AGREEMENT Between the
PORT AUTHORITY OF NEW YORK AND NEW JERSEY
And the FEDERAL TRANSIT ADMINISTRATION**

WHEREAS, the 2002 Supplemental Appropriations Act for Further Recovery From and Response to Terrorist Attacks on the United States (Public Law No. 107-206) made \$2.75 billion available to the Federal Emergency Management Administration (FEMA), an agency of the United States Department of Homeland Security, to assist state and local transportation agencies in their repair and replacement of transportation infrastructure in the Borough of Manhattan following the terrorist attacks of September 11, 2001;

WHEREAS, in August 2002 FEMA executed a Memorandum of Agreement with the U.S. Department of Transportation (USDOT) whereby the Federal Transit Administration (FTA), an agency of USDOT, will administer this \$2.75 billion in FEMA funding, together with \$1.8 billion in funds made available to FTA under Public Law No. 107-206 for the repair, replacement, and enhancement of transportation infrastructure in the Borough of Manhattan;

WHEREAS, in February 2004 FTA and the Port Authority of New York and New Jersey (PANYNJ), a municipal corporate instrumentality and political subdivision of the States of New York and New Jersey, executed a Project Development Agreement (PDA) that spells out the two parties' respective roles and responsibilities for the development, implementation, project management, oversight, schedule, and funding for construction of the *Permanent WTC PATH Terminal Project* ("WTC PATH Terminal" or the "Project", and also known locally as the WTC Transportation Hub), which will be financed, in whole or in part, with \$2.201 billion of the Federal funds made available by Public Law No. 107-206;

WHEREAS, FTA issued a Record of Decision for the Project on June 29, 2005, and the two parties now desire to enter into a Construction Agreement (this "Agreement") to delineate the scope, description, budget, schedule, and environmental mitigation for the Project; and

WHEREAS, both parties to this Agreement are committed to constructing the WTC PATH Terminal on schedule and within budget, to keep faith with the Federal taxpayer and the people who live, work, and travel within lower Manhattan;

THEREFORE, in consideration of the above and the parties' mutual commitments as set forth in this Agreement, FTA and PANYNJ agree to the specific terms, conditions, and provisions set forth in this entire Agreement including, in particular, the specific terms of the following Sections and Attachments:

SECTION 1 DEFINITIONS

"Agreement" means this Construction Agreement between FTA and PANYNJ and consists of all parts and documents identified in Section 14 of this Agreement, and will include all future addenda, substitutions, modifications and amendments as and when legally executed and effective.

"Baseline Cost Estimate" means the document described in Section 4 of this Agreement and set forth in Attachment 4 to this Agreement. The Baseline Cost Estimate reflects the total anticipated cost of the Project as of the Date of this Agreement.

"Baseline Schedule" means the document described in Section 8 of this Agreement and set forth in Attachment 6 to this Agreement. The Baseline Schedule reflects the Major Milestones on the critical path to Complete the Project and indicates for each of the Project Units the beginning and completion of performance.

"Complete the Project" means to accomplish all of the scope and activities of the Project as described in Attachment 1 to this Agreement, "Scope of the Project," and Attachment 3 to this Agreement, "Project Description." Recognizing that portions of the Project will be opened in phases, this term equates to the issuance of the last "Temporary Permit to Occupancy or Use" by the PANYNJ Chief Engineer required to ensure safe occupancy and use of completed space and equipment, for the Project.

"Date of this Agreement" means the date FTA executes this Construction Agreement.

"LMRO Master Agreement" means the Master Agreement for Lower Manhattan Recovery Grants dated October 1, 2005, which governs all of the projects that will be funded in whole or in part with funds made available under Public Law 107-206 through grants administered by FTA's Lower Manhattan Recovery Office (LMRO). The LMRO Master Agreement is incorporated by reference and made part of this Construction Agreement.

"Project" means PANYNJ's *Permanent WTC PATH Terminal Project* ("WTC PATH Terminal", also known locally as the WTC Transportation Hub), and specifically,

all of the scope and activities described in Attachments 1 and 3 to this Agreement, "Scope of the Project" and "Project Description."

"Project Costs" means all costs eligible for Federal financial participation under the terms of this Agreement and consistent with the cost principles set forth in Section 9 of the LMRO Master Agreement, "Payments."

"Recovery Plan" means a plan developed by PANYNJ, and accepted by FTA, whereby PANYNJ will take every reasonable measure to recover any delay in achieving the Major Milestones identified in the baseline schedule set forth in Attachment 6 to this Agreement (the Baseline Schedule) and to recover any increase in the costs of a Project Unit as currently estimated, as compared to the cost identified in Attachment 4 to this Agreement (the Baseline Cost Estimate). The fundamental objectives of a Recovery Plan are to maintain the Required Completion Date, notwithstanding any delay in achieving certain milestones, and to keep the total project costs within the Baseline Cost Estimate, notwithstanding any overruns on individual Project Units.

"Required Completion Date" means the date certain by which PANYNJ agrees to accomplish the activities and tasks, described in Attachments 1 and 3 to this Agreement, which are identified as necessary to achieve the operational function, purpose, and use of the Project.

SECTION 2 PURPOSES OF AGREEMENT

The purposes of this Agreement are to:

- (a) provide Federal financial assistance to PANYNJ from funds made available by Public Law 107-206 for purposes that are consistent with Public Law 107-206 and other applicable laws, statutes, and regulations;
- (b) describe the Project with particularity, and set forth the mutual understandings, terms, conditions, rights and obligations of FTA and PANYNJ related to PANYNJ's implementation of the Project, PANYNJ's future management and operation of the Project, and the manner in which Project real property and equipment will be used;
- (c) establish certain limitations on the Federal financial assistance for the Project, and the manner in which the Federal funds will be awarded and released to PANYNJ;

(d) establish PANYNJ's obligations to Complete the Project with a specified amount of Federal assistance, and by a specified date, and to pay all costs necessary to Complete the Project that are in excess of the Federal funds that will be awarded and released to PANYNJ; and

(e) ensure PANYNJ's timely and efficient management of the Project.

SECTION 3 PREVIOUS FEDERAL AWARDS AND DOCUMENTS

(a) Federal law and procedure require the completion of environmental and historic preservation reviews prior to the award and execution of this Agreement. Prior awards of Federal funds for these reviews and other project development activities are described in Attachment 7 to this Agreement. These previous awards of Federal funds are incorporated by reference and made part of this Agreement, except for the terms and conditions thereof specifically superseded by this Agreement. Further, in executing this Agreement, PANYNJ assures FTA that the certifications and assurances made by PANYNJ upon which FTA relied in these prior actions were made in good faith and to the best of PANYNJ's knowledge and belief, and that PANYNJ has no present knowledge of facts or circumstances substantially affecting the continued validity of these certifications and assurances that PANYNJ has not formally conveyed to FTA prior to FTA's awards of funding set forth in this Agreement.

(b) This Agreement does not discharge or rescind any of the terms, conditions, or obligations established under the documents set forth in Attachment 7 unless specifically stated otherwise herein. Furthermore, the terms, conditions and obligations of this Agreement take precedence over the provisions of all prior agreements between FTA and PANYNJ related to the Project and will be controlling for all actions related to the Project taken after the Date of this Agreement, unless specifically stated otherwise herein.

SECTION 4 BASELINE COST ESTIMATE

(a) Use of the Baseline Cost Estimate. The Baseline Cost Estimate (BCE) is set forth at Attachment 4 to this Agreement. The BCE is comprised of all of the activities necessary to Complete the Project, and it reflects the total anticipated cost of the Project as of the Date of this Agreement. The BCE is derived from the most recent cost estimates of the individual third party contracts and force account work and reflects appropriate escalation and contingencies, and the Major Milestones set forth in Attachment 6 to this Agreement, "Baseline

Schedule." The BCE will not be amended or modified during the construction of the Project. FTA will use the BCE to monitor PANYNJ's construction of the Project and its compliance with certain terms and conditions of this Agreement. PANYNJ will submit periodic cost reports in a format consistent with the BCE so that FTA can, with reasonable diligence, reconcile PANYNJ's reports with the BCE.

(b) Requirement for a Recovery Plan. If at any time during its efforts to Complete the Project PANYNJ determines that the costs of one or more of the Project Units will exceed the amount set forth in Attachment 4, PANYNJ must immediately notify FTA of the amount of the difference (overrun) and the reasons for the difference. Further, PANYNJ must provide FTA with a Recovery Plan that demonstrates PANYNJ is taking and will take every reasonable measure to recover the difference between the actual and estimated costs of that Project Unit, and keep the total project cost within the total amount specified in the BCE.

SECTION 5 LIMITATIONS OF THE FEDERAL FUNDING COMMITMENT

(a) Funding Mechanism. The Federal funding for the Project has been and will be awarded through FTA's electronic grant award and management system ("TEAM"), under a single grant: FTA's project number NY-43-0002. Certain Project expenditures have already been reimbursed under this grant, as reflected in Attachment 5 to this Agreement, "Project Budget." As the Project progresses, FTA will authorize the expenditure of additional funds for Project activities and allow PANYNJ to draw down additional funds under the grant, as appropriate.

(b) Maximum Amount of Federal Funding. In accordance with the PDA, FTA is allocating \$2.201 billion in Federal financial assistance for the *WTC PATH Terminal* Project from the Federal funding made available by Public Law No. 107-206. If ever PANYNJ determines, however, that the total Project Costs of the Project will necessarily exceed the Baseline Cost Estimate, PANYNJ must immediately inform FTA of the amount of the cost overruns and the reasons for the cost overruns. Provided PANYNJ has first developed and carried out a Recovery Plan in accordance with Section 4(b) of this Agreement, and provided FTA makes a written finding that PANYNJ has taken and will take every reasonable measure to minimize the amount of the cost overruns and mitigate the reasons for the cost overruns, PANYNJ may then pursue either or both of the following two alternatives:

- (i) Use of additional Federal, State, local, or PANYNJ funding sufficient to finance the additional Project Costs and expeditiously Complete the

Project without further Federal financial assistance under Public Law No. 107-206; or

- (ii) A decision by the Governor of New York or the Governor's designee to request an allocation of additional Federal funds for the Project from the funds made available to FTA under Public Law No. 107-206.

(c) No Local Match. There is no requirement that the Federal funding for the Project be matched by local funds. Nonetheless, PANYNJ expects to contribute certain amounts of local funding to the Project; these amounts are reflected in Attachment 5 to this Agreement, "Project Budget."

SECTION 6 PANYNJ'S OBLIGATION TO COMPLETE THE PROJECT

FTA has no obligation to provide any financial assistance for the Project beyond the \$2.201 billion allocated from the Federal funds made available by Public Law No. 107-206. If this \$2.201 billion is insufficient to Complete the Project, PANYNJ is solely responsible for the payment of any additional costs (overruns), and PANYNJ is obligated to Complete the Project by pursuing either or both of the alternatives set forth in Section 5(b) of this Agreement.

SECTION 7 REQUIRED COMPLETION DATE

PANYNJ agrees to achieve the Required Completion Date (RCD) on or before April 30, 2012 (RCD) in accordance with the terms and conditions of this Agreement. The RCD is a material term of this Agreement. PANYNJ's failure to achieve the operational functions of the Project on or before the RCD will constitute a breach of this Agreement. Upon PANYNJ's submittal of an acceptable Recovery Plan in accordance with Section 8(b) of this Agreement, FTA may determine in its sole discretion to waive a breach, or an anticipatory breach, and to extend the RCD if there is an unavoidable delay in achieving the operational goals of the Project resulting from an event or circumstance beyond the control of PANYNJ or if FTA determines that allowing the delay is in the best interests of the United States Government and the success of the Project. In the event FTA accepts a Recovery Plan with an RCD later than the original RCD, the later RCD will become the operative RCD for the Project.

SECTION 8 BASELINE SCHEDULE

(a) Use of the Baseline Schedule. The Baseline Schedule is set forth in Attachment 6 to this Agreement. FTA will use the Baseline Schedule to monitor PANYNJ's performance of the Project and compare planned to actual Project implementation. Accordingly, the Baseline Schedule will not be amended or modified during the construction of the Project, although the actual schedule of the Project may be modified from time to time as necessary and appropriate.

(b) Requirement for a Recovery Plan. If at any time during its efforts to Complete the Project PANYNJ determines that it will not achieve one or more of the Major Milestones set forth in the Baseline Schedule, PANYNJ must immediately notify FTA of the amount of slippage in the Baseline Schedule and the reasons it will not achieve these Major Milestones. Further, PANYNJ must provide FTA with a Recovery Plan that demonstrates PANYNJ is taking and will take every reasonable measure to achieve the Required Completion Date and minimize any further slippage in the Baseline Schedule. PANYNJ's submittal of an acceptable Recovery Plan, in itself, will not constitute a breach of this Agreement; rather, a breach of this Agreement for failure to achieve the operational functions of the Project on or before the RCD will be determined strictly in accordance with Section 7 of this Agreement.

SECTION 9 RISK ANALYSES

PANYNJ and FTA have performed and will continue to perform on-going analyses of risks inherent in the Project. These include, potentially, risks to the Project from differing and unknown field and subsurface conditions, integration of pre-existing buildings and structures, property acquisitions, property and utility relocations, the necessity of coordinating the Baseline Schedule with the schedules for construction of other infrastructure in the vicinity of the Project, and the need to take certain measures to mitigate environmental impacts and the adverse effects of the Project on historic resources. Previously, PANYNJ has received a combined financial systems and procurement systems baseline review confirming that PANYNJ has systems in place to adequately manage the project and comply with applicable Federal law and regulation. PANYNJ agrees that any specific risks identified and prioritized by either PANYNJ or FTA will be reported to FTA, mitigated, monitored, and updated on a continuous basis, as the Project progresses through design and construction. PANYNJ also pledges its utmost cooperation in enabling FTA and its consulting contractors both to critique PANYNJ's risk analyses and perform any separate risk analyses that FTA may deem appropriate during the course of the Project.

SECTION 10 PROJECT MANAGEMENT OVERSIGHT

PANYNJ acknowledges that FTA will oversee PANYNJ's development, management, and construction of the Project in much the same manner as FTA performs project management oversight of major capital investments funded under 49 U.S.C. Section 5309. PANYNJ acknowledges, also, that FTA will be assisted in its efforts by a number of consultants in project, financial, and procurement systems management, and environmental mitigation and monitoring. Prior to the execution of this Agreement, PANYNJ has developed and FTA has accepted a Project Management Plan for the *WTC PATH Terminal* Project, and PANYNJ pledges its utmost cooperation in enabling FTA and its consulting contractors to monitor PANYNJ's adherence to its Project Management Plan.

SECTION 11 ENVIRONMENTAL PROTECTION

As a condition precedent to this Agreement FTA and PANYNJ have assessed the environmental impacts of this Project, as required by the National Environmental Policy Act and other applicable law. The results of this assessment and the mitigation measures adopted for this Project are set forth in Attachment 8 to this Agreement, "Measures to Mitigate Environmental Impacts." PANYNJ acknowledges that it shall not withdraw or substantially change any of the mitigation measures set forth either in Attachment 8 or FTA's environmental record for the Project without express written approval from FTA. On a quarterly basis, PANYNJ will provide FTA and its consulting contractors a written report on PANYNJ's progress in carrying out these mitigation measures.

SECTION 12 APPLICABLE LAW AND FEDERAL REQUIREMENTS

All awards of Federal financial assistance for this Project are governed by the Federal statutory, regulatory, and program requirements identified in the LMRO Master Agreement, dated October 1, 2005, which is incorporated by reference and made part of this Construction Agreement. The LMRO Master Agreement will continue to govern the Project unless or until it is modified by FTA. If neither Federal statute nor Federal common law governs the interpretation of the provisions of this Agreement, the state law of the State of New York will apply to govern such interpretation. This provision is intended only to supplement Section 2.c of the LMRO Master Agreement, "Application of Federal, State, and Local Laws and Regulations."

SECTION 13 NOTICES

Notices required by this Agreement will be addressed as follows:

As to FTA:

Mr. Bernard Cohen
Director, Lower Manhattan Recovery Office
Federal Transit Administration
One Bowling Green
Room 436
New York, New York 10004-1415

As to PANYNJ:

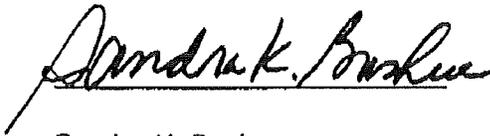
Mr. Steven P. Plate
Director, Priority Capital Programs
The Port Authority of New York and New Jersey
115 Broadway, 10th Floor
New York, New York 10006

SECTION 14 CREATION, CONTENTS, AND EXECUTION OF THE AGREEMENT AND AMENDMENTS TO THE AGREEMENT

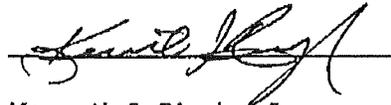
This Construction Agreement consists of the text of this Agreement, the eight numbered Attachments to this Agreement, the LMRO Master Agreement, PANYNJ's application for Federal financial assistance, and FTA's environmental record for the Project. Simultaneous to the execution of this Agreement in typewritten hard copy, the Agreement will be executed by electronic means through FTA's electronic award and management system. To the extent any discrepancy may arise between the typewritten version and the electronic version of this Agreement, the typewritten version will prevail. Any inconsistency between PANYNJ's application and the terms and conditions of this Agreement will be resolved according to the clear meaning of the provisions of this Agreement and the Attachments hereto. This Agreement may be amended at any time upon the approval of both FTA and PANYNJ. Amendments will become effective upon approval by both parties.

Dated: 4/25/04

Dated: 5/8/04



Sandra K. Bushue
Deputy Administrator
Federal Transit Administration
U.S. Dept. of Transportation



Kenneth J. Ringler, Jr.
Executive Director
The Port Authority of New York and
New Jersey

ATTACHMENTS

- 1 SCOPE OF THE PROJECT**
- 2A MAP OF PROJECT VICINITY**
- 2B MAP OF PROJECT FOOTPRINT**
- 3 PROJECT DESCRIPTION**
- 4 BASELINE COST ESTIMATE**
- 5 PROJECT BUDGET**
- 6 BASELINE SCHEDULE**
- 7 PRIOR GRANT ACTIONS AND LISTING OF INTERAGENCY
PROJECT DEVELOPMENT AGREEMENTS**
- 8 MEASURES TO MITIGATE ENVIRONMENTAL IMPACTS**

WORLD TRADE CENTER TRANSPORTATION HUB PROJECT
(PERMANENT WORLD TRADE CENTER
PORT AUTHORITY TRANS HUDSON TERMINAL AND PEDESTRIAN CONNECTIONS)
CONSTRUCTION AGREEMENT
PROJECT SCOPE
ATTACHMENT 1

Following the terrorist attacks of September 11, 2001 that destroyed the former World Trade Center (WTC) PATH Terminal, the Port Authority of New York & New Jersey (the Port Authority) implemented a \$566 million program to restore PATH service to Lower Manhattan, including the construction of a temporary PATH station at the WTC site. The Port Authority will now construct the WTC Transportation Hub (Permanent WTC PATH Terminal) and pedestrian concourses (the Project) as a high priority project for the revitalization of Lower Manhattan and redevelopment of the WTC site.

The Permanent WTC PATH Terminal project will restore and enhance transportation facilities and infrastructure that once existed at the WTC complex. The project will contribute significantly to the recovery of Lower Manhattan and address the transportation needs of commuters, residents and visitors by bringing full PATH operations, and accommodations for New York City Transit (NYCT) subway service, to the WTC site and proposed WTC Memorial.

Prior to September 11, 2001, more than 150,000 pedestrians, including 67,000 PATH riders and tens of thousands of subway riders traveled through the WTC complex daily. The Permanent WTC PATH Terminal will be a gateway to Lower Manhattan with up to 250,000 pedestrians, including approximately 80,000 PATH riders, traveling through the Terminal each day by 2025.

The Permanent WTC PATH Terminal is part of a larger vision for the WTC site, which has been a coordinated effort among many stakeholders and other projects planned for the site. The Permanent WTC PATH Terminal Project will be a world-class facility, with an iconic Transit Hall serving as the hub of a regional transportation system, which is integrated with existing and future transportation and development in the surrounding area. The intent of the project is to:

- Create an intermodal transportation facility, serving as a regional hub, with a PATH Terminal that restores and enhances PATH facilities and serves future ridership and pedestrian growth. The PATH station and associated facilities will be primarily on the Platform and Mezzanine Levels located in the WTC West Bath tub, and the Transit Hall and associated facilities will be on the Main, Upper and Ground Levels in the East Bath tub.
- Provide seamless pedestrian connections to adjacent subway, ferry and bus systems and facilities; the WTC memorial and cultural facilities; and, development at the WTC site, adjacent business and residential areas. The East/West Corridor will provide a pedestrian connection across the entire site on the Mezzanine and Transit Hall Main Levels and North/South Corridors will extend from the Transit Hall on the Main and Upper Levels.
- Improve the patron experience with a climatically controlled environment; clear visual orientation to interior and exterior destinations; security features and openness that provide a sense of security and contribute to a safer environment; and, improved access for customers with disabilities.

- Create a sustainable, environmentally friendly, design that incorporates sustainable ("green") design principles and introduces natural light and complies with Leadership in Energy and Environmental Design (LEED) certification standards where possible.
- Re-establish space to accommodate future retail and commercial development, which will be undertaken by others but will not be constructed by the Project nor funded by this Construction Agreement.

The Project will be constructed concurrently with several other projects at the WTC Site, consistent with an overall WTC Site Master Plan. Various interagency agreements, particularly at project interface points, will be negotiated and entered into, as appropriate, prior to final design and/or construction. The Project will be built while maintaining active PATH service to Lower Manhattan and NYCT subway service with minimal disruption. The Project will incorporate security features including structural hardening, surveillance systems, and other mechanical controls.

The Project complies with the requirements of the National Environmental Policy Act (NEPA) and will implement Environmental Performance Commitments presented in the June 29, 2005 Record of Decision. Project designs and historic resource mitigation measures were developed in compliance with the requirements of the National Historic Preservation Act Section 106, and are stipulated in the Permanent WTC PATH Terminal Memorandum of Agreement executed on April 19, 2005.

Attachment 4 - Baseline Cost Estimate
WTC Transportation Hub Construction Agreement
(Permanent WTC PATH Terminal Project)

March 6, 2006

Project Unit	Project Activity	Year 2005 Cost Estimate	Start Date	End Date	Construction Duration (months)	Midpoint of Construction	Escalated Federal Amount (a), (b)	Escalated Local Amount (b)	Escalated Total
1	Project Direction (and Administration)	405,000,000	1-Jan-02	30-Sep-11			344,144,000	60,856,000	405,000,000
2	Project Design (Conceptual Planning, Prelim. Engineering and Final Design)	215,000,000	1-Jan-02	1-Sep-07			182,365,000	32,635,000	215,000,000
3	Environmental Review (NEPA/Section 106)	3,832,000	1-Mar-03	30-Jun-05			3,433,000	399,000	3,832,000
4	Construction: 1 Line Underpinning	77,265,005	21-Apr-06	4-May-11	60	10/26/08	72,190,000	9,860,000	82,050,000
5	Construction: East Bathub & N/S Corridors	258,011,103	9-Jan-07	4-May-11	52	3/7/09	246,260,000	30,740,000	277,000,000
6	Construction: Transit Hall Substructure	94,794,790	9-Nov-07	30-Oct-09	24	11/3/08	91,235,000	10,765,000	102,000,000
7	Construction: Transit Hall Superstructure	118,654,992	2-Nov-09	4-May-11	18	8/3/10	113,847,000	13,593,000	127,440,000
8	Construction: PATH Facilities	266,471,882	2-Jan-07	29-Jun-11	54	3/31/09	255,208,000	31,652,000	286,860,000
9	Construction: West Bathub & EW Corridors	150,683,317	26-Oct-06	30-Jun-09	32	2/27/08	153,794,000	9,206,000	163,000,000
10	Construction: MEP Systems	276,620,440	27-Mar-07	29-Jun-11	51	5/12/09	277,746,000	18,994,000	296,740,000
11	Construction: Vertical Circulation Elements	94,597,460	8-May-07	29-Jun-11	50	6/2/09	95,268,000	5,202,000	100,470,000
12	Site Common Infrastructure (Cost-Share)	120,824,154	2-Aug-07	29-Jun-11	47	7/15/09	54,060,000	73,988,000	128,048,000
13	Construction: Early Action Site Preparation (and Purchase Orders)	33,560,000	6-Sep-05	2-Jul-09	46	8/4/07	31,450,000	2,110,000	33,560,000
Port Authority Project Total							\$ 1,921,000,000	\$ 300,000,000	\$ 2,221,000,000
FTA Project Reserve							\$ 280,000,000		\$ 280,000,000
Estimated Overall Project Total							\$ 2,201,000,000		\$ 2,501,000,000

NOTES:

- | | |
|-----|--------------------------------------------------------------------------------|
| (a) | Recovery Plan thresholds are the amounts in this column for Project Units 1-13 |
| (b) | Escalation Factor: 3.5% per year to the midpoint |

Attachment 5 - Project Budget
WTC Transportation Hub -- Construction Agreement

Project Unit	FTA ALI	FTA ALI DESCRIPTIONS	FTA Funds	Local Funds	Total
12	12.33.03	Construction - Site Common Infrastructure (Cost Sharing)	16,704,000	66,818,000	83,522,000
4	12.71.08	Construction - MTA Force Account	-	4,348,000	4,348,000
4	12.33.03	Construction - "1" Line Underpinning	60,090,000	3,162,000	63,252,000
5	12.33.03	Construction - East Bathtub	148,133,000	16,459,000	164,592,000
5	12.33.03	Construction - North/South Corridors	66,527,000	7,391,000	73,918,000
6	12.33.03	Construction - Trans Hall Substructure	85,720,000	9,525,000	95,245,000
7	12.33.03	Construction - Transit Hall Superstructure	104,515,000	11,612,000	116,127,000
8	12.33.03	Construction - PATH Facilities	229,056,000	25,450,000	254,506,000
9	12.33.03	Construction - West Bathtub	20,660,000	1,797,000	22,457,000
9	12.33.03	Construction - East/West Corridors	90,670,000	4,772,000	95,442,000
9	12.33.03	Construction - 9A Underpass	32,000,000	1,685,000	33,685,000
9	12.33.03	Construction - Vent Structures (Rt. 9A median)	10,667,000	561,000	11,228,000
10	12.33.03	Construction - Mechanical and Electrical Systems	252,658,000	13,298,000	265,956,000
11	12.33.03	Construction - Vertical Circulation Elements	76,075,000	1,553,000	77,628,000
13	12.33.03	Early Action - Equipment Purchase Orders (Pkg. 1) - Track	18,403,000	376,000	18,779,000
13	12.33.03	Early Action - West Bathtub Site Prep (Pkg. 3)	3,974,000	320,000	4,294,000
13	12.33.03	Early Action - East Bathtub Site Prep (Pkg. 4)	4,205,000	222,000	4,427,000
1	12.75.91	Real Estate	20,000,000	5,000,000	25,000,000
5 & 8	12.75.95	Utility Relocation	16,000,000	4,000,000	20,000,000
1	12.71.05	Construction - Insurance	100,000,000	25,000,000	125,000,000
8,10,12,13	12.71.08	Constr. - Force Account PATH Support	16,720,000	4,180,000	20,900,000
1	12.72.04	Construction Management - Force Account	19,400,000	1,847,000	21,247,000
1	12.71.04	Construction Management - Third Party Contracts (CM Oversight)	42,045,000	3,655,000	45,700,000
1	12.71.04	CM/GC Professional Services	10,100,000	1,000,000	11,100,000
1	12.72.03	Construction - Project Direction	20,473,000	1,780,000	22,253,000
1	12.72.02	Construction - Force Account Arch & Eng Design	27,887,000	1,859,000	29,746,000
1	12.71.03	Constr. - 3rd Party Arch & Eng and PM Contracts	34,433,000	3,825,000	38,258,000
1 & 3	12.79.00	Project Administration (CP, NEPA, PE, FD and CON)	-	10,717,000	10,717,000
1	12.72.03	Final Design - Project Direction	7,633,000	1,388,000	9,021,000
2	12.72.02	Final Design - Force Account Arch & Eng Design	18,036,000	3,920,000	21,956,000
1 & 2	12.71.02	Final Design - 3rd Party Arch & Eng and PM	100,996,000	4,884,000	105,880,000
1 & 2	12.72.03	Prelim Eng - Project Direction	3,020,000	780,000	3,800,000
1 & 2	12.72.01	Prelim Eng - Force Account Arch & Eng Design	16,762,000	4,930,000	21,692,000
1 & 2	12.71.01	Prelim Eng - 3rd Party Arch & Eng	59,770,000	17,580,000	77,350,000
1	12.72.03	Conceptual PIng - Project Direction	400,000	384,000	784,000
2	12.72.01	Conceptual PIng - Force Account Arch & Eng Design	1,332,000	2,124,000	3,456,000
2	12.71.01	Conceptual PIng - 3rd Party Arch & Eng	6,024,000	288,000	6,312,000
3	44.26.09	NEPA - Project Direction	585,000	166,000	751,000
3	12.72.01	NEPA - Force Account Environmental Review	680,000	-	680,000
3	12.71.01	NEPA - Third Party Contracts	2,197,000	208,000	2,405,000
1	12.71.01	NEPA/Sec. 106 - Monitoring	1,264,000	236,000	1,500,000
N/A	12.73.00	Project Contingency	175,206,000	30,900,000	206,106,000
Total			1,921,000,000	300,000,000	2,221,000,000
FTA Project Reserve			280,000,000		280,000,000
Estimated Overall Project Total			2,201,000,000		2,501,000,000

WORLD TRADE CENTER TRANSPORTATION HUB PROJECT
(PERMANENT WORLD TRADE CENTER
PORT AUTHORITY TRANS HUDSON TERMINAL AND PEDESTRIAN CONNECTIONS)
CONSTRUCTION AGREEMENT
MILESTONE TABLE
ATTACHMENT 6a

	<u>Major Milestones</u>
Project Unit - 1 Line Underpinning	
4 Temporary Underpinning Complete	September 6, 2007
Project Unit - East Bathtub & N/S Corridors	
5 East Bathtub Complete (foundation walls and excavation)	June 25, 2008
Project Unit - Transit Hall Substructure	
6 Complete Demolition of Temporary Concourse	March 11, 2008
6 Complete Transit Hall Substructure (to el. 276)	January 16, 2009
Project Unit - Transit Hall Superstructure	
7 Complete Transit Hall Superstructure (glazing)	February 9, 2011
Project Unit - PATH Facilities	
8 Temporary Access Operational	November 8, 2007
8 Platform A Complete	July 20, 2009
8 Platform B Complete	July 7, 2010
8 Transit Hub Substantially Complete	June 29, 2011
Project Unit - West Bathtub & E/W Corridors	
9 East/West Corridor Substantially Complete	June 30, 2009
Project Unit - Vertical Circulation Elements	
11 Vertical Circulation Units Operational	June 29, 2011
Project Unit - Site Common Infrastructure	
12 MEP Systems Operational	June 29, 2011
Project Unit - Early Action Site Preparation	
13 Complete Ductbank Relocation	May 14, 2007

Required Completion Date (PA Forecasted Project Substantial Completion Date)	June 30, 2011
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FTA Project Completion Date	April 30, 2012
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These milestones are presented in Attachment 6B, Schedule.

Activity Description	Att 6B Start	Att 6B Finish	Att 6B Milestone	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1 - Project Direction															
Project Direction / Project Management	01/01/02	09/30/11		[Gantt bar from 2002 to 2011]											
Environmental Monitoring (NEPA & Section 106)	06/30/05	06/29/11		[Gantt bar from 2005 to 2011]											
Complete Project Close Out	06/30/11	09/30/11		[Gantt bar from 2011 to 2011]											
2 - Project Design															
Conceptual Planning	01/01/02	05/01/05		[Gantt bar from 2002 to 2005]											
Preliminary Engineering	05/01/05	03/31/06		[Gantt bar from 2005 to 2006]											
Final Design	08/01/05	09/01/07		[Gantt bar from 2005 to 2007]											
3 - Environmental Review															
Environmental Process (NEPA & Section 106)	03/01/03	06/30/05		[Gantt bar from 2003 to 2005]											
4 - 1 Line Underpinning															
Temporary Underpinning Under 1 Line	04/21/06	09/06/07		[Gantt bar from 2006 to 2007]											
Temporary Underpinning Complete			09/06/07	[Milestone diamond at 2007]											
Permanent Underpinning Under 1 Line	10/07/08	05/04/11		[Gantt bar from 2008 to 2011]											
5 - East Bathub & N/S Corridors															
East Bathub - Full Basement	01/09/07	06/25/08		[Gantt bar from 2007 to 2008]											
East Bathub Complete (fnd walls and excav)			06/25/08	[Milestone diamond at 2008]											
North/South Corridors	04/29/10	05/04/11		[Gantt bar from 2010 to 2011]											
6 - Transit Hall Substructure															
Demo \ Transit Hall Substructure (to grade)	11/09/07	10/30/09		[Gantt bar from 2007 to 2009]											
Complete Demolition of Temporary Concourse			03/11/08	[Milestone diamond at 2008]											
Complete Transit Hall Substructure (to el. 276)			01/16/09	[Milestone diamond at 2009]											
7 - Transit Hall Superstructure															
Transit Hall Superstructure (above grade)	11/02/09	05/04/11		[Gantt bar from 2009 to 2011]											
Complete Transit Hall Superstructure (glazing)			02/09/11	[Milestone diamond at 2011]											
8 - PATH Facilities															
Temporary Access	01/02/07	11/08/07		[Gantt bar from 2007 to 2007]											
Temporary Access Operational			11/08/07	[Milestone diamond at 2007]											
Platform D Structural	09/27/07	08/13/08		[Gantt bar from 2007 to 2008]											
Platform A	08/14/08	07/20/09		[Gantt bar from 2008 to 2009]											
Platform A Complete			07/20/09	[Milestone diamond at 2009]											
Platform B	07/21/09	07/07/10		[Gantt bar from 2009 to 2010]											
Platform B Complete			07/07/10	[Milestone diamond at 2010]											
Platform C	07/08/10	06/29/11		[Gantt bar from 2010 to 2011]											
Platform D	12/13/10	06/29/11		[Gantt bar from 2010 to 2011]											
Transit Hub Substantially Complete			06/29/11	[Milestone diamond at 2011]											
9 - West Bathub & E/W Corridors															
East/West Corridor	10/26/06	06/30/09		[Gantt bar from 2006 to 2009]											
East/West Corridor Substantially Complete			06/30/09	[Milestone diamond at 2009]											
10 - MEP Systems															
Temporary Substation	03/27/07	11/08/07		[Gantt bar from 2007 to 2007]											
PATH Fan Plant Installation	08/07/07	01/21/09		[Gantt bar from 2007 to 2009]											
Mechanical Equipment Installation	12/11/08	06/29/11		[Gantt bar from 2008 to 2011]											
MEP Systems Operational			06/29/11	[Milestone diamond at 2011]											
11 - Vertical Circulation Elements															
Install Vertical Circulation Elements	05/08/07	06/29/11		[Gantt bar from 2007 to 2011]											
Vertical Circulation Units Operational			06/29/11	[Milestone diamond at 2011]											
12 - Site Common Infrastructure (Cost Share)															
Shared Facilities	08/02/07	06/29/11		[Gantt bar from 2007 to 2011]											
13 - Early Action Site Preparation															
West Bathub Site Preparation	09/06/05	05/14/07		[Gantt bar from 2005 to 2007]											
Complete Ductbank Relocation			05/14/07	[Milestone diamond at 2007]											
Purchase Orders	06/06/06	07/02/09		[Gantt bar from 2006 to 2009]											
East Bathub Site Preparation	10/12/06	07/25/07		[Gantt bar from 2006 to 2007]											
Completion Dates															
Required Completion Date (RCD)			06/30/11	[Milestone diamond at 2011]											
FTA Project Completion Date			04/30/12	[Milestone diamond at 2012]											

Run Date 03/07/06 14:33

ATT6 WTC Transportation Hub Construction Agreement Attachment 6B - Schedule

Date	Revision	check	approve
03/08/06			

WORLD TRADE CENTER TRANSPORTATION HUB PROJECT
(PERMANENT WORLD TRADE CENTER
PORT AUTHORITY TRANS HUDSON TERMINAL AND PEDESTRIAN CONNECTIONS)
CONSTRUCTION AGREEMENT

PRIOR GRANT ACTIONS AND INTERAGENCY PROJECT DEVELOPMENT AGREEMENTS

ATTACHMENT 7

This attachment identifies the prior FTA grant activities, and also lists significant interagency agreements required to implement the WTC PATH Terminal Project.

PRIOR GRANT ACTIONS

<u>Funding</u>	<u>Purpose</u>	<u>Date</u>
1. Initial Grant - NY-43-0002-00	Allocate \$1.7 billion to the Permanent WTC PATH Terminal project.	December 16, 2003
2. Budget Revision 1 - NY-43-0002-00	Certain changes in several ALI's to better reflect recent forecasts that will not change the overall project budget.	January 13, 2005
3. Budget Revision 2 - NY-43-0002-00	Adjust Preliminary Engineering Activities and Final Design Development of Early Action Items by \$28 million.	April 25, 2005
4. Grant Amendment 1 - NY-43-0002-01	Increase the grant by an additional \$221 million to include the scope of work for the east bathtub, west bathtub slurry wall liner, and the E/W corridor hardening.	July 7, 2005
5. Budget Revision 3 - NY-43-0002-01	Adjust budget for Final Design ALI's to \$135 million.	August 23, 2005
6. Grant Amendment 2 - NY-43-0002-02	Based on review of early action construction activities, adjust tasks for third party construction contracts, third party construction management, CM/GC professional services, early action purchase orders, west bathtub site preparation and east bathtub site preparation. No change in total grant amount.	August 31, 2005
7. Grant Amendment 3 - NY-43-0002-03	Allocate \$79.3 million to include the scope of work for the Temporary Underpinning of the 1 Subway Line.	January 31, 2006
8. Budget Revision 4 - NY-43-0002-03	Adjust Preliminary Engineering and NEPA budget amounts.	March, 2006

INTERAGENCY PROJECT DEVELOPMENT AGREEMENTS

These Project Development Agreements between the PANYNJ and other agencies may include the following: design activities, construction rules and responsibilities, cost sharing agreements and environmental responsibilities. All agreement dates have been developed based on the construction contract award dates for the earliest construction package affected by the agreement. The projected execution date are subject to adjustment, and the additional project development agreements may be identified subsequent to execution of this Construction Agreement.

<u>Agreement</u>	<u>Purpose</u>	<u>Date</u>
1. Agreement between the Port Authority of New York and New Jersey and the <u>City of New York</u>	WTC Redevelopment Agreement	November 24, 2004
2. Agreement between the Port Authority of New York and New Jersey and the <u>City of New York, Silverstein Properties, Inc. and the Lower Manhattan Development Corporation</u>	WTC Design and Site Plan Agreement	November 24, 2004
3. Project Development Agreement between the Port Authority of New York and New Jersey and <u>MTA Capital Construction</u>	Dey Street Concourse Connection	June 28, 2005
4. Project Development Agreement between the Port Authority of New York and New Jersey and the <u>Lower Manhattan Development Corporation</u>	WTC Memorial and Cultural Program Visitor Orientation Center Interface	March 20, 2006
5. Project Development Agreement between the Port Authority of New York and New Jersey and <u>MTA Capital Construction</u>	1 Line Subway - Underpinning Requirements	March 20, 2006
6. Project Development Agreement between the Port Authority of New York and New Jersey and the <u>Lower Manhattan Development Corporation</u>	WTC Memorial Interface	March 20, 2006
7. Project Development Agreement between the Port Authority of New York and New Jersey and the <u>Lower Manhattan Development Corporation</u>	WTC Memorial Museum Interface	March 20, 2006
8. Project Development Agreement between the Port Authority of New York and New Jersey and <u>Silverstein Properties, Inc.</u>	WTC PATH Terminal East/West Corridor Interface	April 7, 2006
9. Project Development Agreement between the Port Authority of New York and New Jersey and <u>New York State Department of Transportation</u>	Route 9A/West Street – PATH Ventilation Shafts (North and South) and East/West Corridor Underpass	June 7, 2006
10. Project Development Agreement between the Port Authority of New York and New Jersey and the <u>Lower Manhattan Development Corporation</u>	Performing Arts Center Interface	June 7, 2006
11. Project Development Agreement between the Port Authority of New York and New Jersey and <u>Brookfield Properties and the Battery Park City Authority</u>	World Financial Center East/West Corridor Entry (Headhouse) Connection	December 1, 2006

<u>Agreement</u>	<u>Purpose</u>	<u>Date</u>
12. Project Development Agreement between the Port Authority of New York and New Jersey and <u>WTC Retail, LLC</u>	WTC Retail Development	December 1, 2006
13. Project Development Agreement between the Port Authority of New York and New Jersey and <u>MTA Capital Construction</u>	R/W South End Connection	March 20, 2007
14. Project Development Agreement between the Port Authority of New York and New Jersey and <u>MTA Capital Construction</u>	1 Line Subway - Cortlandt Street Station	March, 2007
15. Project Development Agreement between the Port Authority of New York and New Jersey and the <u>Lower Manhattan Development Corporation, and WTC Retail, LLC.</u>	River Water Cooling (Chiller Plant Project)	August 11, 2007

WORLD TRADE CENTER TRANSPORTATION HUB PROJECT
(PERMANENT WORLD TRADE CENTER
PORT AUTHORITY TRANS HUDSON TERMINAL AND PEDESTRIAN CONNECTIONS)
CONSTRUCTION AGREEMENT
MEASURES TO MITIGATE ENVIRONMENTAL IMPACTS
ATTACHMENT 8

The WTC PATH Terminal Project (Project) is part of the Lower Manhattan Recovery Effort, a wide range of projects to replace, rebuild or enhance the transportation system in lower Manhattan. These projects have been designated as high-priority projects that should advance environmental stewardship and receive expedited agency reviews pursuant to Executive Order 13274, "Environmental Stewardship and Transportation Infrastructure Project Reviews," (September 18, 2002). The Project has received expedited environmental study and development, in full compliance with the National Environmental Policy Act and all other applicable Federal law. The environmental record for the Project is comprised of the following documents:

1. The Notice of Availability for the Final Environmental Impact Statement and Section 4(f) Evaluation was issued on May 13, 2005.
2. The Record of Decision executed on June 29, 2005.
3. The Section 106 Memorandum of Agreement (between the Federal Transit Administration, the New York State Historic Preservation Office, the Advisory Council on Historic Preservation, and the Port Authority of New York and New Jersey) was executed on April 19, 2005.

The mitigation measures and other project features that reduce adverse impacts, to which FTA and PA committed in the environmental record, may not be eliminated from the Project, except by FTA's written consent in accordance with applicable laws and regulations. Attached hereto is a table entitled "Measures to Mitigate Environmental Impacts" which briefly identifies the mitigation measures in the above environmental record that pertain to the Project and identifies the party responsible for each mitigation measure. Its purpose is to facilitate FTA's and PA's monitoring of the implementation of the mitigation measures during final design and construction. This table and its periodic revisions to update the status of the mitigation measures are incorporated herein by reference.

**Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts**

Resource Area	ROD Commitment	FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	
Socioeconomic Conditions	SC-1	Ensure that access to local business is maintained to the maximum extent feasible during the construction period.	5-27	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ	Construction
	SC-2	Provide a wayfinding plan for temporary signage during the construction period.	5-27	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ	Design and Construction
Cultural Resources	CR-1	Maintain access to cultural sites to the maximum extent feasible during the construction period.	6-28	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ	Construction
	CR-2	Initiate public information and involvement outreach with sensitivity to local cultural resources.	6-28	Permanent WTC PATH Terminal Memorandum of Agreement	PANYNJ	Construction
	CR-3	Communicate with the public regarding access to cultural sites during construction.	6-28	Lower Manhattan Construction Command Center	LMCC	Construction
	CR-4	Consult with SHPO and LPC regarding potentially impacted, culturally sensitive sites. Monitor noise and vibration during construction.	6-28	Permanent WTC PATH Terminal Memorandum of Agreement Construction Protection Plan World Trade Center Resource Protection Plan	PANYNJ	Design and Construction
	CR-5	Document the WTC site and its historic features to Level II standards of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) prior to the removal or alteration of any historic features from the WTC site.	6-24	Permanent WTC PATH Terminal Memorandum of Agreement	PANYNJ	Design and Construction
	CR-6a	Where Platform D will intersect the northeast corner of the North Tower footprint, the platform will be clear of vertical obstructions and architectural treatments will be used to symbolically represent the location of the footprint. A minimum of 5 to a maximum of 7 column bases of the east column line of the North Tower will be visible from Platform D. The viewing area will consist of a glass wall tilted inward from the platform combined with a mirrored wall to the west to provide a view of the column bases from this area of the platform. Appropriate signage, graphics, and lighting will complete the viewing area.	6-25	Permanent WTC PATH Terminal Memorandum of Agreement Permanent WTC PATH Terminal Design Documents World Trade Center Resource Protection Plan	PANYNJ	Design and Construction
	CR-6b	The locations of column remnants of the South Tower that may be removed or permanently obscured by PATH platforms B, C, and D will be symbolically represented on these platforms through architectural treatments that define and differentiate the portions of the infrastructure that are within the Tower footprint areas. These treatments may include color differentiation, texture differentiation, symbolic representation of Tower perimeter column remnants, and/or an emblematic marker designating the location of the historic resource.				
	CR-6c	The up to 4 column bases that could be affected by the Project foundation, those column bases that remain in situ undisturbed or are temporarily removed and returned to their original locations will be accessible following the completion of these foundations.				
	CR-6d	Removing column bases, on either a temporary or permanent basis, will be considered only after practical engineering design options to preserve column bases in place have been exhausted. Column bases that are removed will be returned to their original locations if practical engineering design permits. Permanent removal of column bases will only take place as a last resort, and these column bases will be removed and stored in accordance with the stipulations of the MOA.				
CR-6e	The east-west pedestrian concourse will be designed and built at least five (5) feet outside the North Tower footprint as measured from the center line of each projecting column base to the face of the nearest structural support wall.					

**Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts**

Resource Area	ROD Commitment	FEIS Page	Submittal / Reference Document	Responsible	Timing
		Ref.		Agency	
CR-6f	The temporary PATH track and associated ballast that will be removed upon completion of the permanent tracks and platforms to re-expose the North and South Tower perimeter column remnants and portions of the North and South Tower footprints that may be covered by the temporary track and ballast.				
CR-6g	Clean rounded gravel or similar treatments will be installed to protect the footprints and column remnants from ongoing construction. Further treatments may be specified in the Project's Construction Protection Plan.				
CR-7	Incorporate the existing E subway entrance into the new Terminal in a manner that retains existing materials and features of this entrance, including, but not limited to, the handrails, the travertine flooring, the steps and doors separating the E train from the pedestrian connection, and overhead signage, to the extent possible and in accordance with current building codes and Americans with Disabilities Act requirements. Include, at a minimum, a plaque identifying the historic features of the E subway entrance.	6-26	Permanent WTC PATH Terminal Memorandum of Agreement Permanent WTC PATH Terminal Design Documents World Trade Center Resource Protection Plan	PANYNJ	Design
CR-8	Provide visibility from within the Terminal to a portion of the east or west slurry wall if the following criteria are met: the condition of the slurry wall evokes the image now understood to represent the historic nature of the wall (e.g. tiebacks are part of the area to be exposed, tiebacks project beyond the re-stabilized slurry wall); the exposure provided will enable a view of the slurry wall that is clear, recognizable, and respectful of the slurry wall; and the exposure will not pose a safety hazard to the public from exposed finishes of the wall or its components. The design for the east-west pedestrian concourse shall include a location to view a plaque and photograph of the west slurry wall.	6-26	Permanent WTC PATH Terminal Memorandum of Agreement Permanent WTC PATH Terminal Design Documents World Trade Center Resource Protection Plan	PANYNJ	Design
CR-9	Relocate the steel column and crossbeam mounted on a concrete pedestal. The object will remain in the custody and control of PANYNJ pending final disposition in accordance with the rights of the respective owners.	6-26	Permanent WTC PATH Terminal Memorandum of Agreement World Trade Center Resource Protection Plan	PANYNJ	Construction
CR-10	Develop a WTC Resource Protection Plan in consultation with SHPO and in coordination with LMDC and MTA/NYCT, as appropriate.	6-26	Permanent WTC PATH Terminal Memorandum of Agreement World Trade Center Resource Protection Plan	PANYNJ	Design
CR-11a	Develop and implement a plan to locate and identify intact portions of the Hudson River Bulkhead that will be affected by construction of the Permanent WTC PATH Terminal's east-west pedestrian connection in consultation with SHPO and NYSDOT. In the event that the intact portions of the Hudson River Bulkhead are identified, prepare a treatment plan for those portions of the Hudson River Bulkhead to be affected by the Project.	6-27	Archaeological Resources Protection Plan	PANYNJ	Design and Construction
CR-11b	Prior to any Project-related subsurface disturbance at any of the locations that have been determined to be sensitive for historic archaeological resources, PANYNJ will, in consultation with the SHPO, and LMDC as appropriate identify and evaluate the National Register eligibility of any archaeological resources at these locations.	6-27	Phase 1B Archaeological Testing Program	PANYNJ	Design
CR-12	Develop a Construction Protection Plan to avoid, minimize, or mitigate the project's potential construction-period vibration impacts on the Barclay-Vesey Building, Former East River Savings Bank, the Beard Building, 114-118 Liberty Street, and St. Paul's Chapel and Graveyard.	6-27	Construction Protection Plan	PANYNJ	Design

**Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts**

Resource Area	ROD Commitment	FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	
Traffic and Transportation	TT-1	Establish a project-specific pedestrian and vehicular maintenance and protection plan.	8B-14	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ / NYCDOT / NYSDOT / LMCC	Design and Construction
	TT-2	Communicate traffic information, lane closures, access changes, and travel advisories to the public for the duration of project construction.	8B-14	Lower Manhattan Traffic Management Plan (TMP) Maintenance and Protection of Traffic (MPT) Plan	PANYNJ / NYCDOT / NYSDOT / LMCC	Construction
	TT-3	Ensure sufficient alternate street, building and station access during the construction period.	8B-14	Lower Manhattan Traffic Management Plan (TMP) Maintenance and Protection of Traffic (MPT) Plan	PANYNJ / NYCDOT / NYSDOT / LMCC	Construction
	TT-4	Consult with NYCDOT to develop the MPT Plan.	8B-14	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ / NYCDOT / NYSDOT / LMCC	Design
	TT-5	Coordinate with NYSDOT to ensure that signal timing adjustments or other provisions are implemented at the intersection of Route 9A and Liberty Street to mitigate the Project's construction-period impact at this location.	8B-14	Lower Manhattan Traffic Management Plan (TMP) Maintenance and Protection of Traffic (MPT) Plan	PANYNJ / NYSDOT	Design and Construction
	TT-6	Widen crosswalks and sidewalks at the intersection of Liberty and Church Streets.	8D-22	Construction Contract Documents	PANYNJ / LMDC / NYCDOT	Design and Construction
Air Quality	AQ-1	Require that contractors use ULSD for all non-road vehicles that operate with diesel engines.	9-24	Construction Contract Documents	PANYNJ	Construction
	AQ-2	Develop a plan, in consultation with Con Ed, as appropriate, to disperse grid power throughout the construction zone for the Preferred Alternative. PANYNJ would require all contractors and subcontractors to use electrically powered equipment for air compressors, pumps, mixing, desanding and grout plants, welding machines, and any other diesel powered equipment that can be replaced with an electrically powered version. However, this does not apply to the east-west pedestrian concourse beneath Route 9A if the concourse is built by NYSDOT.	9-25	Construction Contract Documents	PANYNJ	Design and Construction
	AQ-3	Require the use of DPFs or other measures with equivalent PM removal efficiency for all nonroad diesel engines of 50 horsepower or greater wherever the implementation of such a device is feasible. However, where DPFs would not be feasible, the constructor would submit a request for an exception for review and approval by PANYNJ prior to implementation, and in these cases, DOCs may be used. In cases where, for technical reasons, neither DPFs or DOCs can be used effectively, and where the operation cannot be performed by another engine or other means, would the use of diesel engines greater than 50 horsepower be allowed without tailpipe reduction measures.	9-25			Construction
	AQ-4	Require the use of post-1995 fuel injection engines, which meet the Tier II engine emissions standards. Exceptions will be made only for specific engines that are not yet commercially available as Tier II, and where the task cannot be reasonably accomplished using alternative engines or means which do comply with these demands. In such cases, the contractor would submit a request for an exception for review and approval by PANYNJ prior to implementation.	9-26			Construction

Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts

Resource Area	ROD Commitment	FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing
	AQ-5 Continue to investigate means to reduce NOx (NO and NO ₂) emissions, but it is not yet known whether these measures would reduce the effectiveness of the above described mitigation. If this investigation results in additional means to reduce NOx without jeopardizing the PM reduction measures and if other constraints such as technological availability are resolved, then PANYNJ would implement these additional mitigation techniques, as appropriate.	9-27			Design and Construction
	AQ-6 Require the Project's contractors to prepare a Diesel Emission Mitigation (DEM) Plan that shall address the control of emissions from all engines and vehicles including those that are not equipped with emission control devices.	9-26	Diesel Emission Mitigation Plan	PANYNJ	Design
	AQ-7 Contractors must submit a Dust Control Plan, which contains protocols and procedures for the spraying of dust piles, containment of fugitive dust, and appropriate adjustment measures to accommodate changes in meteorological conditions.	9-26	Dust Control Plan	PANYNJ	Design
	AQ-8a Verification procedures would be implemented through construction specifications and contract documents. PANYNJ would verify mitigation and would identify opportunities to expand its implementation as part of its ongoing oversight and auditing of the Project's construction. Verification procedures would also be implemented in accordance with decisions of the Lower Manhattan Construction Command Center, including procedures for reporting updates to the public.	9-26	Construction Contract Documents	PANYNJ	Design
	AQ-8b Closely manage construction activities adjacent to the Route 9A walkway/bikeway to ensure that PM _{2.5} concentrations from construction equipment and extreme meteorological conditions are prevented from occurring concurrently.	9-28			Construction
Noise and Vibration	NV-1 Require as part of contract documents that contractors use specific equipment during phases of construction to reduce noise levels below the FTA impact criteria. Require that as applicable, contractors use impact wrenches with noise emission level of 82 dBA at 50 ft ² and mufflers on pavement breakers during the permanent track, platform, and mezzanine construction and during the construction of the east-west concourse, require contractors to place air operated grout drills inside acoustical enclosure.	10-16	Construction Contract Documents	PANYNJ	Construction
	NV-2 Coordinate the scheduling and staging of construction activities through the Lower Manhattan Construction Command Center. The Command Center will review PANYNJ's plans in conjunction with other planned activities and will recommend schedule adjustments, as appropriate.	10-18	none	PANYNJ / LMCC	Construction
	NV-3 Through the ongoing coordination efforts of the LMCCC, adverse noise and vibration effects on sensitive receptors will be minimized through scheduling and routing of deliveries, as well as coordination of street closures and placement of truck/equipment staging areas.	10-18	none	PANYNJ / LMCC	Construction

**Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts**

Resource Area	ROD Commitment	FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing
	NV-4 Procure the services of a qualified acoustical firm (INCE certified or licensed Professional Engineer) to assist in the implementation of a Noise Control and Abatement Plan, which will include on-site noise monitoring during construction, and implementation of mitigation measures to ensure compliance with applicable noise exposure thresholds.	10-18	Construction Contract Documents	PANYNJ	Design and Construction
	NV-5 Develop a Construction Protection Plan (CPP) to set forth measures for the protection and avoidance of structural and architectural damage to historic properties within 90 feet of the construction zone.	10-18	Construction Protection Plan	PANYNJ	Design
	NV-6 Incorporate design measures to reduce airborne noise from PATH trains within the WTC Memorial. Achieve at least 25 dBA of attenuation within the Memorial. Mechanical equipment will either be specified to have low noise levels, placed in acoustically shielded enclosures, or placed at locations where noise from equipment would not exceed 50 dBA at receptor locations.	10-17	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design
	NV-7 If its design guidelines specify an ambient noise level within the Memorial that is below 40 dBA, PANYNJ will explore ground-borne noise mitigation measures that will meet or exceed the desired attenuation for the Memorial.	10-18	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design
Infrastructure and Energy	IE-1 Coordinate utility relocation with local utility operators.	11-5	Permanent WTC PATH Terminal Utility Relocation Plan	PANYNJ	Design and Construction
	IE-2 Prepare and implement a comprehensive resource management plan for the integrated consideration of water, materials, and energy resources with the goal of identifying, evaluating, and optimizing the use of all resources on the site.	11-8	Comprehensive Water Management Plan	PANYNJ	Design and Construction
	IE-3 Prepare a comprehensive water management plan	11-8	Comprehensive Resource Management Plan	PANYNJ	Design
	IE-4 Use Hudson River water for the cooling of the Terminal's HVAC system.	11-8	State Pollution Discharge Elimination System Permit	PANYNJ	Design
	IE-5 Collect stormwater from surfaces of the Terminal Hall and adjacent plaza, and store it in a tank with a capacity to accommodate a 2-year/24-hour storm. Use collected water for year-round flushing supply to urinals and toilets within the Terminal; year-round washing of the adjacent plaza and sidewalks; irrigation of plantings in summer months; and occasional use for facade washing.	11-8	Comprehensive Water Management Plan	PANYNJ	Design
	IE-6 Provide for the collection of stormwater from surfaces of the Terminal's Transit Hall and adjacent plaza for reuse on-site, and filter this water to remove 80 percent of the total suspended solids.	11-8	Comprehensive Water Management Plan	PANYNJ	Design
	IE-7 Strive to further reduce solid waste through an active, on-site recycling program.	11-9	Comprehensive Resource Management Plan	PANYNJ	Design
	IE-8 Employ the abundant use of natural light within the Terminal to reduce daytime demand for energy. Implement control and monitoring methods to regulate energy consumption.	11-9	Comprehensive Resource Management Plan	PANYNJ	Design
	IE-9 Set aside a portion of the Terminal's mechanical area to accommodate future technologies that will provide for efficient, on-site, renewable energy sources.	11-10	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design
Contaminated Materials	CM-1 Require contractors to prepare a Health and Safety Plan (HASP) as part of contract documents.	12-13	Health and Safety Plan Dust Control Plan	PANYNJ	Design

**Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts**

Resource Area	ROD Commitment	FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	
Natural Resources	NR-1	Explore all feasible, cost effective, and practical measures for reducing bird strikes.	13-25	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design
	NR-2a	Prepare a Stormwater Pollution Prevention Plan (SWPPPs) to minimize potential impacts to floodplains, groundwater, water quality, and aquatic resources.	13-26	Stormwater Pollution Prevention Plan	PANYNJ	Design
	NR-2b	Implement flood protection measures.	13-26	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design and Construction
Cumulative Effects	CE-1	Continue to investigate sustainable strategies consistent with the United States Green Building Council (USGBC) Leadership in Energy Efficiency (LEED) Guidelines 2.1 and requirements of New York State Executive Order 111.	N/A	Permanent WTC PATH Terminal Sustainable Design Guidelines	PANYNJ	Design
	CE-2	Implement EPCs in concert with the other Recovery Projects, and a project-specific Construction Protection Plan (CPP) will be implemented consistent with the Lower Manhattan Environmental Analysis Framework.	N/A	Construction Protection Plan	PANYNJ / LMDC / NYSDOT / MTA / LMCC	Design and Construction
	CE-3	Request that all agencies constructing projects within the WTC site submit preliminary and pre-final design documents to PANYNJ. PANYNJ and its designated historic preservation consultant will consult with SHPO and the Lower Manhattan Emergency Preservation Fund to assess whether there will be potential for a cumulative adverse effect from the Permanent WTC PATH Terminal and other WTC site projects. If SHPO and PANYNJ, agree that planned or completed activities will result in cumulative adverse effects on the WTC site, then PANYNJ will consider measures with respect to the Permanent WTC PATH Terminal to mitigate or minimize these effects, including technical or financial measures for the protection, stabilization, or repair of resources and/or modifications to the design. PANYNJ will make its documentation of potential cumulative effects and accompanying mitigation plans available for review by the Section 106 consulting parties.	15-19	Permanent WTC PATH Terminal Memorandum of Agreement Quarterly Cumulative Effects Updates	PANYNJ	Design
	CE-4	Continue coordination with the other Recovery Projects on project development, effects and commitments, particularly those related to construction scheduling, and environmental commitments in the Permanent WTC PATH Terminal FEIS and ROD are met.	N/A		PANYNJ / LMCC	Design and Construction

**PERMANENT WTC PATH TERMINAL PROJECT:
REVISED and RESTATED CONSTRUCTION AGREEMENT
Between the PORT AUTHORITY of NEW YORK and NEW JERSEY
and the FEDERAL TRANSIT ADMINISTRATION**

THIS REVISED AND RESTATED CONSTRUCTION AGREEMENT (Agreement) is entered into by and between the Port Authority of New York and New Jersey (PANYNJ), a municipal corporate instrumentality and political subdivision of the States of New York and New Jersey, and the Federal Transit Administration (FTA), an agency of the United States Department of Transportation (USDOT).

WHEREAS, the 2002 Supplemental Appropriations Act for Further Recovery From and Response to Terrorist Attacks on the United States (Public Law No. 107-206) made \$2.75 billion available to the Federal Emergency Management Administration (FEMA), an agency of the United States Department of Homeland Security, to assist state and local transportation agencies in their repair and replacement of transportation infrastructure in the Borough of Manhattan following the terrorist attacks of September 11, 2001;

WHEREAS, in August 2002 FEMA executed a Memorandum of Agreement with the USDOT whereby FTA is administering this \$2.75 billion in FEMA funding, together with \$1.8 billion in funds made available to FTA under Public Law No. 107-206 for the repair, replacement, and enhancement of transportation infrastructure in the Borough of Manhattan;

WHEREAS, in May 2006 FTA and PANYNJ executed a Construction Agreement (original CA) whereby FTA allocated \$2.201 billion in Federal financial assistance for design and construction of the *Permanent WTC PATH Terminal Project* ("WTC PATH Terminal" or the "Project," also known locally as the WTC Transportation Hub), from the funds made available under Public Law No. 107-206; PANYNJ committed \$300 million of its own resources toward the Project; and at the time, the Estimated Overall Project cost of the WTC PATH Terminal was \$2.501 billion;

WHEREAS, the completion date and budget for the WTC PATH Terminal will extend beyond those set forth in the original CA, due, in part, to factors beyond the control of FTA and PANYNJ, including delays in the design and construction of other buildings and infrastructure at the World Trade Center, rapid and unforeseeable cost growth in fuel and construction material, and intense competition for labor and material with other major public and private infrastructure and development in metropolitan New York City; and due, in part, to the inability of PANYNJ and its initial construction manager/general contractor

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to agree upon a guaranteed maximum price for construction of a substantial portion of the Project;

WHEREAS, in June 2009 the Governor of New York and PANYNJ requested that an additional amount of approximately \$671 million, in total, of Federal funding available to FTA under Public Law No. 107-206 be reallocated to the WTC PATH Terminal to help finance the cost overruns on the Project, which was comprised of the following: an approximate \$553.6 million originally allocated for design and construction of a Vehicular Security Center and Tour Bus Parking Facility (VSC) at the World Trade site, an additional \$70 million originally allocated for design and construction of the Cortlandt Street 1-Line Station , and an additional \$47.35 million that had not yet been allocated to any particular project;

WHEREAS, in February 2011 the PANYNJ Board of Commissioners re-authorized the total estimated cost of the WTC PATH Terminal at \$3.44 billion, which includes an approximate \$61 million in local financing costs extraneous to this Agreement between FTA and PANYNJ;

WHEREAS, FTA has determined that altering the Baseline Cost Estimate, Project Budget, and Baseline Schedule previously established by the May 2006 Construction Agreement is in the best interests of accelerating the repair, replacement, and enhancement of transportation infrastructure in the Borough of Manhattan;

WHEREAS, FTA has determined that the establishment of an "FTA Risk Retainage" is necessary and prudent to protect the Federal government's continuing investment in the WTC PATH Terminal, and to keep faith with the Federal taxpayer and the people who live, work, and travel within lower Manhattan; and

WHEREAS, FTA and PANYNJ have agreed that their respective obligations and responsibilities related to completion of the WTC PATH Terminal shall be determined by and under the terms and conditions of this Revised and Restated Construction Agreement and have agreed that this Revised and Restated Construction Agreement shall be recognized as the sole understanding by and between FTA and PANYNJ in consideration of the mutual commitments set forth in this Agreement;

THEREFORE, in consideration of the above and the parties' mutual commitments as set forth in this Revised and Restated Construction Agreement, FTA and PANYNJ agree to the specific terms, conditions, and provisions set forth in this entire Agreement including, in particular, the specific terms of the following Sections and Attachments:

SECTION 1 DEFINITIONS

"Agreement" means this Revised and Restated Construction Agreement between FTA and PANYNJ and consists of all parts and documents identified in Section 14 of this Agreement, and will include all future addenda, substitutions, modifications and amendments as and when legally executed and effective.

"Baseline Cost Estimate" means the document described in Section 4 of this Agreement and set forth in Attachment 4 to this Agreement. The Baseline Cost Estimate reflects the total anticipated cost of the Project as of the Date of this Agreement.

"Baseline Schedule" means the document described in Section 8 of this Agreement and set forth in Attachment 6 to this Agreement. The Baseline Schedule reflects the Major Milestones on the critical path to Complete the Project and indicates for each of the Project Units the beginning and completion of performance.

"Complete the Project" means to accomplish all of the scope and activities of the Project as described in Attachment 1 to this Agreement, "Scope of the Project," and Attachment 3 to this Agreement, "Project Description." Recognizing that portions of the Project will be opened in phases, this term equates to the issuance of the last "Temporary Permit to Occupy or Use" by the PANYNJ Chief Engineer required to ensure safe occupancy and use of completed space and equipment, for the Project.

"Date of this Agreement" means the date FTA executes this Revised and Restated Construction Agreement.

"FTA Risk Retainage" refers to a certain amount of Federal funding for the Project that FTA will keep in retainage, in accordance with the Project Execution Plan (PEP), for purposes of addressing future cost overruns on the Project or offsetting (reducing) the local funds necessary to Complete the Project. As of the Date of this Agreement, the amount of the FTA Risk Retainage is \$280 million. The FTA Risk Retainage may be released to PANYNJ, in whole or in part, in FTA's discretion, at any time during construction of the Project, and will be released in full upon the completion of all of the scope and activities of the Project as described in Attachments 1 and 3 to this Agreement, "Scope of the Project" and "Project Description."

"LMRO Master Agreement" means the Master Agreement for Lower Manhattan Recovery Grants dated October 1, 2011, which governs all of the projects that will be funded in whole or in part with funds made available under Public Law 107-206 through grants administered by FTA's Lower Manhattan

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Recovery Office (LMRO). The LMRO Master Agreement is incorporated by reference and made part of this Construction Agreement.

"Project" means PANYNJ's *Permanent WTC PATH Terminal Project* ("WTC PATH Terminal", also known locally as the WTC Transportation Hub), and specifically, all of the scope and activities described in Attachments 1 and 3 to this Agreement, "Scope of the Project" and "Project Description."

"Project Costs" means all costs eligible for Federal financial participation under the terms of this Agreement and consistent with the cost principles set forth in Section 9 of the LMRO Master Agreement, "Payments."

"Project Execution Plan (PEP)" means the management strategies PANYNJ is using to Complete the Project, as described in the document titled "WTC PATH Hub Negotiated Project Execution Plan", dated in 2012. The Project Execution Plan (PEP) includes all explanatory, supporting and supplementary documents, commitments, and agreements accepted or approved by FTA. In its discretion, FTA will consider the progress being made under the PEP in determining whether to release the FTA Risk Retainage for the Project, in whole or in part.

"Recovery Plan" means a plan developed by PANYNJ, and accepted by FTA, whereby PANYNJ will take every reasonable measure to recover any delay in achieving the Major Milestones identified in the baseline schedule set forth in Attachment 6 to this Agreement (the Baseline Schedule) and to recover any increase in the costs of a Project Unit as currently estimated, as compared to the cost identified in Attachment 4 to this Agreement (the Baseline Cost Estimate). The fundamental objectives of a Recovery Plan are to maintain the Required Completion Date, notwithstanding any delay in achieving certain milestones, and to keep the total project costs within the Baseline Cost Estimate, notwithstanding any overruns on individual Project Units.

"Required Completion Date" means the date certain by which PANYNJ agrees to accomplish the scope and activities described in Attachments 1 and 3 to this Agreement, to Complete the Project and achieve the operational function and use of the Project.

SECTION 2 PURPOSES OF AGREEMENT

The purposes of this Agreement are to:

(a) provide Federal financial assistance to PANYNJ from funds made available by Public Law 107-206 for purposes that are consistent with Public Law 107-206 and other applicable laws, statutes, and regulations;

(b) describe the Project with particularity, and set forth the mutual understandings, terms, conditions, rights and obligations of FTA and PANYNJ related to PANYNJ's implementation of the Project, PANYNJ's future management and operation of the Project, and the manner in which Project real property and equipment will be used;

(c) establish certain limitations on the Federal financial assistance for the Project, and the manner in which the Federal funds will be awarded and released to PANYNJ;

(d) establish PANYNJ's obligations to Complete the Project with a specified amount of Federal assistance, and by a specified date, and to pay all costs necessary to Complete the Project that are in excess of the Federal funds that will be awarded and released to PANYNJ; and

(e) ensure PANYNJ's timely and efficient management of the Project.

SECTION 3 PREVIOUS FEDERAL AWARDS AND DOCUMENTS

(a) Federal law and procedure require the completion of environmental and historic preservation reviews prior to the award and execution of this Agreement. Prior awards of Federal funds for these reviews and other project development activities are described in Attachment 7 to this Agreement. These previous awards of Federal funds are incorporated by reference and made part of this Agreement, except for the terms and conditions thereof specifically superseded by this Agreement. Further, in executing this Agreement, PANYNJ assures FTA that the certifications and assurances made by PANYNJ upon which FTA relied in these prior actions were made in good faith and to the best of PANYNJ's knowledge and belief, and that PANYNJ has no present knowledge of facts or circumstances substantially affecting the continued validity of these certifications and assurances that PANYNJ has not formally conveyed to FTA prior to FTA's awards of funding set forth in this Agreement.

(b) This Agreement does not discharge or rescind any of the terms, conditions, or obligations established under the documents set forth in Attachment 7 unless specifically stated otherwise herein. Furthermore, the terms, conditions and obligations of this Agreement take precedence over the provisions of all prior agreements between FTA and PANYNJ related to the Project and will be controlling for all actions related to the Project taken after the Date of this Agreement, unless specifically stated otherwise herein.

SECTION 4 BASELINE COST ESTIMATE

(a) Use of the Baseline Cost Estimate. The Baseline Cost Estimate (BCE) is set forth at Attachment 4 to this Agreement. The BCE is comprised of all of the activities necessary to Complete the Project, and it reflects the total anticipated cost of the Project as of the Date of this Agreement. The BCE is derived from the most recent cost estimates of the individual third party contracts and force account work and reflects appropriate escalation and contingencies, and the Major Milestones set forth in Attachment 6 to this Agreement, "Baseline Schedule." The BCE will not be amended or modified during the construction of the Project. FTA will use the BCE to monitor PANYNJ's construction of the Project and its compliance with certain terms and conditions of this Agreement. PANYNJ will submit periodic cost reports in a format consistent with the BCE so that FTA can, with reasonable diligence, reconcile PANYNJ's reports with the BCE.

(b) Requirement for a Recovery Plan. If at any time during its efforts to Complete the Project PANYNJ determines that the costs of one or more of the Project Units will exceed the amount set forth in Attachment 4, PANYNJ must immediately notify FTA of the amount of the difference (overrun) and the reasons for the difference. Further, PANYNJ must provide FTA with a Recovery Plan that demonstrates PANYNJ is taking and will take every reasonable measure to recover the difference between the actual and estimated costs of that Project Unit, and keep the total project cost within the total amount specified in the BCE.

SECTION 5 LIMITATIONS OF THE FEDERAL FUNDING COMMITMENT

(a) Funding Mechanism. The Federal funding for the Project has been and will be awarded through FTA's electronic grant award and management system ("TEAM"), under a single grant: FTA's project number NY-43-0002. Certain Project expenditures have already been reimbursed under this grant, as reflected in Attachment 5 to this Agreement, "Project Budget." As the Project progresses, FTA will authorize the expenditure of additional funds for Project activities and allow PANYNJ to draw down additional funds under the grant, as appropriate.

(b) Maximum Amount of Federal Funding. FTA is allocating \$2.872 billion in Federal financial assistance for the *WTC PATH Terminal* Project from the Federal funding made available by Public Law No. 107-206. If this \$2.872 billion in Federal financial assistance is insufficient to Complete the Project, PANYNJ is solely responsible for the payment of any additional costs (overruns). FTA has no obligation to provide any financial assistance beyond the \$2.872 billion made available by Public Law No. 107-206. Furthermore, if ever PANYNJ determines that the total Project Costs of the Project will necessarily exceed the Baseline Cost Estimate, PANYNJ must immediately inform FTA of the amount of the cost

overruns, and the reasons for the cost overruns, and demonstrate that PANYNJ has taken and will take every reasonable measure to minimize any possibility of any further cost overruns.

(c) No Local Match. There is no requirement that the Federal funding for the Project be matched by local funds. Nonetheless, PANYNJ is contributing certain amounts of local funding to the Project that are reflected in Attachment 5 to this Agreement, "Project Budget."

(d) FTA Risk Retainage. In accordance with the PEP, FTA will keep a certain amount of Federal funding for the Project in retainage, for purposes of addressing potential cost overruns on the Project or offsetting (reducing) the local funds necessary to Complete the Project. As of the Date of this Agreement, the amount of the FTA Risk Retainage is \$280 million. In the sole discretion of FTA, this FTA Risk Retainage may be released to PANYNJ, in whole or in part, at any time during construction of the Project, and will be released in full upon the completion of all of the scope and activities of the Project as described in Attachments 1 and 3 to this Agreement, "Scope of the Project" and "Project Description."

(e) Allocation of Federal Funding for Lower Manhattan Recovery Projects. Set forth in Attachment 9 to this Agreement, "Allocation of Federal Funding for Lower Manhattan Recovery Projects," is a table depicting both the original and current allocations of the Federal funding made available to FTA and FEMA under Public Law 107-206 for the several projects sponsored by PANYNJ, the New York Metropolitan Transportation Authority, and the New York State Department of Transportation.

SECTION 6 PANYNJ'S OBLIGATIONS TO COMPLETE THE VEHICULAR SECURITY CENTER AND FINANCE THE RECONSTRUCTION OF THE CORTLANDT STREET 1-LINE STATION

(a) Obligation to Complete the Vehicular Security Center. Of the \$4.55 billion in Federal funding made available under Public Law No. 107-206, \$478 million was originally allocated for the design and construction of the VSC, a screening and parking facility for tour buses automobiles, and commercial vehicles serving the World Trade Center; additionally, FTA set aside \$95.6 million in reserve, originally, to ensure completion of the VSC. Ultimately, however, PANYNJ expended only approximately \$19.8 million in Federal funding for the VSC. In exchange for FTA's agreement to reallocate an approximate \$553.6 million to the *WTC PATH Terminal*, to help cover the cost overruns on the *WTC PATH Terminal*, PANYNJ is committed to completing the design and construction of the VSC without any further Federal financial assistance under Public Law. No. 107-206. Both FTA and PANYNJ recognize, moreover, that the timely completion of

the VSC is critical to the timely completion of all other major infrastructure at or adjacent to the World Trade Center, and to the security of the *WTC PATH Terminal*. Therefore, PANYNJ is obliged to report to FTA no less than once every three months on the status of its efforts to complete the VSC. The reallocation of Federal funds from the VSC to the *WTC PATH Terminal* is reflected in Attachment 9 to this Agreement, "Allocation of Federal Funding for Lower Manhattan Recovery Projects."

(b) Obligation to Help Finance the Reconstruction of the Cortlandt Street 1-Line Station. Of the \$4.55 billion in Federal funding made available under Public Law No. 107-206, approximately \$70 million was originally allocated for the reconstruction of the Cortlandt Street 1-Line Station, a rapid rail station on the "1" line, operated by the New York Metropolitan Transportation Authority (MTA), which served the World Trade Center prior to the terrorist attacks of September 11, 2001. These funds have now been reallocated to help cover the cost overruns on the *WTC PATH Terminal*, which is reflected in Attachment 9 to this Agreement, "Allocation of Federal Funding for Lower Manhattan Recovery Projects." PANYNJ remains committed, however, to helping finance the reconstruction of the Cortlandt Street 1-Line Station. Specifically:

- (i) FTA agrees to reallocate this \$70 million to the *WTC PATH Terminal* and PANYNJ has authorized the expenditure of up to \$150 million from its own resources toward the reconstruction of the Cortlandt Street 1-Line Station, which will be completed in cooperation with the MTA. Both FTA and PANYNJ recognize, moreover, that the timely completion of the Cortlandt Street 1-Line Station is critical to the timely completion of other major infrastructure at or adjacent to the World Trade Center. Therefore, PANYNJ is obliged to report to FTA no less than once every three months on the status of the efforts to complete the Cortlandt Street 1-Line Station.
- (ii) PANYNJ and MTA will execute a number of agreements to finance and facilitate the construction of the Cortlandt Street 1-Line Station concomitant to the construction of the *WTC PATH Terminal*. In the event the costs of the Cortlandt Street 1-Line Station exceed the \$150 million PANYNJ has currently committed to that project, PANYNJ and MTA will work cooperatively to reduce the costs to stay within the budget, or if needed, work together to find a source of additional local funds to complete the work.

SECTION 7 REQUIRED COMPLETION DATE

PANYNJ agrees to achieve the Required Completion Date (RCD) on or before December 17, 2015, in accordance with the terms and conditions of this

Agreement. The RCD is a material term of this Agreement. PANYNJ's failure to achieve the operational functions of the Project on or before the RCD will constitute a breach of this Agreement. Upon PANYNJ's submittal of an acceptable Recovery Plan in accordance with Section 8(b) of this Agreement, FTA may determine in its sole discretion to waive a breach, or an anticipatory breach, and to extend the RCD if there is an unavoidable delay in achieving the operational goals of the Project resulting from an event or circumstance beyond the control of PANYNJ or if FTA determines that allowing the delay is in the best interests of the United States Government and the success of the Project. In the event FTA accepts a Recovery Plan with an RCD later than the original RCD, the later RCD will become the operative RCD for the Project.

SECTION 8 BASELINE SCHEDULE

(a) Use of the Baseline Schedule. The Baseline Schedule is set forth in Attachment 6 to this Agreement. FTA will use the Baseline Schedule to monitor PANYNJ's performance of the Project and compare planned to actual Project implementation. Accordingly, the Baseline Schedule will not be amended or modified during the construction of the Project, although the actual schedule of the Project may be modified from time to time as necessary and appropriate. No less than once a month PANYNJ will report the actual schedule of the Project as compared to the Baseline Schedule. These monthly reports will reflect any updates to PANYNJ's integrated master schedule and any associated variance reports that identify major changes from the previous reports.

(b) Requirement for a Recovery Plan. If at any time during its efforts to Complete the Project PANYNJ determines that it will not achieve one or more of the Major Milestones set forth in the Baseline Schedule, PANYNJ must immediately notify FTA of the amount of slippage in the Baseline Schedule and the reasons it will not achieve these Major Milestones. Further, PANYNJ must provide FTA with a Recovery Plan that demonstrates PANYNJ is taking and will take every reasonable measure to achieve the Required Completion Date and minimize any further slippage in the Baseline Schedule. PANYNJ's submittal of an acceptable Recovery Plan, in itself, will not constitute a breach of this Agreement; rather, a breach of this Agreement for failure to achieve the operational functions of the Project on or before the RCD will be determined strictly in accordance with Section 7 of this Agreement.

SECTION 9 RISK ANALYSES

PANYNJ and FTA have performed and will continue to perform on-going analyses of risks inherent in the Project. These include, potentially, risks to the Project from differing and unknown field and subsurface conditions, integration of other buildings and structures, utility connections, the necessity of coordinating the

Baseline Schedule with the schedules for construction of other infrastructure in the vicinity of the Project, and the need to take certain measures to mitigate environmental impacts and the adverse effects of the Project on historic resources. Previously, PANYNJ has received a combined financial systems and procurement systems baseline review confirming that PANYNJ has systems in place to adequately manage the project and comply with applicable Federal law and regulation. PANYNJ agrees that any specific risks identified and prioritized by either PANYNJ or FTA will be reported to FTA, mitigated, monitored, and updated on a continuous basis, as the Project progresses through design and construction. PANYNJ also pledges its utmost cooperation in enabling FTA and its consulting contractors both to critique PANYNJ's risk analyses and perform any separate risk analyses that FTA may deem appropriate during the course of the Project.

SECTION 10 PROJECT MANAGEMENT OVERSIGHT

PANYNJ acknowledges that FTA will oversee PANYNJ's development, management, and construction of the Project in much the same manner as FTA performs project management oversight of major capital investments funded under 49 U.S.C. Section 5309. PANYNJ acknowledges, also, that FTA will be assisted in its efforts by a number of consultants in project, financial, and procurement systems management, and environmental mitigation and monitoring. Prior to the execution of this Agreement, PANYNJ has developed and FTA has accepted a Project Management Plan (PMP) for the *WTC PATH Terminal* Project, and together, FTA and PANYNJ have developed and agreed to the Project Execution Plan (PEP) for the *WTC PATH Terminal* Project. PANYNJ pledges its utmost cooperation in enabling FTA and its consulting contractors to monitor PANYNJ's adherence to both its PMP and PEP.

SECTION 11 ENVIRONMENTAL PROTECTION

As a condition precedent to this Agreement FTA and PANYNJ have assessed the environmental impacts of this Project, as required by the National Environmental Policy Act and other applicable law. The results of this assessment and the mitigation measures adopted for this Project are set forth in Attachment 8 to this Agreement, "Measures to Mitigate Environmental Impacts." PANYNJ acknowledges that it shall not withdraw or substantially change any of the mitigation measures set forth either in Attachment 8 or FTA's environmental record for the Project without express written approval from FTA. On a quarterly basis, PANYNJ will provide FTA and its consulting contractors a written report on PANYNJ's progress in carrying out these mitigation measures.

SECTION 12 APPLICABLE LAW AND FEDERAL REQUIREMENTS

All awards of Federal financial assistance for this Project are governed by the Federal statutory, regulatory, and program requirements identified in the LMRO Master Agreement, dated October 1, 2011, which is incorporated by reference and made part of this Construction Agreement. The LMRO Master Agreement will continue to govern the Project unless or until it is modified by FTA. If neither Federal statute nor Federal common law governs the interpretation of the provisions of this Agreement, the state law of the State of New York will apply to govern such interpretation. This provision is intended only to supplement Section 2.c of the LMRO Master Agreement, "Application of Federal, State, and Local Laws and Regulations."

SECTION 13 NOTICES

Notices required by this Agreement will be addressed as follows:

As to FTA:

Mr. Stephen Goodman
Director, Lower Manhattan Recovery Office
Federal Transit Administration
One Bowling Green
Room 436
New York, New York 10004-1415

As to PANYNJ:

Mr. Steven Plate
Deputy Chief, Capital Planning and
Director, World Trade Center Construction
The Port Authority of New York and New Jersey
115 Broadway, 10th Floor
New York, New York 10006

SECTION 14 CREATION, CONTENTS, AND EXECUTION OF THE AGREEMENT AND AMENDMENTS TO THE AGREEMENT

This Revised and Restated Construction Agreement consists of the text of this Agreement, the nine numbered Attachments to this Agreement, the LMRO Master Agreement, PANYNJ's application for Federal financial assistance, and FTA's environmental record for the Project. Simultaneous to the execution of this Agreement in typewritten hard copy, the Agreement will be executed by electronic means through FTA's electronic award and management system. To

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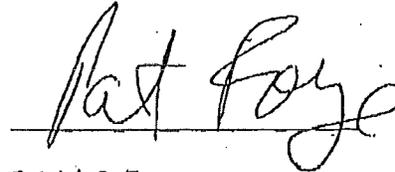
the extent any discrepancy may arise between the typewritten version and the electronic version of this Agreement, the typewritten version will prevail. Any inconsistency between PANYNJ's application and the terms and conditions of this Agreement will be resolved according to the clear meaning of the provisions of this Agreement and the Attachments hereto. This Agreement may be amended at any time upon the approval of both FTA and PANYNJ. Amendments will become effective upon approval by both parties.

Dated: 9/18/12



Peter M. Rogoff
Federal Transit Administrator
United States Department
of Transportation

Dated: 9/6/12



Patrick J. Foye
Executive Director
The Port Authority of New York
and New Jersey

ATTACHMENTS

- 1 SCOPE OF THE PROJECT
- 2 MAP OF PROJECT FOOTPRINT
- 3 PROJECT DESCRIPTION
- 4 BASELINE COST ESTIMATE
- 5 PROJECT BUDGET
- 6 BASELINE SCHEDULE
- 7 PRIOR GRANT ACTIONS AND LISTING OF INTERAGENCY
PROJECT DEVELOPMENT AGREEMENTS
- 8 MEASURES TO MITIGATE ENVIRONMENTAL IMPACTS
- 9 ALLOCATION OF FEDERAL FUNDING FOR LOWER
MANHATTAN RECOVERY PROJECTS
- 10 PROJECT EXECUTION PLAN (PEP)

World Trade Center Transportation Hub Project

**(also referred to as the Permanent World Trade Center
Port Authority Trans Hudson Terminal And Pedestrian Connections)**

Revised And Restated Construction Agreement**Project Scope
Attachment 1**

Following the terrorist attacks of September 11, 2001 that destroyed the former World Trade Center (WTC) PATH Terminal, the Port Authority of New York & New Jersey (the Port Authority) implemented a \$566 million program to restore PATH service to Lower Manhattan, including the construction of a temporary PATH station at the WTC site that opened in December 2004 and remains in operation. The Port Authority will construct the WTC Transportation Hub (Permanent WTC PATH Terminal) and pedestrian concourses (the Project) as a high priority project for the revitalization of Lower Manhattan and redevelopment of the WTC site.

The WTC Transportation Hub project will restore and enhance transportation facilities and infrastructure that existed at the original WTC complex. The project will contribute significantly to the recovery of Lower Manhattan and address the transportation needs of commuters, residents and visitors by bringing full PATH operations, and accommodations for New York City Transit (NYCT) subway service, to the WTC site including the WTC Memorial.

Prior to September 11, 2001, more than 150,000 pedestrians (including 67,000 PATH riders and tens of thousands of subway riders) traveled through the WTC complex daily. The Permanent WTC PATH Terminal will be a gateway to Lower Manhattan with up to 250,000 pedestrians, including approximately 80,000 PATH riders, traveling through the Hub concourses multiple times each day (upon full buildout of the WTC site).

The Permanent WTC PATH Terminal is part of a larger vision for the WTC site, which has been a coordinated effort among many stakeholders and other projects planned and under construction for the site. The Permanent WTC PATH Terminal Project will be a world-class facility, with an iconic Transit Hall serving as the hub of a regional transportation system, which is integrated with existing and future transportation facilities and development in the surrounding area. The purpose of the Project is to:

- Create an intermodal transportation facility, serving as a regional hub, with a PATH Terminal that restores and enhances PATH facilities and serves future ridership and pedestrian growth. The PATH station and associated facilities will be primarily on the Platform and Mezzanine Levels located in the WTC West Bathtub, and the Transit Hall and associated facilities will be on the Main, Upper and Ground Levels in the East Bathtub.
- Provide seamless pedestrian connections to adjacent subway, ferry and bus systems and facilities; the WTC memorial and cultural facilities; and commercial development at the WTC site, as well as adjacent business and residential areas. The East/West Corridor will provide a pedestrian connection across the entire site on the Mezzanine and Transit Hall Main Levels; and the North/South Corridor in the East Bathtub will extend from the Transit Hall on the Main and Upper Levels leading to the commercial office towers and the exterior streets.

- Improve the patron experience within a climate controlled environment; with clear visual orientation to interior and exterior destinations; security features and openness that provide a sense of security and contribute to a safer environment; and improved access for customers with disabilities.
- Create a sustainable, environmentally friendly, design that incorporates sustainable ("green") design principles and introduces natural light and complies with Leadership in Energy and Environmental Design (LEED) certification standards where possible.
- Re-establish interior circulation space to support future retail and commercial development undertaken by other entities. The retail and commercial development is not within the scope of the Hub Project, and is not funded by this Construction Agreement.

The Hub Project will be constructed concurrently with several other projects at the WTC Site, consistent with an overall WTC Site Master Plan. Various interagency agreements, particularly at project interface points, will be negotiated and entered into, as appropriate, prior to final design and construction. The Hub Project will be built while maintaining active PATH service to Lower Manhattan and NYCT subway service with minimal disruption. The Hub Project will incorporate security features including structural hardening, surveillance systems, as well as advanced mechanical systems controls.

The Project complies with the requirements of the National Environmental Policy Act (NEPA) and has implemented Environmental Performance Commitments presented in the June 29, 2005 Record of Decision. Project designs and historic resource mitigation measures were developed in compliance with the requirements of the National Historic Preservation Act Section 106, and are stipulated in the Permanent WTC PATH Terminal Memorandum of Agreement executed on April 19, 2005.

Attachment 4 - Baseline Cost Estimate (Project Units)
WTC Transportation Hub (Permanent WTC PATH Terminal Project)

Revised and Restated Construction Agreement

September 2012

PU #	Project Activity (1)	Start Date	FTA (Allowable) Finish Date (2)	Construction Duration (months)	Midpoint of Construction Duration	FTA (Allowable) Budget Amount (2)
1	Project Direction and Administration	Jan 2002 (A)	Dec 2015			\$655,968,400
2	Project Design (CP, PE and FD)	Jan 2002 (A)	Apr 2010 (A)			\$164,983,900
3	Environmental Review (NEPA / Section 106)	Dec 2003 (A)	Jun 2005 (A)			\$3,829,800
4	1-Line Temporary Underpinning, East Bathtub & (Phx) General Conditions (Construction)	Mar 2006 (A)	Jun 2011 (A)	63	Nov 2008	\$355,514,440
5	West Bathtub Early Work, East West Corridor and Temporary Facilities (Construction)	Sep 2005 (A)	Jul 2011 (A)	70	Aug 2008	\$328,576,320
6	Transit Hall Substructures (Construction)	Sep 2009 (A)	Dec 2015	39	May 2011	\$203,555,800
7	Transit Hall Superstructure (Oculus) (Construction)	Mar 2011 (A)	Oct 2015	55	Jul 2013	\$279,290,400
8	PATH Facilities (Station and PATH Hall) (Construction)	Mar 2010 (A)	Dec 2015	71	Feb 2013	\$645,494,000
9	Greenwich Street Corridor (Construction)	Aug 2009 (A)	Jan 2012 (A)	28	Oct 2010	\$108,868,400
10	MEP Systems, Vertical Circulation, and Common Infrastructure (Construction)	Aug 2010 (A)	Dec 2015	66	Feb 2013	\$398,032,500
11	Structural Steel to Grade (Construction)	Aug 2009 (A)	Apr 2015	68	Jun 2012	\$474,345,900
12	Hub Facilities by Other Projects (Construction)	Mar 2009 (A)	Dec 2015	83	Jun 2012	\$376,540,140
Total Project Budget (with FTA Risk Retainage)						\$3,995,000,000

Notes

(1) Construction Project Units have been re-aligned from the original 2006 Construction Agreement. See Attachment 3 for detailed descriptions.

(2) The values in this attachment are not to exceed amounts that are independent of the PA's current working budget.

Attachment 5 - Project Budget - Proposed ALI Structure
WTC Transportation Hub Revised and Restated Construction Agreement
September 2012

FTA ALI	Activity Line Item (ALI) Descriptions	Federal Amounts	Local Amounts	(FTA Allowable) Total Amounts
12.72.03	Prelim Eng - Project Direction	3,019,800	744,316	3,764,116
12.72.01	Prelim Eng - Force Account Arch & Eng Design	15,113,322	6,385,993	21,499,315
12.71.01	Prelim Eng - Third Party Arch Eng & PM Contracts	45,258,026	2,029,189	47,287,215
12.71.01	NEPA / Section 106 Monitoring	203,562	231,555	435,117
12.72.03	Conceptual PIng - Project Direction	400,000	383,948	783,948
12.72.01	Conceptual PIng - Force Account Arch & Eng Design	1,332,426	2,123,733	3,456,159
12.71.01	Conceptual PIng - Third Party Arch, Eng & PM Contracts	6,023,672	288,762	6,312,434
44.26.09	NEPA - Project Direction	565,000	166,117	731,117
12.72.01	NEPA - Force Account Environmental Review	568,714	111,378	680,092
12.71.01	NEPA - Third Party Contracts	2,194,896	208,278	2,403,174
12.71.05	Construction - Insurance (inc. performance bonds)	122,281,906	52,718,094	175,000,000
12.72.04	Construction Mgmt - Force Account	7,442,976	8,129,117	15,572,093
12.71.04	Construction Mgmt - Third Party Contracts - CM	35,117,741	6,162,340	41,280,081
12.71.04	Construction Management (Tishman/Turner)	103,217,558	9,657,104	112,874,662
12.71.04	CM/GC Professional Services	8,221,583	-	8,221,583
12.72.03	Construction - Project Direction	17,665,559	22,670,014	40,335,573
12.72.02	Construction - Force Account Arch & Eng Design	9,015,117	12,692,522	21,707,639
12.71.03	Construction - Third Party Arch & Eng Contracts	68,000,000	89,750,724	157,750,724
12.72.03	Final Design - Project Direction	7,633,000	3,115,453	10,748,453
12.71.02	Final Design - Third Party Arch Eng & PM Contracts	77,737,881	16,916,667	94,654,548
12.79.00	Project Administration (CP, NEPA, PE, FD and Constr.)	-	8,771,892	8,771,892
12.72.02	Final Design - Force Account Arch & Eng Design	10,742,441	-	10,742,441
12.33.03	Construction - 1 Line Temporary Underpinning	27,842,530	9,410,108	37,252,638
12.33.03	Construction - East Bathtub	149,170,804	12,543,542	161,714,346
12.33.03	Early Action - East Bathtub Site Prep (Pkg. 4a)	3,063,100	484,360	3,547,461
12.33.03	Construction - General Conditions (Phoenix)	112,151,666	40,848,334	153,000,000
12.33.03	Construction - General Conditions (Non Phoenix)	-	24,320,742	24,320,742
12.33.03	Construction - PATH Facilities	91,169,630	11,138,562	102,308,192
12.33.03	Acquisition - Rolling Stock Flatcars	2,982,862	156,841	3,139,703
12.33.03	Construction - West Bathtub	79,790,404	-	79,790,404
12.33.03	Construction - East/West Corridors	25,558,350	870,304	26,428,654
12.33.03	Construction - 9A Underpass - East Section	79,086,531	18,141,233	97,227,764
12.33.03	Early Action - Equipment Purchase Order (Pkg. 1)	14,225,239	3,623,990	17,849,228
12.33.03	Early Action - West Bathtub Site Prep (Pkg. 3)	1,278,556	553,818	1,832,374
12.33.03	Construction - Transit Hall Substructure	102,847,534	11,335,812	114,183,346
12.33.03	Construction - East Side Architectural Trades	60,429,377	18,627,462	79,056,839
12.33.03	Construction - Transit Hall Superstructure	170,019,238	86,883,104	256,902,342
12.33.03	Construction - PATH Hall Construction	423,000,000	179,440,382	602,440,382
12.71.08	Construction - Force Account PATH Support	5,493,833	10,703,309	16,197,142
12.33.03	Construction - Greenwich Street Corridor	85,000,000	16,843,518	101,843,518
12.71.08	MTA Force Account	-	7,024,881	7,024,881
12.33.03	Construction - Mechanical And Electrical Systems	201,129,509	46,394,133	247,523,643
12.33.03	Construction - Vertical Circulation Elements	30,082,334	7,147,522.38	37,229,856.87
12.33.03	Site Common Infrastructure (Cost Share)	15,000,000	51,511,294	66,511,294
12.33.03	Structural Steel	335,294,863	115,827,870.99	451,122,734.88
12.33.03	Construction - Vent Structures (9A Median)	35,628,459	6,339,555	41,968,014
12.33.03	Construction - Hub Scope By Others	-	220,601,939	220,601,939
12.33.03	Construction - 9A Underpass - West Section	-	70,965,377	70,965,377
12.33.03	Construction - Hub Scope By SPI In T2	-	43,004,806	43,004,806
12.73.00	Program Contingency	-	145,000,000	145,000,000
	(FTA Allowable) Total Project Budget	\$2,592,000,000	\$1,403,000,000	3,995,000,000

The total project budget amount above incorporates the FTA Risk Retainage of \$280 million. The FTA Risk Retainage will be committed as funding amounts at the FTA's discretion in accordance with the Project Execution Plan (PEP), with portions to be included in federal amounts, or to reduce local amounts, as needed to complete the project.

The total project budget amount above is a not to exceed amount, that is independent of the PA's current working budget.

World Trade Center Transportation Hub - Milestone Table
Attachment 6

The original 2006 Construction Agreement (CA) established milestone dates associated with the construction Project Units. The Project Unit structure has been revised in this Revised and Restated Construction Agreement (RRCA) to align with changes in the construction management, procurement and phasing of the WTC Hub project. The RRCA maintains several of the original CA milestones,¹ and also identifies new milestones addressing the remaining work to be performed. The milestone dates below are derived from the FTA's probabilistic targets, which were developed from analysis and evaluation of the PA's working schedule (Integrated Master Schedule MS-57 (data date June 1, 2011)). These FTA target dates are for RRCA administration purposes, and may be later than the PA's current working schedule / forecast dates for the WTC Hub project.

Construction Project Units – Major Milestones	FTA Allowable Milestone Dates
Project Unit 4 – 1-Line Temporary Underpinning, East Bathtub, and (Phoenix) General Conditions	
Temporary Underpinning Complete	6/30/2008 (A)
Phoenix CM/GC Contract Substantially Complete	8/1/2011 (A)
Project Unit 5 – West Bathtub Early Work, East/West Corridor and Temporary Facilities	
Ductbank Relocation Complete	5/1/2008 (A)
East/West Corridor Structure Substantially Complete	6/14/2011 (A)
Project Unit 6 – Transit Hall Substructures	
Transit Hall Substructure Complete (to elevation 274')	6/12/2012 (A)
Project Unit 7 – Transit Hall Superstructure (Oculus)	
Transit Hall Superstructure Complete (glazing)	1/13/2015
Transit Hall Substantially Complete (fit-out)	10/11/2015
Project Unit 8 – PATH Facilities (Station and PATH Hall)	
South Mezzanine Concrete Substantially Complete (to elevation 307')	11/13/2010 (A)
Platform A Beneficial Use	3/15/13
Platforms C and D Substantially Complete	12/17/2015
Project Unit 9 – Greenwich Street Corridor	
Greenwich Street Corridor Load Transfer Complete (including North)	1/28/2012 (A)
Project Unit 10 – MEP Systems, Vertical Transportation and Common Infrastructure	
Spot Network NW Commissioning Complete	1/22/2014
MEP Connections to Central Systems	10/11/2014
Chiller Plant Utility Tunnel Complete	11/25/2014
Vertical Circulation Elements Operational	7/20/2015
Project Unit 11 – Structural Steel (to Grade)	
East Bathtub Structural Steel to Grade Substantially Complete	12/2/2012
Mezzanine Structural Steel at Platform B Substantially Complete	8/16/2013
Mezzanine Structural Steel at Platform C Substantially Complete	3/3/2015
Project Unit 12 – WTC Hub Facilities by Other Projects (including SPI)	
Route 9A Pedestrian Underpass Structure (West Section) Complete	2/13/2012 (A)
North-South Corridor Structure Substantially Complete	12/24/2014
Port Authority Project Substantial Completion Date (MS 62)	
	5/30/2015
FTA Required Completion Date (RCD)	
	12/17/2015

¹ (Original) project milestones removed for the RRCA include: Temporary Access Operational, Platform B Complete, East Bathtub Complete, and Demolition of Temporary Concourse Complete.

(A) = Actual date as of the RRCA.

**WORLD TRADE CENTER TRANSPORTATION HUB PROJECT
REVISED AND RESTATED CONSTRUCTION AGREEMENT**

PRIOR FTA GRANT ACTIONS AND INTERAGENCY AGREEMENTS

ATTACHMENT 7

This attachment identifies the FTA grant actions (to date) related to the WTC Transportation Hub project, and also identifies interagency agreements between the PA and other entities to perform design and construction work for the project, and other agreements needed to coordinate work with adjacent projects.

A. PRIOR GRANT ACTIONS

<u>Grant Action</u>	<u>Purpose</u>	<u>Date</u>
1. Initial Grant - NY-43-0002-00	Allocate \$1.7 billion to the Permanent WTC PATH Terminal project.	December 16, 2003
2. Budget Revision 1 - NY-43-0002-00	Certain changes in several ALI's to better reflect recent forecasts that will not change the overall project budget.	January 13, 2005
3. Budget Revision 2 - NY-43-0002-00	Adjust Preliminary Engineering Activities and Final Design Development of Early Action Items by \$28 million.	April 25, 2005
4. Grant Amendment 1 - NY-43-0002-01	Increase the grant by an additional \$221 million to include the scope of work for the east bathtub, west bathtub slurry wall liner, and the E/W corridor hardening.	July 7, 2005
5. Budget Revision 3 - NY-43-0002-01	Adjust budget for Final Design ALI's to \$135 million.	August 23, 2005
6. Grant Amendment 2 - NY-43-0002-02	Based on review of early action construction activities, adjust tasks for third party construction contracts, third party construction management, CM/GC professional services, early action purchase orders, west bathtub site preparation and east bathtub site preparation. No change in total grant amount.	August 31, 2005
7. Grant Amendment 3 - NY-43-0002-03	Allocate \$79.3 million to include the scope of work for the Temporary Underpinning of the 1 Subway Line.	January 31, 2006
8. Budget Revision 4 - NY-43-0002-03	Adjust Preliminary Engineering and NEPA budget amounts.	March, 2006
9. Grant Amendment 4 NY-43-0002-04	Execute the Construction Agreement; establish Project Units, budgets, milestones and dates; revise and re-budget other tasks; and, add ALI for FTA Risk Reserve. No change in total grant amount.	April 25, 2006
10. Grant Amendment 5 NY-43-0002-05	Add conditions to require the relocation or support of the Vesey Street Stair remnant prior to excavating in that area. No change in total grant amount.	December 2006

- | | | |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 11. Grant Amendment 6
NY-43-0002-06 | Increase local funding by \$320 million. (No change in the federal commitment of \$1.921 billion and reserve of \$280 million.) Create ALI's for Steel construction and General Conditions (Phoenix) and revise budgets of other ALI's. | September 2009 |
| 12. Grant Amendment 7
NY-43-0002-07 | Adjust federal and local amounts amongst various ALIs to increase the amount of federal funds available to facilitate current drawdowns. (No change in the overall total federal and local amounts.) Most of the revisions are temporary and would be further revised with the Revised and Restated Construction Agreement (RRCA). | June 2011 |

B. INTERAGENCY PROJECT DEVELOPMENT AGREEMENTS

The following interagency project development agreements between the PANYNJ and other external entities and agencies during preliminary engineering to address and coordinate the key design interfaces and boundaries for the WTC Transportation Hub with other adjacent WTC projects.

<u>Agreement (between the PANYNJ and . . .)</u>	<u>Purpose</u>	<u>Date</u>
1. <u>City of New York</u>	WTC Redevelopment Agreement	November 24, 2004
2. <u>City of New York, Silverstein Properties, Inc. and the Lower Manhattan Development Corporation</u>	WTC Design and Site Plan Agreement	November 24, 2004
3. <u>MTA Capital Construction</u>	Dey Street Concourse Connection	June 28, 2005
4. <u>Lower Manhattan Development Corporation</u>	WTC Memorial - Visitor Orientation Education Center Interface	March 20, 2006
5. <u>MTA Capital Construction</u>	No. 1 Line Subway - Underpinning Requirements	March 20, 2006
6. <u>Lower Manhattan Development Corporation</u>	WTC Memorial Interface	March 20, 2006
7. <u>Lower Manhattan Development Corporation</u>	WTC Memorial Museum Interface	March 20, 2006
8. <u>Silverstein Properties, Inc.</u> (currently applicable to 1 WTC, LLC)	WTC PATH Terminal - East/West Corridor Interface with the Freedom Tower (currently 1 WTC)	April 7, 2006
9. <u>New York State Department of Transportation</u>	Route 9A/West Street – PATH Ventilation Shafts (North and South) and Pedestrian Underpass	June 7, 2006

<u>Agreement (between the PANYNJ and . . .)</u>	<u>Purpose</u>	<u>Date</u>
10. <u>Lower Manhattan Development Corporation</u>	Performing Arts Center Interface	June 7, 2006

C. INTERAGENCY DESIGN AND CONSTRUCTION AGREEMENTS (for Hub project work)

The following agreements provide for external entities (other than the Port Authority) performing work at or near the World Trade Center site, to coordinate their work and in some cases to also perform certain portions of work for the WTC Transportation Hub project. These arrangements provide for more efficient and timely design and/or construction of the Hub Project.

<u>Agreement (between the PANYNJ and . . .)</u>	<u>Purpose</u>	<u>Date</u>
1. <u>MTA New York City Transit and MTA Capital Construction</u>	No. 1 Subway Line Underpinning – force account work and general outages by MTA to facilitate temporary underpinning work	June 2006
2. <u>WTC Memorial Foundation (now known as the National September 11 Memorial and Museum)</u>	Construction Management Agreement - PA to manage construction of the Memorial, and other (PA) projects to be performed in conjunction with Memorial.	August 2006
3. <u>Silverstein Properties, Inc.</u>	Master Development Agreement - Construction of Hub project elements in the East Bath tub by SPI.	November 2006
4. <u>Battery Park City Authority and Brookfield Properties</u>	Easement Agreements for portions of Route 9A pedestrian underpass	March 2007
5. <u>Battery Park City Authority and City of New York</u>	Funding of extensions of the Route 9A pedestrian underpass.	January 2009
6. <u>Brookfield Financial Properties</u>	Construction of portions of the Route 9A pedestrian underpass.	March 2010

<u>Agreement (between the PANYNJ and . . .)</u>	<u>Purpose</u>	<u>Date</u>
7. <u>Silverstein Properties, Inc.</u>	Amended and Restated Master Development Agreement - Additional construction of Hub project elements by SPI	December 2010
8. <u>MTA Capital Construction</u>	Cortlandt Street R-Line – Remediation – MTA to perform remediation work at the station.	December 2010

D. OTHER INTERAGENCY AGREEMENTS (not included in Hub project scope)

The following interagency agreements are relevant to the WTC Transportation Hub project, to coordinate with other adjacent projects, or to perform work for other external entities. These agreements do not provide for performance of work within the scope or budget of the WTC Transportation Hub project; however these agreements may outline external cost sharing arrangements for work that is not part of the WTC Hub project.

<u>Agreement (between the PANYNJ and . . .)</u>	<u>Purpose</u>	<u>Date</u>
1. <u>New York State Department of Transportation</u>	Construction Coordination with the Route 9A Rehabilitation Project	March 2007
2. <u>Lower Manhattan Construction Command Center</u>	Construction Coordination – PA contribution to funding of the LMCCC	July 2008
3. <u>MTA Capital Construction</u>	Cortlandt Street Station Side Letter committing to \$150 million in PA Funding for the Cortlandt Street (1-Line) Subway Station	August 2009
4. <u>Lower Manhattan Development Corporation</u>	Reimbursement of PA design (only) of early action structures for the PAC	October 2009
5. <u>City of New York</u>	Early Action Work for Performing Arts Center – Foundations and other structural work performed by the Hub project for the future Performing Arts Center	2012

<u>Agreement (between the PANYNJ and . . .)</u>	<u>Purpose</u>	<u>Date</u>
6. <u>MTA Capital Construction</u>	Design and Construction Agreement for the Cortlandt Street 1-Line Station	2012

Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts

Revised and Restated Construction Agreement
September 2012

Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status	
Socioeconomic Conditions							
SC-1	Ensure that access to local business is maintained to the maximum extent feasible during the construction period.	5-27	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ	Construction	Completed July 2006	Specific measures are detailed in ongoing monthly reports
			EPC Letters of Commitment (EPC LOC)	PANYNJ	Construction	Completed September 2003; April 2006	
SC-2	Provide a wayfinding plan for temporary signage during the construction period.	5-27	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ	Design and Construction	Completed July 2006	Specific measures are detailed in ongoing monthly reports
			EPC LOC	PANYNJ	Design and Construction	Completed September 2003; April 2006	
Cultural Resources							
CR-1	Maintain access to cultural sites to the maximum extent feasible during the construction period.	6-28	Maintenance and Protection of Traffic (MPT) Plan	PANYNJ	Construction	Completed July 2006	Ongoing (As Necessary)
			EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	
CR-2	Initiate public information and involvement outreach with sensitivity to local cultural resources.	6-28	Permanent WTC PATH Terminal MOA	PANYNJ	Construction	Completed April 2005	Ongoing (As Necessary)
			EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	
CR-3	Communicate with the public regarding access to cultural sites during construction.	6-28	Lower Manhattan Construction Command Center	LMCCC	Construction	Completed September 2003	Ongoing (As Necessary)
			EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	
CR-4	Consult with SHPO and LPC regarding potentially impacted, culturally sensitive sites. Monitor noise and vibration during construction.	6-28	Permanent WTC PATH Terminal MOA	PANYNJ	Design and Construction	Completed April 2005	Ongoing (Construction)
			Construction Protection Plan	PANYNJ	Design and Construction	Completed April 2006	
			WTC Resource Protection Plan	PANYNJ	Design and Construction	Completed September 2005	

Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts

Revised and Restated Construction Agreement
September 2012

Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
CR-5 Document the WTC site and its historic features to Level II standards of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) prior to the removal or alteration of any historic features from the WTC site.	6-24	Permanent WTC PATH Terminal MOA	PANYNJ	Design and Construction	Completed April 2005	Completed 2005
		Implemented through PA postings	PANYNJ	Design and Construction	Official HABS/HAER transmittal letter August 2005 Posting August 2005	
CR-6a Where Platform D will intersect the northeast corner of the North Tower footprint, the platform will be clear of vertical obstructions and architectural treatments will be used to symbolically represent the location of the footprint. A minimum of 5 to a maximum of 7 column bases of the east column line of the North Tower will be visible from Platform D. The viewing area will consist of a glass wall tilted inward from the platform combined with a mirrored wall to the west to provide a view of the column bases from this area of the platform. Appropriate signage, graphics, and lighting will complete the viewing area.	6-25	Perm. WTC PATH Term. MOA Perm. WTC PATH Term. Design Docs. WTC Resource Protection Plan	PANYNJ	Design and Construction	Completed April 2005 September 2005 October 2009 (FD Posting)	Ongoing (Construction)
CR-6b The locations of column remnants of the South Tower that may be removed or permanently obscured by PATH platforms B, C, and D will be symbolically represented on these platforms through architectural treatments that define and differentiate the portions of the infrastructure that are within the Tower footprint areas. These treatments may include color differentiation, texture differentiation, symbolic representation of Tower perimeter column remnants, and/or an emblematic marker designating the location of the historic resource.		Perm. WTC PATH Term. MOA Perm. WTC PATH Term. Design Docs. WTC Resource Protection Plan	PANYNJ	Design and Construction	Completed April 2005 September 2005 October 2009 (FD Posting)	Ongoing (Construction)
CR-6c The up to 4 column bases that could be affected by the Project foundation, those column bases that remain in situ undisturbed or are temporarily removed and returned to their original locations will be accessible following the completion of these foundations.		N/A	PANYNJ	Design and Construction	Not Applicable (No Design Impact)	Not Applicable (No Design Impact)
CR-6d Removing column bases, on either a temporary or permanent basis, will be considered only after practical engineering design options to preserve column bases in place have been exhausted. Column bases that are removed will be returned to their original locations if practical engineering design permits. Permanent removal of column bases will only take place as a last resort, and these column bases will be removed and stored in accordance with the stipulations of the MOA.		N/A	PANYNJ	Design and Construction	Not Applicable (No Design Impact)	Not Applicable (No Design Impact)

Attachment 8 - Record of Decision Checklist
WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts

Revised and Restated Construction Agreement
September 2012

Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
CR-6e The east-west pedestrian concourse will be designed and built at least five (5) feet outside the North Tower footprint as measured from the center line of each projecting column base to the face of the nearest structural support wall.		Perm. WTC PATH Term. MOA	PANYNJ	Design and Construction	Completed Design April 2005	Completed Construction 2010
CR-6f The temporary PATH track and associated ballast that will be removed upon completion of the permanent tracks and platforms to re-expose the North and South Tower perimeter column remnants and portions of the North and South Tower footprints that may be covered by the temporary track and ballast.		Perm. WTC PATH Term. MOA	PANYNJ	Design and Construction	Completed Design April 2005	Ongoing (Construction)
CR-6g Clean rounded gravel or similar treatments will be installed to protect the footprints and column remnants from ongoing construction. Further treatments may be specified in the Project's Construction Protection Plan.		Perm. WTC PATH Term. MOA	PANYNJ	Design and Construction	Completed April 2005	Completed 2005
CR-7 Incorporate the existing E subway entrance into the new Terminal in a manner that retains existing materials and features of this entrance, including, but not limited to, the handrails, the travertine flooring, the steps and doors separating the E train from the pedestrian connection, and overhead signage, to the extent possible and in accordance with current building codes and Americans with Disabilities Act requirements. Include, at a minimum, a plaque identifying the historic features of the E subway entrance.	6-26	Permanent WTC PATH Terminal MOA	PANYNJ	Design and Construction	Completed April 2005	Ongoing (Construction)
		WTC Resource Protection Plan	PANYNJ	Design and Construction	Completed September 2005	Ongoing (Construction)
		Permanent WTC PATH Terminal Design Documents	PANYNJ	Design and Construction	Posting May 2006; February 2010	Ongoing (Construction)
CR-8 Provide visibility from within the Terminal to a portion of the east or west slurry wall if the following criteria are met: the condition of the slurry wall evokes the image now understood to represent the historic nature of the wall (e.g. tiebacks are part of the area to be exposed, tiebacks project beyond the re-stabilized slurry wall); the exposure provided will enable a view of the slurry wall that is clear, recognizable, and respectful of the slurry wall; and the exposure will not pose a safety hazard to the public from exposed finishes of the wall or its components. The design for the east-west pedestrian concourse shall include a location to view a plaque and photograph of the west slurry wall.	6-26	Permanent WTC PATH Terminal MOA	PANYNJ	Design and Construction	Completed April 2005	Ongoing (Construction)
		WTC Resource Protection Plan	PANYNJ	Design and Construction	Completed September 2005	Ongoing (Construction)
		Permanent WTC PATH Terminal Design Documents	PANYNJ	Design and Construction	Posting January 2010; February 2010	Ongoing (Construction)

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WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts

Revised and Restated Construction Agreement
September 2012

Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
CR-9 Relocate the steel column and crossbeam mounted on a concrete pedestal. The object will remain in the custody and control of PANYNJ pending final disposition in accordance with the rights of the respective owners.	6-26	Permanent WTC PATH Terminal MOA	PANYNJ	Design and Construction	Completed April 2005	Completed 2011 (Relocated Steel Beam in Cross Form back at WTC Site -NS11MM)
		WTC Resource Protection Plan	PANYNJ	Design and Construction	Completed September 2005	Completed 2011 (Relocated Steel Beam in Cross Form back at WTC Site -NS11MM)
CR-10 Develop a WTC Resource Protection Plan in consultation with SHPO and in coordination with LMDC and MTA/NYCT, as appropriate.	6-26	Permanent WTC PATH Terminal MOA	PANYNJ	Design and Construction	Completed April 2005	Ongoing (Construction)
CR-11a Develop and implement a plan to locate and identify intact portions of the Hudson River Bulkhead that will be affected by construction of the Permanent WTC PATH Terminal's east-west pedestrian connection in consultation with SHPO and NYSDOT. In the event that the intact portions of the Hudson River Bulkhead are identified, prepare a treatment plan for those portions of the Hudson River Bulkhead to be affected by the Project.	6-27	Permanent WTC PATH Terminal MOA	PANYNJ	Design and Construction	Completed April 2005	Completed April 2005
		Archaeological Resources Protection Plan			Completed July 2006	Completed (Hudson River Bulkhead Treatment Plan's bulkhead exposure documentation projected completion - 2nd Quarter 2012)
CR-11b Prior to any Project-related subsurface disturbance at any of the locations that have been determined to be sensitive for historic archaeological resources, PANYNJ will, in consultation with the SHPO, and LMDC as appropriate identify and evaluate the National Register eligibility of any archaeological resources at these locations.	6-27	Phase 1B Archaeological Testing Program	PANYNJ	Design	Completed July 2006	Completed July 2006
CR-12 Develop a Construction Protection Plan to avoid, minimize, or mitigate the project's potential construction-period vibration impacts on the Barclay-Vesey Building, Former East River Savings Bank, the Beard Building, 114-118 Liberty Street, and St. Paul's Chapel and Graveyard.	6-27	Construction Protection Plan	PANYNJ	Design	Completed February 2006	Ongoing (Construction)

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WTC Permanent PATH Terminal Construction Agreement
Measures to Mitigate Environmental Impacts

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September 2012

Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
Traffic and Transportation						
TT-1	Establish a project-specific pedestrian and vehicular maintenance and protection plan.	8B-14 Maintenance and Protection of Traffic (MPT) Plan	PANYNJ NYCDOT NYSDOT LMCCC	Design and Construction	Completed 2002	Ongoing (Construction)
TT-2	Communicate traffic information, lane closures, access changes, and travel advisories to the public for the duration of project construction.	8B-14 Lower Manhattan Traffic Management Plan (TMP)	PANYNJ NYCDOT NYSDOT LMCCC	Construction	Started 2006	Ongoing (Construction)
		8B-14 Maintenance and Protection of Traffic (MPT) Plan			Started July 2002	Ongoing (Construction)
		EPC LOC			Completed September 2003; April 2006	Ongoing (Construction)
TT-3	Ensure sufficient alternate street, building and station access during the construction period.	8B-14 Lower Manhattan Traffic Management Plan (TMP)	PANYNJ NYCDOT NYSDOT LMCCC	Construction	Started 2006	Ongoing (Construction)
		8B-14 Maintenance and Protection of Traffic (MPT) Plan			Started July 2002	Ongoing (Construction)
		EPC LOC			Completed September 2003; April 2006	Ongoing (Construction)
TT-4	Consult with NYCDOT to develop the MPT Plan.	8B-14 Maintenance and Protection of Traffic (MPT) Plan	PANYNJ NYCDOT NYSDOT LMCCC	Design	Started 2006	Ongoing (Construction)
TT-5	Coordinate with NYSDOT to ensure that signal timing adjustments or other provisions are implemented at the intersection of Route 9A and Liberty Street to mitigate the Project's construction-period impact at this location.	8B-14 Lower Manhattan Traffic Management Plan (TMP)	PANYNJ NYSDOT	Construction	Started 2006	Ongoing (Construction)
		8B-14 Maintenance and Protection of Traffic (MPT) Plan			Started July 2002	Ongoing (Construction)
TT-6	Widen crosswalks and sidewalks at the intersection of Liberty and Church Streets. (25'-0" Sidewalks)	8D-22 Construction Contract Documents	PANYNJ LMDCC NYCDOT	Design and Construction	Completed 2005	Ongoing (Construction)
Air Quality						
AQ-1	Require that contractors use ULSD for all non-road vehicles that operate with diesel engines.	9-24 EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing (Construction)
		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing (Construction)
AQ-2	Develop a plan, in consultation with Con Ed, as appropriate, to disperse grid power throughout the construction zone for the Preferred Alternative. PANYNJ would require all contractors and subcontractors to use electrically powered equipment for air	9-25 EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing (Construction)

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WTC Permanent PATH Terminal Construction Agreement
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Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
compressors, pumps, mixing, desanding and grout plants, welding machines, and any other diesel powered equipment that can be replaced with an electrically powered version. However, this does not apply to the east-west pedestrian concourse beneath Route 9A if the concourse is built by NYSDOT.		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing (Construction)
AQ-3 Require the use of DPFs or other measures with equivalent PM removal efficiency for all nonroad diesel engines of 50 horsepower or greater wherever the implementation of such a device is feasible. However, where DPFs would not be feasible, the constructor would submit a request for an exception for review and approval by PANYNJ prior to implementation, and in these cases, DOCs may be used. In cases where, for technical reasons, neither DPFs or DOCs can be used effectively, and where the operation cannot be performed by another engine or other means, would the use of diesel engines greater than 50 horsepower be allowed without tailpipe reduction measures.	9-25	EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing (Construction)
		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing (Construction)
AQ-4 Require the use of post-1995 fuel injection engines, which meet the Tier II engine emissions standards. Exceptions will be made only for specific engines that are not yet commercially available as Tier II, and where the task cannot be reasonably accomplished using alternative engines or means which do comply with these demands. In such cases, the contractor would submit a request for an exception for review and approval by PANYNJ prior to implementation.	9-26	EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing (Construction)
		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing (Construction)
AQ-5 Continue to investigate means to reduce NOx (NO and NO ₂) emissions, but it is not yet known whether these measures would reduce the effectiveness of the above described mitigation. If this investigation results in additional means to reduce NOx without jeopardizing the PM reduction measures and if other constraints such as technological availability are resolved, then PANYNJ would implement these additional mitigation techniques, as appropriate.	9-27	EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing
		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing
AQ-6 Require the Project's contractors to prepare a Diesel Emission Mitigation (DEM) Plan that shall address the control of emissions from all engines and vehicles including those that are not equipped with emission control devices.	9-26	EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing (Construction)
		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing (Construction)

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Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
AQ-7 Contractors must submit a Dust Control (DC) Plan, which contains protocols and procedures for the spraying of dust piles, containment of fugitive dust, and appropriate adjustment measures to accommodate changes in meteorological conditions.	9-26	EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing (Construction)
		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing (Construction)
AQ-8a Verification procedures would be implemented through construction specifications and contract documents. PANYNJ would verify mitigation and would identify opportunities to expand its implementation as part of its ongoing oversight and auditing of the Project's construction. Verification procedures would also be implemented in accordance with decisions of the Lower Manhattan Construction Command Center, including procedures for reporting updates to the public.	9-26	EPC LOC	PANYNJ	Construction	Completed September 2003; April 2006	Ongoing (Construction)
		Hub Construction Contract Specifications (Issued)	PANYNJ	Construction	Started October 2005	Ongoing (Construction)
AQ-8b Closely manage construction activities adjacent to the Route 9A walkway/bikeway to ensure that PM2.5 concentrations from construction equipment and extreme meteorological conditions are prevented from occurring concurrently.	9-28		PANYNJ	Construction	Via LMCCC Websites	Ongoing
Noise and Vibration						
NV-1 Require as part of contract documents that contractors use specific equipment during phases of construction to reduce noise levels below the FTA impact criteria. Require that as applicable, contractors use impact wrenches with noise emission level of 82 dBA at 50 ft2 and mufflers on pavement breakers during the permanent track, platform, and mezzanine construction and during the construction of the east-west concourse, require contractors to place air operated grout drills inside acoustical enclosure.	10-16	Hub Construction Contract Specifications (Issued)	PANYNJ	Design and Construction	Started October 2005	Ongoing
NV-2 Coordinate the scheduling and staging of construction activities through the Lower Manhattan Construction Command Center. The Command Center will review PANYNJ's plans in conjunction with other planned activities and will recommend schedule adjustments, as appropriate.	10-18	EPC LOC	PANYNJ LMCCC	Construction	Started April 2006	Ongoing
NV-3 Through the ongoing coordination efforts of the LMCCC, adverse noise and vibration effects on sensitive receptors will be minimized through scheduling and routing of deliveries, as well as coordination of street closures and placement of truck/equipment staging areas.	10-18	EPC LOC	PANYNJ LMCCC	Construction	Started April 2006	Ongoing
NV-4 Procure the services of a qualified acoustical firm (INCE certified or licensed Professional Engineer) to assist in the implementation of a Noise Control and Abatement Plan, which will include on-site noise monitoring during construction, and implementation of mitigation measures to ensure compliance with applicable noise exposure thresholds.	10-18	Hub Construction Contract Specifications (Issued)	PANYNJ	Design and Construction	Started October 2005	Ongoing

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Resource Area / ROD Commitment		2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
NV-5	Develop a Construction Protection Plan (CPP) to set forth measures for the protection and avoidance of structural and architectural damage to historic properties within 90 feet of the construction zone.	10-18	Construction Protection Plan	PANYNJ	Design and Construction	Completed February 2006	Ongoing
NV-6	Incorporate design measures to reduce airborne noise from PATH trains within the WTC Memorial. Achieve at least 25 dBA of attenuation within the Memorial. Mechanical equipment will either be specified to have low noise levels, placed in acoustically shielded enclosures, or placed at locations where noise from equipment would not exceed 50 dBA at receptor locations.	10-17	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design	N/A (No Design Impact)	N/A
NV-7	If its design guidelines specify an ambient noise level within the Memorial that is below 40 dBA, PANYNJ will explore ground-borne noise mitigation measures that will meet or exceed the desired attenuation for the Memorial.	10-18	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design	N/A (No Design Impact)	N/A
Infrastructure and Energy							
IE-1	Coordinate utility relocation with local utility operators.	11-5	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design and Construction	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction) (Utility services (electric, water, steam, gas) for the Hub project will be provided through WTC site-wide connections that have been coordinated with utility operators - ConEd, DEP)

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Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
IE-2 Prepare and implement a comprehensive resource management plan for the integrated consideration of water, materials, and energy resources with the goal of identifying, evaluating, and optimizing the use of all resources on the site.	11-8	Comprehensive Water Management Plan	PANYNJ	Design and Construction	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
IE-3 Prepare a comprehensive water management plan	11-8	Comprehensive Resource Management Plan	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
IE-4 Use Hudson River water for the cooling of the Terminal's HVAC system.	11-8	State Pollution Discharge Elimination System Permit	PANYNJ	Design	SPDES Issued January 2007	Ongoing (Construction) (Central Chiller Plant is currently 95% complete - Projected completion 2nd Quarter 2012)

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WTC Permanent PATH Terminal Construction Agreement
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Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
IE-5 Collect stormwater from surfaces of the Terminal Hall and adjacent plaza, and store it in a tank with a capacity to accommodate a 2-year/24-hour storm. Use collected water for year-round flushing supply to urinals and toilets within the Terminal; year-round washing of the adjacent plaza and sidewalks; irrigation of plantings in summer months; and occasional use for façade washing.	11-8	Comprehensive Water Management Plan	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
IE-6 Provide for the collection of stormwater from surfaces of the Terminal's Transit Hall and adjacent plaza for reuse on-site, and filter this water to remove 80 percent of the total suspended solids.	11-8	Comprehensive Water Management Plan	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)

	Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
IE-7	Strive to further reduce solid waste through an active, on-site recycling program.	11-9	Comprehensive Resource Management Plan	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
IE-8	Employ the abundant use of natural light within the Terminal to reduce daytime demand for energy. Implement control and monitoring methods to regulate energy consumption.	11-9	Comprehensive Resource Management Plan	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)

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Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
IE-9 Set aside a portion of the Terminal's mechanical area to accommodate future technologies that will provide for efficient, on-site, renewable energy sources.	11-10	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
Contaminated Materials						
CM-1 Require contractors to prepare a Health and Safety Plan (HASP) as part of contract documents.	12-13	Construction Contract Documents	PANYNJ	Design and Construction	Completed PA HASP Plan January 2007; Revision Completed May 2008 HASP converted into SHEP Completed May 2010	Ongoing (Construction)
Natural Resources						

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Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
NR-1 Explore all feasible, cost effective, and practical measures for reducing bird strikes.	13-25	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
NR-2a Prepare a Stormwater Pollution Prevention Plan (SWPPPs) to minimize potential impacts to floodplains, groundwater, water quality, and aquatic resources.	13-26	Stormwater Pollution Prevention Plan	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)

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WTC Permanent PATH Terminal Construction Agreement
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Resource Area / ROD Commitment		2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
NR-2b	Implement flood protection measures.	13-26	Permanent WTC PATH Terminal Design Documents	PANYNJ	Design and Construction	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
Cumulative Effect							
CE-1	Continue to investigate sustainable strategies consistent with the United States Green Building Council (USGBC) Leadership in Energy Efficiency (LEED) Guidelines 2.1 and requirements of New York State Executive Order 111.	N/A	Permanent WTC PATH Terminal Sustainable Design Guidelines	PANYNJ	Design	Final Design Completed October 2009; WTC Transportation Hub Report on Status of Implementation of PANYNJ Sustainable Design Guidelines at Final Design Vol. 1 of 2 Completed January 2011	Ongoing (Construction)
CE-2	Implement EPCs in concert with the other Recovery Projects, and a project-specific Construction Protection Plan (CPP) will be implemented consistent with the Lower Manhattan Environmental Analysis Framework.	N/A	EPC LOC	PANYNJ	Design and Construction	Completed September 2003; April 2006	Ongoing (Construction)

Resource Area / ROD Commitment	2005 FEIS Page Ref.	Submittal / Reference Document	Responsible Agency	Timing	Implementation and Monitoring Commitment	Status
		Construction Protection Plan	PANYNJ	Design and Construction	Completed February 2006	
CE-3 Request that all agencies constructing projects within the WTC site submit preliminary and pre-final design documents to PANYNJ. PANYNJ and its designated historic preservation consultant will consult with SHPO and the Lower Manhattan Emergency Preservation Fund to assess whether there will be potential for a cumulative adverse effect from the Permanent WTC PATH Terminal and other WTC site projects. If SHPO and PANYNJ, agree that planned or completed activities will result in cumulative adverse effects on the WTC site, then PANYNJ will consider measures with respect to the Permanent WTC PATH Terminal to mitigate or minimize these effects, including technical or financial measures for the protection, stabilization, or repair of resources and/or modifications to the design. PANYNJ will make its documentation of potential cumulative effects and accompanying mitigation plans available for review by the Section 106 consulting parties.	15-19	Permanent WTC PATH Terminal MOA Quarterly Cumulative Effects Updates	PANYNJ	Design	Started April 2005	Ongoing
CE-4 Continue coordination with the other Recovery Projects on project development, effects and commitments, particularly those related to construction scheduling, and environmental commitments in the Permanent WTC PATH Terminal FEIS and ROD are met.	N/A	EPC LOC	PANYNJ LMCCC	Design and Construction	Completed September 2003; April 2006	Ongoing

**World Trade Center Transportation Hub
FTA Lower Manhattan Recovery Office Funds
Attachment 9**

WTC PATH Terminal (PANYNJ)	\$2,872,034,051
WTC Vehicular Security Center (PANYNJ)	\$19,915,949
Fulton Street Transit Center (MTACC)	\$847,000,000
South Ferry Terminal Station (MTACC)	\$420,000,000
Route 9A (NYSDOT)	\$287,300,000
Lower Manhattan Construction Command Center (LMCCC)	\$17,000,000
Management and Oversight (FTA and PMOC)	\$86,750,000
	<hr/>
Total FTA LMRO Funds	\$4,550,000,000

**U.S. DOT/FEDERAL TRANSIT ADMINISTRATION
PROJECT MANAGEMENT OVERSIGHT PROGRAM
LOWER MANHATTAN RECOVERY OFFICE**

**Contract No. DTFT60-09-D-00008
Project No. FTA-08-0338
Task Order No. 002**

Grantee: Port Authority of New York and New Jersey

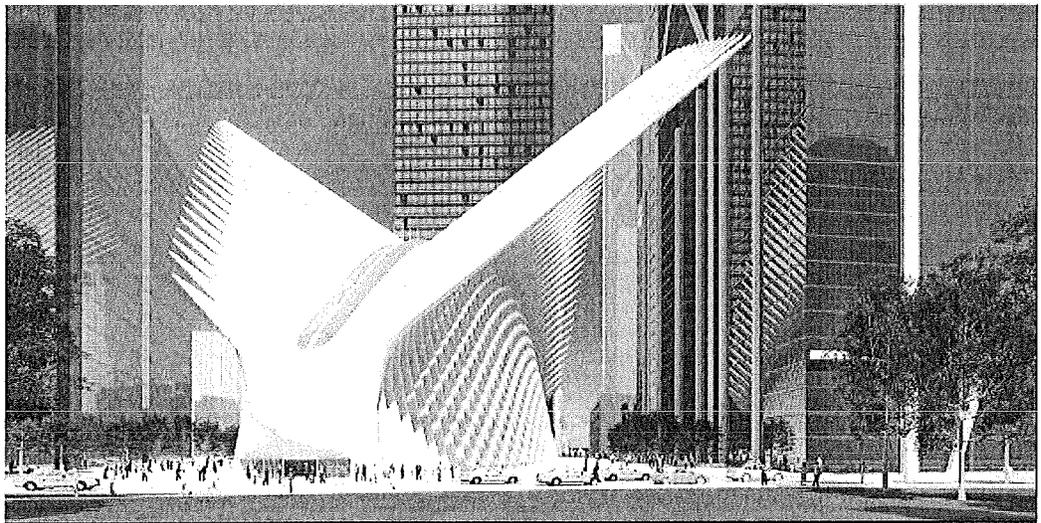
**Permanent World Trade Center
Port Authority Trans-Hudson (PATH) Terminal Project**

**Spot Report 2024
World Trade Center PATH Hub
Project Execution Plan (Negotiated)**

September 2012

**David Evans and Associates, Inc.
17 Battery Place, Suite 1328
New York, NY 10004**

**World Trade Center
Transportation Hub
Project Execution Plan (Negotiated)**



THE PORT AUTHORITY OF NY & NJ

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1.0 Purpose

The Project Execution Plan (PEP) documents management strategies that will be used by the Port Authority of New York and New Jersey (PANYNJ) World Trade Center Construction (WTCC) Department in completing the World Trade Center (WTC) Transportation Hub project (WTC Hub project).¹ The primary goal of the PEP is to identify management strategies and risk mitigation tools designed to provide assurance that the WTC Hub project can proceed through the final construction and start-up phases with adequate funding and an achievable schedule. It also documents report deliverables that will be used by the Federal Transit Administration (FTA) and its Project Management Oversight Consultant (PMOC) to monitor the PANYNJ's implementation of the management strategies.

This PEP has been developed by the FTA and its PMOC in collaboration with WTCC to supplement the PANYNJ's Project Management Plan (PMP).

The management strategies and related actions in the PEP are intended to ensure that sufficient budget and an achievable schedule are available to complete the WTC Hub project, while meeting the project commitments in the Revised and Restated Construction Agreement (RRCA), and recognizing the cost and schedule risks inherent in the project. The requirements of this PEP do not replace the management and reporting requirements associated with the federal grant for the WTC Hub project.

This PEP uses the RRCA Required Completion Date (RCD) as the major construction milestone in lieu of the revenue operations date, because the existing (temporary) WTC Port Authority Trans-Hudson (PATH) station is and will remain in operation through completion of the WTC Hub project.

2.0 Background

The WTC Hub facility is an intermodal passenger terminal serving the PATH electrified heavy rail system, facilitating connections to 11 New York City Transit (NYCT) subway lines. It will be a permanent replacement of the original WTC PATH Terminal complex destroyed by the terrorist attacks on September 11, 2001, and is being constructed while maintaining operation of the Temporary WTC PATH Station (which reopened in December 2003).

The WTC Hub project is being implemented within an extremely complex urban environment on a site with other major construction projects, requiring extensive coordination. In addition to the WTC Hub project, the overall WTC redevelopment plans for the site include five office towers (totaling approximately 10 million square feet of office space), a memorial and museum, a performing arts center, a vehicular security center, streets, utilities, public open spaces, and other shared infrastructure. An integrated design was developed for the foundations and other underground features throughout the WTC site. Successful completion of the WTC Hub project depends on the effective management of interfaces with the many other entities and projects working at and near the site.

¹ This project is also referred to in various documents as the Permanent WTC PATH (Port Authority Trans-Hudson) Terminal and Pedestrian Connections.

Funding for the WTC Hub project is provided under the “2002 Supplemental Appropriations Act for Further Recovery from and in Response to Terrorist Attacks on the United States.” This act appropriated \$2.75 billion to the Federal Emergency Management Agency (FEMA) and \$1.8 billion to the FTA. The FTA is the lead federal agency responsible for administration and oversight of these combined federal funds (Recovery Funds). The FTA tailored and streamlined the project delivery system for the WTC Hub project by using a Construction Agreement (CA) to identify the final scope, schedule, and budget of the project prior to the initiation of construction. The CA for the project takes the place of the Full Funding Grant Agreement (FFGA) typically used on FTA-funded “New Starts” projects. The original CA for the WTC Hub project was executed on April 25, 2006. The RRCA is consistent with the PANYNJ’s August 2009 project Recovery Plan.

The WTC Hub project’s Baseline Cost Estimate (BCE) in the original CA was \$2.201 billion. In addition, a federal (FTA) risk retainage of \$280 million was established that reflects the result of a March 2006 risk workshop. The WTC Hub project was originally being delivered through a Construction Manager/General Contractor (CM/GC) strategy in which a single joint venture contractor was acting as the construction manager and general contractor for the project. The intent of this project delivery strategy was to negotiate a guaranteed maximum price (GMP) with the CM/GC during the design phase of the project, thereby controlling project costs. Due to a number of factors, agreement on a GMP was not achieved. To advance the project work, many construction packages were initiated using a variety of payment methods. Major components of the work were subcontracted by the CM/GC, which received payments for general and administrative costs, general conditions costs associated with its activities at the site, and a fee. The CM/GC also self-performed portions of the construction.

The project cost and schedule were impacted by unexpected conditions, delays, and major increases in construction prices that led to cost increases and schedule delays to the project. In 2008, PANYNJ conducted an assessment of the overall WTC development, including the WTC Hub project, and prepared updated project cost estimates and schedules reflecting the progress on the WTC Hub project and the existing construction market conditions and associated costs. In October 2008, PANYNJ published the *World Trade Center Report, A Roadmap Forward*, which projected that the project would be completed on or before June 30, 2014, at a cost of \$3.2 billion, or approximately \$983 million more than the original CA budget.

In late April 2009, WTCC and the CM/GC jointly agreed to modify their contract to enable the agency to competitively bid future work for the WTC Hub project, while ensuring that the CM/GC would complete the work that had been awarded as of that date. This modification occurred because the parties did not reach agreement on a GMP and market conditions emerged that favored other approaches. The change in project delivery strategy was accompanied by changes in contract packaging to maximize competition and provide flexibility to address constantly changing conditions that have resulted from revisions in project plans and progress by other stakeholders at the WTC site. On February 24, 2011, the PANYNJ Board reauthorized the PATH Hub budget of \$3.44 billion, up from \$3.2 billion. The additional funds will primarily cover increased insurance costs and other trade contracts associated with the PATH Hub project.

FTA maintains a risk retainage of \$280 million (the FTA Risk Retainage). With the addition of the FTA Risk Retainage, the available project funds for the PATH Hub total \$3.72 billion. At its sole discretion, the FTA will release portions of the FTA Risk Retainage if PANYNJ can demonstrate:

- provision of the deliverables as defined in this PEP,
- achievement of the project milestones represented by completion of construction activities as specified in this PEP,
- maintenance of adequate cost and schedule contingency, and
- proper management of the residual risks and confirmation that no new risks have surfaced that could jeopardize the achievement of subsequent PEP milestones and the project completion.

3.0 Scope of Agreement

This document reflects the PEP and resultant Project Execution Strategy that the FTA will monitor and WTCC will use to manage the risk associated with delivering the WTC Hub project consistent with the available project funds and the RRCA RCD for the project. The PEP establishes a framework for effectively and efficiently managing risk throughout project implementation, while relying on the Technical Capacity and Capability (TCC) of WTCC as the mechanism for ensuring that those actions are implemented. The PEP also identifies the strategies that WTCC will use to manage the project, as well as WTCC's deliverables to FTA. The FTA will use the PEP to monitor WTCC's implementation of those strategies.

3.1 Requirements for WTCC Technical Capacity and Capability (TCC)

In support of the general requirement that PANYNJ have the technical capacity to carry out a project, the FTA and PANYNJ have agreed that PANYNJ, inclusive of the WTCC, will implement and maintain a governance and organization structure applying the principles listed below. These principles will ensure that project management, engineering, and organizational and support processes, plans, and procedures, inclusive of resources and authority, are defined, implemented, and maintained. The organization and its various components that execute those principles shall be sufficient to support PANYNJ's ability to engage stakeholders to produce positive outcomes, allocate resources, perform project activities, monitor progress, and make adjustments, as required. With the proper organizational structure, decisions will be made at the appropriate time and level based on available information, thereby ensuring continuous administrative and management direction of project operations.

- PANYNJ management will make program- and project-level decisions based on available information, using processes designed to allow all material decisions to be made with adequate consideration of relevant risks and impacts. Management principles are meant to address these issues as a common element under all of the proposed specific risk mitigation measures, and to ensure that decisions are made at the appropriate level within the organization.
- Key points for program- and project-level decision processes include documented business decisions that establish a way to assess and allocate risk, demonstrate management control of project deliverables, provide for internal control validation, categorize specific scope management techniques, and identify senior management officials with responsibility for PEP conformance.

Implementation of the specific management and risk handling strategies in this PEP should ensure that PANYNJ has the required TCC to deliver the WTC Hub project, and is a requirement for the FTA funding.

3.2 Integration of the PEP into the Project Management Plan

The PEP will be implemented through the integration of the PEP requirements into the WTC Hub PMP. In addition to the above technical capacity requirements, Sections 4 through 9 of this PEP (below) identify specific actions and requirements that WTCC must meet in the submissions of identified deliverables related to those requirements and within the required frequency for completion of those deliverables. Some of the requirements and related deliverables are included in PANYNJ's current PMP. Other requirements and deliverables supplement the PMP. Deliverables are to be provided to the FTA at the frequency stated. The form of the deliverables will be mutually determined by the FTA and PANYNJ (Exhibit 1).

As part of the requirement for an acceptable PMP, WTCC shall implement and maintain, throughout the project, a formal PMP and sub-plan revision process that accurately reflects the WTCC organizational structure needed to meet the FTA's TCC requirements. Changes that may be needed to reflect additional requirements for the organization or the PMP sub-plans shall be identified. Revisions or improvements to the PMP will be identified through various means that will be tracked and reported as part of the quarterly project review process and should include, but not be limited to, process improvement proposals, measurement of the processes, lessons learned in implementing the processes, and the results of process appraisal and deliverable evaluation activities. The revision process shall identify the process for obtaining approval of the revisions within WTCC and PANYNJ.

4.0 Design and Construction Management

4.1 Quality Management (QM)

PANYNJ shall establish and maintain a Quality Management System (QMS) that ensures that appropriate construction inspections are conducted, that construction work is accepted only if it passes the required inspections, and that all project participants have the latest project documents. The requirements in Exhibit 1.1 will apply to the project's QMS (as described in the WTCC Project Quality Assurance Plan (PQAP)).

4.2 Design Support during Construction (DSC)

PANYNJ shall establish and maintain design services during construction to ensure that required design modifications are implemented with minimal delays. Drawings of record shall be assembled and available for use in the preparation of plans and specifications for subsequent construction contracts. PANYNJ shall also establish and maintain procedures to ensure that all design modifications developed in the field are consistently and properly documented and reviewed. In addition, key assumptions and design objectives that identify major tasks for the package shall be provided to management. Packages should include justification for design changes, description of work, and design coordination requirements. The requirements in Exhibit 1.2 will apply to the DSC for the project.

4.3 Procurement and Construction Management (PCM)

PANYNJ shall establish and maintain procedures to ensure that responses to submittals occur in a timely manner and shall provide documentation to trace the scope, schedule, and cost for construction packages as the contract packaging strategy for the project evolves. PANYNJ shall also obtain sufficient information on potential implementation problems and issues from consultant progress reports in order to make effective decisions and thereby manage risk. The requirements in Exhibit 1.3 will apply to the PCM, so that timely documentation of procurement activities will be provided to FTA.

5.0 Cost and Schedule Management

5.1 Cost Management (CM)

PANYNJ shall implement and maintain a cost model to develop, update, track, forecast, and manage project cost by utilizing established estimates, award amounts, and actual expenditures to monitor contract package costs on a continuous basis. The cost model should serve as a decision tool for PANYNJ to take early action when estimated total project costs are projected to exceed the budget. In order to increase the reliability and timeliness of cost information, PANYNJ shall establish and maintain a Cost Management System that clearly documents the reasons behind changes in forecast costs and explicitly documents executed Change Order (CO) amounts for each construction contract and soft cost element. PANYNJ shall also establish and maintain a system for tracking (pending) Post-Award Contract Changes (PACCs) and resolved claims, and their impact to contract and total project costs. (Unresolved claims are to be addressed as part of ongoing project risk analyses; see Section 8.) PANYNJ shall establish and maintain a process to track and report on the status of cost sharing agreements and the expected payments by other stakeholders. The specific requirements in Exhibit 1.4 will be met.

5.2 Schedule Management (SM)

PANYNJ shall implement and maintain a schedule for the WTC Hub project, as part of an overall Integrated Master Schedule (IMS), to develop, update, track, forecast, and manage the WTC Hub project. The IMS comprises various working schedules that can be used to monitor WTC Hub contract package schedules on a continuous basis. The IMS should serve as a decision tool for PANYNJ to take early action when the forecasted WTC Hub project substantial completion exceeds the baseline. WTCC shall establish and maintain a process for documenting changes in the IMS and the WTC Hub project schedule and its strategies to address schedule slippage to keep the WTC Hub project on schedule. The IMS shall incorporate updated information from third parties and schedules prepared by the construction managers and construction contractors for each WTC Hub contract. The WTCC will maintain a process for forecasting and reporting on the projected achievement of major WTC Hub project milestones, including consideration of construction resource requirements and logistics to avoid delays. The specific requirements in Exhibit 1.5 will be met.

6.0 Cost Contingency Management

PANYNJ shall develop and implement a Cost Contingency Management (CCM) Plan that ensures there is sufficient total contingency (including both extra work allowance and the project-wide contingency described below) available at key milestones for completion of the project and that ensures the distribution of available total contingency is subject to appropriate restrictions and required management approvals.

PANYNJ identifies Extra Work Allowances (EWA) and Project-Wide (PW) Contingency in its cost model, with the following definitions:

- EWA is assigned to each construction contract package and is freely available to cover the cost of COs for the respective contract package.
- PW Contingency is a line item in the cost model that is not associated with any specific construction contract package or other specific cost element, and can be released at PANYNJ's discretion to cover unanticipated project requirements or cost increases within the overall project.

The total PANYNJ contingency amount calculated for use pursuant to this PEP and the CCM Plan includes both the EWA and the PW Contingency. The FTA Risk Retainage represents a portion of the total available contingency funds for the project in addition to the total PANYNJ contingency. At its sole discretion, FTA will release portions of the FTA Risk Retainage as the physical achievement of project milestones occurs and based on other factors, and, as a result, as project risk declines. The planned release of the FTA Risk Retainage is described in the Project Execution Strategy and is predicated on providing a sufficient total cost contingency at each milestone to provide reasonable assurance that adequate funds will be available to complete the remaining work.

This PEP document reflects the PANYNJ classification method for EWA and PW Contingency. The CCM Plan shall describe the PANYNJ's processes for distribution and use of EWA and PW Contingency. The Project Execution Strategy (see Section 9) defines the minimum and target values for total cost contingency for each of several FTA Milestone Review Points. The CCM Plan, inclusive of subsequent WTCC procedures, will address the requirements in Exhibit 1.6.

7.0 Schedule Contingency Management

FTA and WTCC agree that a Schedule Contingency Management (SCM) Plan is required to ensure sufficient schedule contingency (float) for completion of the project. The SCM Plan, inclusive of procedures, will address the requirements in Exhibit 1.7.

8.0 Risk Management (RM) Plan

The FTA and PANYNJ will work in partnership to ensure that the PANYNJ's management processes are focused around timely, sound decision-making, based on accurate and complete information and driven by a thorough understanding of project risks and potential mitigation strategies. PANYNJ will create a WTC Hub project risk register to provide a means for identifying and thereby managing project risks and to provide tools that allow PANYNJ to quickly and

consistently track and address poor contractor performance. An effective risk management approach is crucial to demonstrating the TCC required to implement the project, as demonstrated in the WTCC PMP. The requirements in Exhibit 1.8 will apply to the RM Plan.

The risk management process documented in the required RM Plan shall systematically track, evaluate, and document the performance of risk mitigation actions relative to the project schedule and budget. Additionally, any and all other risks that are identified as a result of periodic risk updates, including risk identification workshops, will be documented as a part of the project risk register update.

At this stage of the project development, a significant amount of secondary cost mitigation capacity is no longer available to PANYNJ for this PEP; nevertheless, PANYNJ shall continue to make its best effort to identify further secondary mitigation opportunities and use good judgment in deciding on the use of such opportunities to maintain the available contingency above the minimum.

In addition, due to the characteristics of the WTC Hub project, the geotechnical risk is no longer widely applicable. At the current stage of the WTC Hub project development, the major excavations have been completed.

9.0 Project Execution Strategy

The Project Execution Strategy sets forth the critical cost and schedule management actions that are required to maximize the likelihood that the WTC Hub project will be completed within the available project funds and on or before the RRCA RCD. The primary strategy is to maintain sufficient cost and schedule contingency amounts and risk mitigation capacity throughout the life of the project that are acceptable to both PANYNJ and the FTA and are sufficient to ensure that the federal investment results in a completed project.

The strategy establishes minimum contingency amounts that PANYNJ must maintain as the implementation of the project proceeds, and also establishes target or desirable contingency and risk mitigation capacity amounts. FTA Milestone Review Points have been established (Exhibit 2) to include milestones of major project elements (PEP Milestones) that reflect the completion of key procurement activities and the achievement of key construction milestones that represent major reductions in project risk. The FTA Milestone Review Points also trigger reviews of the project status.

The FTA and WTCC agree that risk mitigation activities and plans need to be coordinated with contingency activities and plans. As part of the ongoing project management process, including reviews of the project status at the FTA Milestone Review Points and the annual update or review of PANYNJ's PMP, the minimum and target contingency curves (Exhibit 3 and 4) will be adjusted to reflect the current status of project risks, and the cost and schedule status and trends for the project.

At the FTA Milestone Review Points, if PANYNJ meets the following requirements, it is FTA's sole discretion to consider releasing a portion of FTA Risk Retainage based on the amount set forth at each FTA Milestone Review Point, with the actual release amounts subject to FTA's sole assessment of the project cost and progress. The requirements are:

- PANYNJ completes all or some PEP Milestones defined at each FTA Milestone Review Point (Exhibit 2).
- Total available contingency funds are above the FTA minimum contingency requirement (Exhibit 3), and likely to remain above the minimum contingency requirement for the remainder of the project.
- Total schedule contingency leading to the RRCA RCD is above the FTA minimum contingency requirement (Exhibit 4), and likely to remain above the minimum contingency requirement for the remainder of the project.
- PANYNJ provides proper management of the residual risks and no new risks have surfaced that could jeopardize the completion of subsequent PEP Milestones and the project completion.

9.1 FTA Risk Retainage and Cost Contingency Management

FTA is holding a risk retainage of \$280 million for the WTC Hub project to ensure that the project is completed. FTA will consider releasing portions of the risk retainage at the FTA Milestone Review Points, as defined in this document, to PANYNJ for use on the project. The FTA Milestone Review Points are defined in terms of physical completion of procurement actions for construction (contract awards) and the successful physical completion of components of the project. At each FTA Milestone Review Point, WTCC and the FTA will conduct a joint review of the status of PEP Milestones, the actual cost compared to planned cost, and the actual progress compared to the project schedule to evaluate the cost contingency. Based on PANYNJ's demonstration that the required activities have been completed, that the residual risks are properly managed, and that the actual costs are within the forecast amounts, FTA at its sole discretion will consider releasing portions of the risk retainage. Release of the risk retainage will also be dependent on PANYNJ's demonstration that it is maintaining the minimum contingency amounts specified in this PEP. It is anticipated that updates of the risk baseline would occur at the FTA Milestone Review Points and that a probabilistic evaluation of achieving the subsequent PEP Milestones would also be conducted. Through the risk update, if PANYNJ can demonstrate sufficient risk mitigation capacity (in the form of primary or secondary mitigation), at its sole discretion, FTA may consider releasing additional portions of the risk retainage beyond those indicated in this section.

WTCC and the FTA agree that the FTA Risk Retainage shall be maintained up to the remaining FTA Risk Retainage amounts associated with the FTA Milestone Review Points, as depicted in Exhibit 2. The actual amounts of the FTA Risk Retainage that FTA may release are subject to change upon FTA's assessment based on actual project cost and progress. It is anticipated that a formal review of all FTA Milestone Review Points and FTA Risk Retainage amounts will be conducted at each FTA Milestone Review Point.

The release of the FTA Risk Retainage is also predicated on maintaining the total available contingency funds of at least the FTA minimum contingency requirement amounts depicted in Exhibit 3, as well as the fulfillment of the requirements specified in Section 9.2, Schedule Contingency (Float) Management. The amount of the FTA minimum contingency requirement is based on WTCC's Independent Cost Consultant (ICC) report dated May 15, 2008. Should the Total Available Contingency Funds fall below the Minimum Cost Contingency, and PANYNJ is

unable to bring the Total Available Contingency Funds up above the minimum contingency before the next FTA Milestone Review Point, PANYNJ shall conduct a full project review and implement a Contingency Mitigation Plan within 90 days.

The forecasted contingency and risk retainage amounts cited above are based on the IMS that is current at the time of the subject FTA Milestone Review Point. As the project progresses and the FTA Milestone Review Points evolve throughout the life of the program, the time periods and amounts included in the exhibits may change.

9.2 Schedule Contingency (Float) Management

The FTA and PANYNJ agree that in order to ensure sufficient schedule contingency for the completion of the WTC Hub project on or before the RRCA RCD, the distribution or consumption of float shall be managed through a sound scheduling tool. If the schedule float leading to the RRCA RCD is less than the FTA's Desired Minimum Float, PANYNJ shall immediately implement appropriate mitigation strategies to bring the subject float to the agreed-upon levels before the next FTA Milestone Review Point. Should the implementation of these mitigations fail, PANYNJ will revise its schedule to reflect the changes to the critical path and provide an impact assessment within 90 calendar days. If this impact assessment indicates that the float will fall below the Desired Minimum Float, PANYNJ shall initiate a full project review and immediately notify the FTA of the amount of and the reason for the difference. Further, PANYNJ shall also provide the FTA with a plan that demonstrates that PANYNJ is taking and will take every reasonable measure to recover the difference, in conformance with the PEP requirements, within 90 days.

10.0 PANYNJ and FTA Roles and Responsibilities

10.1 PANYNJ Roles and Responsibilities

PANYNJ agrees to use this PEP as a supplement to the PMP as part of its ongoing responsibilities to develop and maintain an acceptable PMP that addresses the needs of the project as the needs evolve over the life of the project. Required PEP-related PMP sub-plans include Cost and Schedule Contingency Management Plans (including the provisions in the Project Execution Strategy) and a Risk Management Plan.

PANYNJ agrees to provide documentation of its compliance with the requirements defined in this PEP using a reporting template to be jointly developed by the FTA and PANYNJ. This template will track the provision of each individual requirement.

As part of its overall budget control process, WTCC will review the estimated cost for individual construction contracts at each remaining design deliverable (90 percent and 100 percent) to see how the most current estimates compare with budget values. These reviews will be ongoing and will take place between FTA Milestone Review Points.

10.2 FTA Roles and Responsibilities

The FTA and its PMOC will monitor and evaluate PANYNJ's update of its PMP to include the provisions of this PEP. The FTA and the PMOC also will monitor PANYNJ's implementation of the Project Execution Strategy for the WTC Hub project as well as the effectiveness of its integration of risk mitigation activities and contingency management in conformance with the requirements of this PEP. Timely implementation of the requirements of this plan will be a consideration in the FTA's determination of whether PANYNJ is maintaining adequate TCC to implement the project.

10.3 FTA Programmatic Decisions

Ongoing, satisfactory conformance by WTCC with this PEP, within the implementation time frames established in this document, and with the PMP, will serve as the basis for future FTA programmatic decisions relating to the RRCA, Recovery Plans, release of risk retainage, and ongoing determinations about whether WTCC continues to possess the TCC to carry out the WTC Hub project. WTCC acknowledges that conformance with this PEP will assist WTCC in keeping the project within the budget and on schedule.

10.4 Joint PANYNJ and FTA Roles and Responsibilities

In order to implement the Project Execution Strategy and to assess the effectiveness of the PEP, the following steps have been agreed to:

- As a part of the FTA Quarterly Meeting, WTCC will report on the level of available contingency as compared to the predicted levels on the minimum contingency balance curves. Such reporting shall be timely and current, and shall include forecasting and trend analysis of all contingency elements.
- At each FTA Milestone Review Point, WTCC and the PMOC will review the risk model to examine potential risks remaining and to update the project execution curves.

Attachments

Exhibit 1 – WTCC PEP Deliverables

- Exhibit 1.1 – Quality Management (QM)
- Exhibit 1.2 – Design Support during Construction (DSC)
- Exhibit 1.3 – Procurement and Construction Management (PCM)
- Exhibit 1.4 – Cost Management (CM)
- Exhibit 1.5 – Schedule Management (SM)
- Exhibit 1.6 – Cost Contingency Management (CCM)
- Exhibit 1.7 – Schedule Contingency Management (SCM)
- Exhibit 1.8 – Risk Management (RM)

Exhibit 2 – PEP Milestones and FTA Milestone Review Points

Exhibit 3 – FTA Risk Retainage and Minimum Contingency Requirement

Exhibit 4 – FTA Desired Minimum Float Requirement

Exhibit 1 – WTCC PEP Deliverables

Exhibit 1.1 Quality Management (QM)

QM	Exhibit 1.1 Requirements	Deliverables	Frequency
QM-1	<p>Scheduling of construction inspections shall be coordinated by construction management staff among all parties, including the contractors and Port Authority Materials Engineering Unit (MEU). Timely notices of scheduled inspections shall be provided to ensure adequate staffing and coverage. Certain field inspections occur continuously (i.e., they are not scheduled); certain on-site special inspections are adequately scheduled upon 24 hours notice, while off-site inspections may require 10 days notice to MEU.</p> <p>Provide for periodic audits by WTCC Quality Assurance (QA) of the construction inspections scheduling.</p>	Records of construction inspections.	Available upon request.
		Status of WTCC QA audits of construction inspections/scheduling process.	Monthly.
		Copies of WTCC QA audits to be provided to the FTA/PMOC.	Following completion of WTCC QA audit.
QM-2	<p>Demonstrate that only work that has passed the required inspections and tests has been accepted by the Port Authority.</p> <p>WTCC QA staff and their agents shall perform audits of construction inspection processes, including review of inspection and special testing records.</p>	Records of construction inspections.	Available upon request.
		Status of WTCC QA audits of construction inspections process.	Monthly.
		Copies of WTCC QA audits to be provided to the FTA/PMOC.	Following completion of WTCC QA audit.
QM-3	<p>Demonstrate that there is comprehensive distribution of current project documents among all parties involved in implementing the project.</p> <p>This project documentation includes (among other items):</p>	Up-to-date drawing lists and other construction scope documentation.	Available upon request.

QM	Exhibit 1.1 Requirements	Deliverables	Frequency
	<ul style="list-style-type: none"> ▪ current contract documents and drawings, including contract addenda and supplements ▪ contractor submittals including shop drawings and sketches, and all Request for Information (RFI) documentation ▪ design change and CO documentation, including CO drawings and bulletins <p>Grantee shall implement an auditing process to confirm that all parties have the latest information.</p>	<p>Up-to-date document distribution lists for project information.</p>	<p>Available upon request.</p>
		<p>Status of WTCC QA audits of drawings lists and other construction document control and distribution processes.</p>	<p>Monthly.</p>
		<p>Copies of WTCC QA audits to be provided to the FTA/PMOC.</p>	<p>Following completion of WTCC QA audit.</p>

Exhibit 1.2 Design Support during Construction (DSC)

DSC	Exhibit 1.2 Requirements	Deliverables	Frequency
DSC-1	<p>Provide a procedure for production of drawings of record and documents to be compiled by the Architect/Engineer (A/E) of Record based on contractor submittals (e.g., approved shop drawings) and other design changes.</p> <p>Provide for field verification (surveys) of critical construction elements (such as main structural members) to confirm design coordination at project and/or package interfaces. Such verification of field conditions shall be performed in a timely manner to avoid impacting critical activities, such as fabrication.</p>	<p>Processes for compiling, distributing, and maintaining drawings of record will be outlined in the updated PMP.</p>	<p>PMP.</p>
		<p>Drawings of record will be available following completion of each construction contract.</p> <p>A status log for (receipt of) drawings of record for completed construction contracts.</p>	<p>Monthly.</p>

DSC	Exhibit 1.2 Requirements	Deliverables	Frequency
		Documentation of performance of field verifications (surveys).	Available upon request.
DSC-2	Design modifications or sketches prepared for permanent construction shall be documented as a CO, and records shall be kept by the A/E of Record, construction management staff, and WTCC Document Control.	Requirements for preparation and distribution of up-to-date construction documents (correlating DSC-2 to QM-3) shall be outlined in the PMP.	PMP.
		Log of field sketches transmitted to A/E of Record reflected in up-to-date drawing lists.	Available upon request.
		Maintain file of signed/approved field change sketches as part of the RFI and CO records.	RFI status log shall be provided on a quarterly basis. PACC status log shall be provided on a monthly basis.

Exhibit 1.3 Procurement and Construction Management (PCM)

PCM	Exhibit 1.3 Requirements	Deliverables	Frequency
PCM-1	Respond to all RFIs and process PACCs in a timely manner to mitigate contractors' claims. The schedule impacts should be considered and evaluated with each CO review (PACC) and reflected in schedule forecasts.	Logs of all RFIs and PACCs, documenting dates of receipt and status of the related responses.	RFI status log shall be provided on a quarterly basis. PACC status log shall be provided on a monthly basis.
PCM-2	For the bid packages that are compiled from two or more design packages, or when a single package is being split into a number of smaller packages, prepare a Design-Cost-Schedule Cross-Walk (using the 2009 Package 20 PATH Hall Transit Hall as a basis for comparison) that shows the original scope, cost, and activity schedule and any revisions to scope, cost, and schedule for the impacted activities.	Establish formats and tools including a Work Breakdown Structure (WBS) for correlating revisions or adjustments in contract/package scope, cost, and schedule. PMP to be updated to include sample formats and tools for configuration management, including cross-walks.	PMP. A Scope Cross-Walk will be provided one month after a significant repackaging is transmitted.
		Provide a contract packaging plan and subsequent updates, including explanation of adjustments in contract/package scope.	Updated as needed, before construction packages released for bid.
PCM-3	Provide executed award letters and conformed contracts to the FTA for each contract awarded.	Copies of award letters and/or executed conformed contracts to be provided to the FTA/PMOC.	Upon conformance of the contract documents and the (contractor's) final execution of the contract.

PCM	Exhibit 1.3 Requirements	Deliverables	Frequency
PCM-4	PANYNJ's staff handling the procurement process (including Procurement and WTCC) should conduct a bid analysis (at minimum a comparison of bids received and the Engineer's Estimate) following bid submission, as part of the award process. Bid analysis needs to be shared with the FTA.	Copies of bid analysis or evaluation used for the basis of award shall be available for FTA/PMOC review.	List of bids received shall be provided to the FTA/PMOC within three (3) days after each final bid opening.
PCM-5	Define procurement responsibilities between PANYNJ staff and the Construction Manager.	Updated PMP to describe current procurement processes, roles, and responsibilities.	PMP.

Exhibit 1.4 Cost Management (CM)

CM	Exhibit 1.4 Requirements	Deliverables	Frequency
CM-1	Provide a report documenting the reasons for changes in the Estimate at Completion (EAC) for any construction contract or soft cost element of the project. Major changes in the cost of any specific construction contract/package (in excess of 10 percent) will be analyzed and evaluated to identify potential strategies to maintain the overall project budget.	An updated EAC/Cost Variance report documenting changes in amounts (by construction packages/contracts and soft cost elements). This report will include further analysis and evaluation of contract/package cost changes exceeding 10 percent (from established baseline).	Monthly.

CM	Exhibit 1.4 Requirements	Deliverables	Frequency
CM-2	<p>Explicitly incorporate all executed COs as part of the committed costs in the cost model. Executed construction COs should generally be accompanied by a concurrent reduction in EWA assigned to respective contracts/packages.</p> <p>In addition, pending COs should be evaluated with the forecast of remaining EWA in the cost model. This information should be communicated within the entire WTCC Hub management group as well as submitted to the FTA.</p>	<p>Construction Change Order Ledgers (currently a PA WINTRAK system report) for each contract/package. Each ledger indicates both executed COs (COs with actual amounts) and pending PACCs (PACCs with estimated amounts).</p> <p>An executed CO log for professional services contracts.</p>	Monthly.
		<p>Updated PMP describing the PANYNJ cost control/management system and associated processes, including how executed COs are reflected in the EAC for all contracts and other cost elements in the WTCC cost model.</p>	PMP.
CM-3	<p>Provide a summary of unresolved contract claims estimated at greater than \$100,000 in value, and evaluate the potential impact of such unresolved claims as a project risk item.</p>	<p>Summary of unresolved claims.</p>	Quarterly.
CM-4	<p>Provide documentation of the status of cost sharing agreements that also reflects the basis for determining the cost shares (cost allocations and cost reimbursements), and the current estimate of expected funding contributions for each of the contributing entities.</p>	<p>A cost allocation report indicating the current EAC status of cost sharing and cost reimbursement amounts (associated with the WTC Hub project that is attributable to other stakeholder projects).</p>	Monthly.

CM	Exhibit 1.4 Requirements	Deliverables	Frequency
		An agreement and funding report that tracks the status of WTC funding/interagency agreements (including expected funding contributions and the status of stakeholder approvals).	Monthly.
		Copies of executed external agreements or internal PANYNJ Board authorizations that are applicable to the WTC Hub project budget and associated cost sharing.	Within two weeks of full execution of the third-party agreement or PANYNJ Board action.

Exhibit 1.5 Schedule Management (SM)

SM	Exhibit 1.5 Requirements	Deliverables	Frequency
SM-1	<p>Provide a regular IMS analysis, documenting substantive changes in the durations of major tasks or the completion dates for major milestones (see below).</p> <p>When the forecasted completion date for major milestones slips more than 30 days, further evaluation and analysis shall be undertaken and reported to indicate the reason for the slippage and the potential recovery actions that may be taken to maintain the contractual milestone dates.</p>	<p>WTC Hub Schedule and IMS, and Schedule Variance Report that documents changes in forecasted schedule activities.</p> <p>The schedule narrative will include further analysis and evaluation of critical activities (major milestones) that exceed the established baseline.</p>	Bimonthly, with bimonthly briefing meetings between IMS updates.

SM	Exhibit 1.5 Requirements	Deliverables	Frequency
SM-2	<p>PANYNJ should further develop and maintain logic-driven schedules, with monthly updates from non-WTCC stakeholders, and use the schedule to manage successful stakeholder coordination.</p> <p>If non-WTCC schedules are not available, WTCC should provide its forecast based on the best available information in the IMS with respect to the WTC Hub project, and document the basis for its forecasts for third-party schedules.</p>	<p>WTC Hub Schedule and IMS, and Schedule Variance Report that includes information from other (non-WTCC) project stakeholders.</p>	<p>Bimonthly, with bimonthly briefing meetings between IMS updates.</p>
SM-3	<p>Maintain an accurate and effective IMS to manage work on the WTC site. The IMS should:</p> <ul style="list-style-type: none"> ▪ Incorporate the construction managers' and contractors' schedules when they are approved or available. ▪ Eliminate unnecessary constraints. ▪ Provide clear, accurate, and complete information on available schedule float. ▪ Document the assumptions behind schedule decisions that were made to meet the project objectives and describe the conditions and methods chosen by PANYNJ to meet those objectives, including changes in assumptions. 	<p>WTC Hub Schedule and IMS, and Schedule Variance Report that includes a schedule narrative documenting the sources of information and assumptions included in the schedule.</p>	<p>Bimonthly, with bimonthly briefing meetings between IMS updates.</p>
SM-4	<p>Consider contractor crew productivity, resource allocations, and assumptions to assess whether durations are adequate.</p>	<p>WTC Hub Schedule Risk Analysis that includes consideration of whether contractor productivity and assumptions are major risk factors to be addressed in the IMS.</p>	<p>Quarterly.</p>

SM	Exhibit 1.5 Requirements	Deliverables	Frequency
SM-5	Analyze critical path activities to identify changes to the critical path and to support the development of mitigation strategies to avoid delays.	WTC Hub Schedule and IMS, and Schedule Variance Report that includes analysis of the critical path activities. The schedule narrative will include further analysis and evaluation of critical activities (major milestones) that exceed the established baseline.	Bimonthly, with bimonthly briefing meetings between IMS updates.
SM-6	Monitor and report the status of PEP milestones included in Exhibit 2.	WTC Hub Schedule and IMS, and Schedule Variance report that includes analysis of the progress and forecasts of the project's major milestones.	Monthly.
SM-7	Conduct constructability and coordination reviews to address critical interfaces for each new construction contract. In addition, incorporate evaluation of construction managers' and construction contractors' schedules and the evaluation of activity durations as part of routine updates to the IMS.	Construction Interface Matrix.	Bimonthly, with bimonthly briefing meetings between IMS updates.
SM-8	4D model update.	Demonstration of 4D model.	Available upon request.

Exhibit 1.6 Cost Contingency Management (CCM)

CCM	Exhibit 1.6 Requirements	Deliverables	Frequency
CCM-1	<p>Provide an estimate of minimum total contingency based on the procurement and construction status of each construction package and soft cost element, plus the potential impacts of third-party actions, delays or influences.</p> <p>Compare the minimum contingency with available contingency. Provide documented procedures for the release of EWA and PW Contingency and, if required, provision of additional contingency in the project budget.</p>	CCM Plan, including EWA and PW Contingency.	Draft CCM Plan – Third Quarter 2012.
		Calculation of the minimum contingency, available contingency, and target contingency applicable to the project.	Updated quarterly.
CCM-2	<p>Develop and implement procedures to document and evaluate trending of the total PANYNJ contingency, as part of its overall budget and progress reporting effort. All changes in EWA and PW Contingency shall be clearly and completely documented, including:</p> <ul style="list-style-type: none"> ▪ Transactions that are sufficiently documented in a timely manner to tie reductions in PW Contingency to specific increases in construction contracts/packages or other line items in the cost model. ▪ Documentation of changes in contingency that result from construction bids different from the Engineer’s Estimate, contract under-runs, and/or value engineering. 	CCM Plan.	Draft CCM Plan – Third Quarter 2012.
		Calculation of the minimum contingency, available contingency, and target contingency applicable to the project.	Updated quarterly.

CCM	Exhibit 1.6 Requirements	Deliverables	Frequency
	<ul style="list-style-type: none"> Results of any secondary mitigation (e.g., reductions in scope or requirements), showing where the resulting savings are reflected in increased total project contingency or other line items in the cost model. 	Contingency Utilization Report.	Monthly.
CCM-3	Maintain total contingency above the minimum amounts at the defined FTA Milestone Review Points, as specified in the Project Execution Strategy section.	Contingency Utilization Report.	Monthly.
CCM-4	Develop a process for distributing, maintaining, and utilizing the FTA Risk Retainage at the FTA Milestone Review Points, as specified in the Project Execution Strategy section.	FTA Risk Retainage Utilization Report.	At FTA Milestone Review Points.

Exhibit 1.7 Schedule Contingency Management (SCM)

SCM	Exhibit 1.7 Requirements	Deliverables	Frequency
SCM-1	Establish and implement procedures to track schedule durations and the resulting available schedule float, analyze trends in float, and forecast the required float as part of its overall progress reporting effort.	Float Utilization Report.	Bimonthly, with bimonthly briefing meetings between IMS updates.
SCM-2	Ensure that schedule float that may be created by means of shortened critical path activities (such as workarounds) or changes in project scope or requirements (secondary mitigation) are identified and accounted for in the estimate of total schedule float in a timely manner.	Float Utilization Report.	Bimonthly, with bimonthly briefing meetings between IMS updates.

SCM	Exhibit 1.7 Requirements	Deliverables	Frequency
SCM-3	Keep the available schedule float above the minimum floats at the FTA Milestone Review Points, as specified in the Project Execution Strategy section. If insufficient float is available, identify mitigation measures or adjust the schedule to reflect a realistic completion date.	Float Utilization Report.	Bimonthly, with bimonthly briefing meetings between IMS updates.

Exhibit 1.8 Risk Management (RM)

RM	Exhibit 1.8 Requirements	Deliverables	Frequency
RM-1	<p>The WTCC's project risk management program and processes should include the following:</p> <ul style="list-style-type: none"> ▪ A process to identify and quantify the potential impacts of project risks, with updates at appropriate time intervals. Risk updates should include the impacts of potential COs, unresolved construction claims, and other known contractual issues for both construction and soft costs. ▪ A process to identify and implement project risk management strategies, including primary risk mitigation and secondary mitigation. ▪ Monitor risks to determine how project risks have been handled or changed. ▪ Document and report to the FTA the progress of WTCC's project risk management program. 	Project RM Plan.	<p>Draft Project RM Plan – Third Quarter 2012.</p> <p>Updated as needed, but no less frequently than at the defined FTA Milestone Review Points.</p>
RM-2	<p>Develop and update a Project Risk Register incorporating the following classifications of risk and identifying risk mitigation strategies and the status of the implementation:</p> <ul style="list-style-type: none"> ▪ Requirements risks. ▪ Design and pre-construction risks. ▪ Project delivery method risk (including market risk). 	Project Risk Register update report.	Monthly.

RM	Exhibit 1.8 Requirements	Deliverables	Frequency
	<ul style="list-style-type: none"> ▪ Early construction risk. ▪ Mid-range construction risks. ▪ Start-up/substantial completion of construction risks. 		

Exhibit 2 – PEP Milestones and FTA Milestone Review Points

PATH Hub FTA Milestone Review Point & PEP Milestones
 Dates from IMS #62

FTA Milestone Review Point	2012		2013	
	November	March	August	December
PEP Milestone	<ul style="list-style-type: none"> - Platform A Beneficial Use (Operational) [10/12] - Structural Steel to Grade Area 3 Steel Complete [10/12] - Oculus Steel Erection Start [11/12] 	<ul style="list-style-type: none"> - All Oculus Abutments and Lower Portals Steel Fabrication Complete [03/13] - East-West Connector Turnover to Retail [03/13] - East Bathub Weatherlight @ EL.274 [03/13] 	<ul style="list-style-type: none"> - Oculus Glazing Installation Start [06/13] - Oculus Steel Erection Complete [08/13] 	<ul style="list-style-type: none"> - Systems Operational (Central Plant) [10/13] - Platform B Beneficial Use (Operational) [11/13] - Oculus Glazing Fabrication Complete [12/13] - Oculus Skylight Field Measurement & Fabrication Complete [12/13]
FTA Milestone Review Point	2014		2015	
	April	August	February	May
PEP Milestone	<ul style="list-style-type: none"> - Oculus Weatherlight [04/14] - Major Systems Complete & Ready for Integration and Testing [04/14] 	<ul style="list-style-type: none"> - Platform C/D Mezzanine Structure (Pre-cast) Complete [08/14] - Structural Steel to Grade Contract Closeout [08/14] 	<ul style="list-style-type: none"> - Vertical Circulation Elements Meet ADA Compliance [11/14] - Oculus / Transit Hall Temporary Permit to Occupy/Use [02/15] 	<ul style="list-style-type: none"> - Platform C/D Complete [05/15] - Hub Substantially Complete [05/15]

Exhibit 3 – FTA Risk Retainage and Minimum Contingency Requirement

PMOC Risk Assessment Baseline: November 2011

Assessment Update through June 2012

Basis of Update:

	Revision	Data Date	Total Available Project Funds (\$)/ RRCA RCD	Total Available Contingency Funds (\$)/ Float
WTCC Cost Model	Rev. 11	April 30, 2012	\$3.72 billion	\$551 million
WTCC IMS	#62	April 1, 2012	December 17, 2015	212 days

FTA Risk Retainage Release

- The FTA will maintain the FTA Risk Retainage at \$280 million until the beneficial use of Platform A, the completion of Structural Steel to Grade Area 3 Steel, and Start of Oculus Steel Erection. Currently, these are forecast to occur during the fourth quarter of 2012. At completion of these milestones, the FTA will consider releasing approximately \$51 million of the FTA Risk Retainage, pending review of the project cost and available contingency.
- The remaining FTA Risk Retainage amount (\$229 million) would be held until the completion of Oculus Abutments and Lower Portals Steel Fabrication, turnover of East-West Connector to Retail, and East Bathtub Weathertight at elevation 274. Currently, these are forecast to occur during the first quarter of 2013. Upon achievement of these milestones, the FTA will consider the release of approximately \$38 million of the FTA Risk Retainage.
- The remaining FTA Risk Retainage amount of \$191 million would be held by the FTA until the completion of the Oculus Steel and the start of Oculus Glazing Installation. Currently, these are forecast to occur during the third quarter of 2013. The FTA will consider releasing approximately \$61 million of the FTA Risk Retainage at the completion of these milestones.
- The remaining FTA Risk Retainage amount of \$130 million would be held until the operation of Systems at Central Plant, the beneficial use of Platform B, the completion of Oculus Glazing Fabrication, and the completion of Oculus Skylight Field Measurement and Fabrication. Currently, these are forecast to occur during the fourth quarter of 2013. Upon completion of these milestones, the FTA will consider releasing approximately \$27 million of the FTA Risk Retainage.
- The remaining FTA Risk Retainage amount of \$103 million will be held until the achievement of the Oculus Weathertight and the completion of Major Systems and Ready for Integration and Testing. Currently, these are forecast to occur during the second quarter of 2014. Upon completion of these milestones, the FTA will consider releasing approximately \$41 million of the FTA Risk Retainage.

- The remaining FTA Risk Retainage of \$62 million will be held until the closeout of the Structural Steel to Grade contract and Platform C/D Mezzanine Structural Steel. Currently, these are forecast to occur during the third quarter of 2014. The FTA will consider releasing approximately \$23 million of the FTA Risk Retainage at the completion of these milestones.
- The remaining FTA Risk Retainage of \$39 million will be held until the completion of the vertical circulation elements that comply with the Americans with Disabilities Act (ADA) requirement and the achievement of temporary permit to occupy/use for Oculus/ Transit Hall. Currently, these are forecast to occur during the first quarter of 2015. The FTA will consider releasing approximately \$25 million of the FTA Risk Retainage at the completion of these milestones.

FTA Minimum Contingency Requirement

- The FTA minimum contingency requirement is \$87 million at the beneficial use of Platform A, the completion of Structural Steel to Grade Area 3 Steel, and Start of Oculus Steel Erection, which are currently forecast to occur during the fourth quarter of 2012.
- Thereafter, the minimum shall be lowered incrementally each period, but not below \$61 million, until the completion of Oculus Abutments and Lower Portals Steel Fabrication, Turnover of East-West Connector to Retail, and East Bathtub Weathertight at elevation 274, which are currently forecast to occur during the first quarter of 2013.
- Thereafter, the minimum shall be lowered incrementally each period, but not below \$41 million, until the completion of the Oculus Steel and the start of Oculus Glazing Installation, which are currently forecast to occur during the third quarter of 2013.
- Thereafter, the minimum shall be lowered incrementally each period, but not below \$33 million, until the operation of Systems at Central Plant, the beneficial use of Platform B, the completion of Oculus Glazing Fabrication, and the completion of Oculus Skylight Field Measurement and Fabrication, which are currently forecast to occur during the fourth quarter of 2013.
- Thereafter, the minimum shall be lowered incrementally each period, but not below \$20 million, until the achievement of the Oculus Weathertight and the completion of Major Systems and Ready for Integration and Testing, which is currently forecast to occur during the second quarter of 2014.
- Thereafter, the minimum shall be lowered incrementally each period, but not below \$12 million, until the completion of the Structural Steel to Grade contract and Platform C/D Mezzanine Structure, which are currently forecast to occur during the third quarter of 2014.

Contingency Draw-down Curves

In addition to above curves, the following additional curves shown on the graph (Exhibit 3.1) below are defined as follows:

- FTA Mitigation Target: This updated curve is based on the targeted draw-down rate of the FTA Mitigation Target established during the November 2011 Assessment that equates to the amount of contingency required to cover 80 percent of the difference

between the FTA's P90 cost estimate and PANYNJ's forecasted cost, including PANYNJ's contingency. The mitigation target provides the basis for the release of FTA Risk Retainage at each FTA Milestone Review Point. If PANYNJ can demonstrate primary or secondary risk mitigation capacity, the FTA would consider increasing the FTA Risk Retainage amounts to be released.

- Targeted Total Available Contingency Funds Draw-Down: A planned draw-down curve of the total available contingency funds currently included in the total available project funds..

Exhibit 3.1 Contingency Draw-down Curve

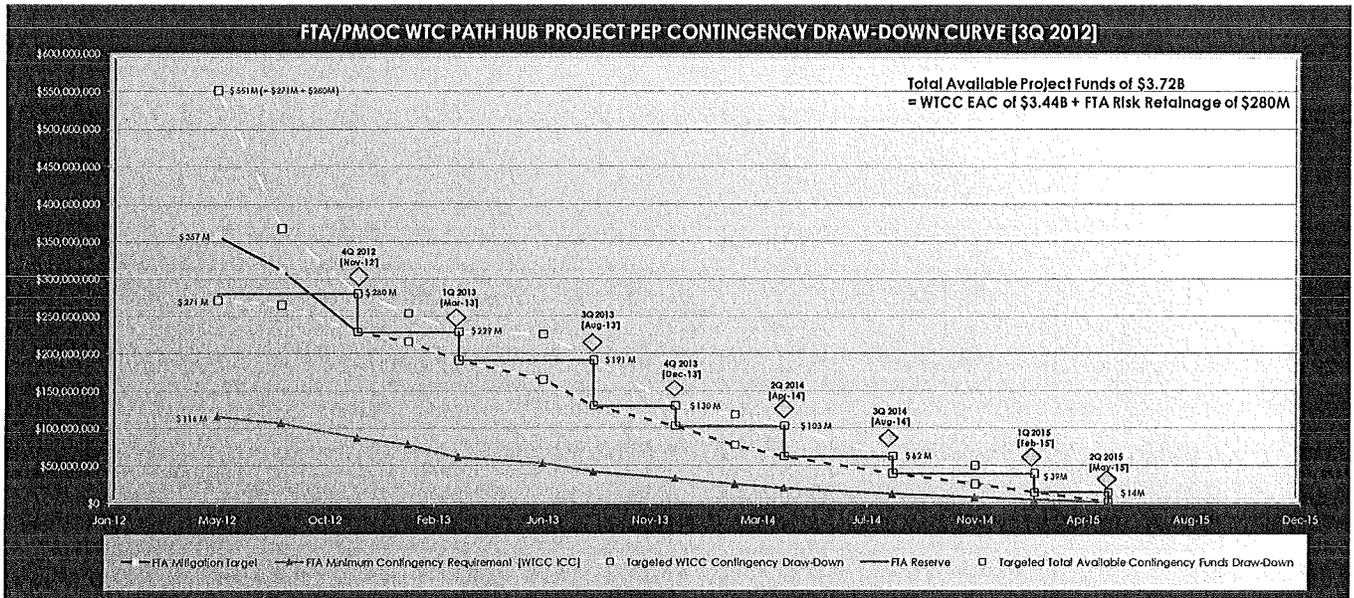


Exhibit 4 – FTA Desired Minimum Float Requirement

PMOC Risk Assessment Baseline: November 2011

Assessment Update through June 2012

Basis of Update:

	Revision	Data Date	Total Available Project Funds (\$)/ RRCA RCD	Total Available Contingency Funds (\$)/ Float
WTCC Cost Model	Rev. 11	April 30, 2012	\$3.72 billion	\$551 million
WTCC IMS	#62	April 1, 2012	December 17, 2015	212 days

FTA Desired Minimum Float

The most recent IMS 62 (with a data date of April 1, 2012) shows that there is a 212 days of float on the project’s critical path leading to the RRCA RCD. The FTA Desired Minimum Floats are cited below at the following FTA Milestone Review Points.

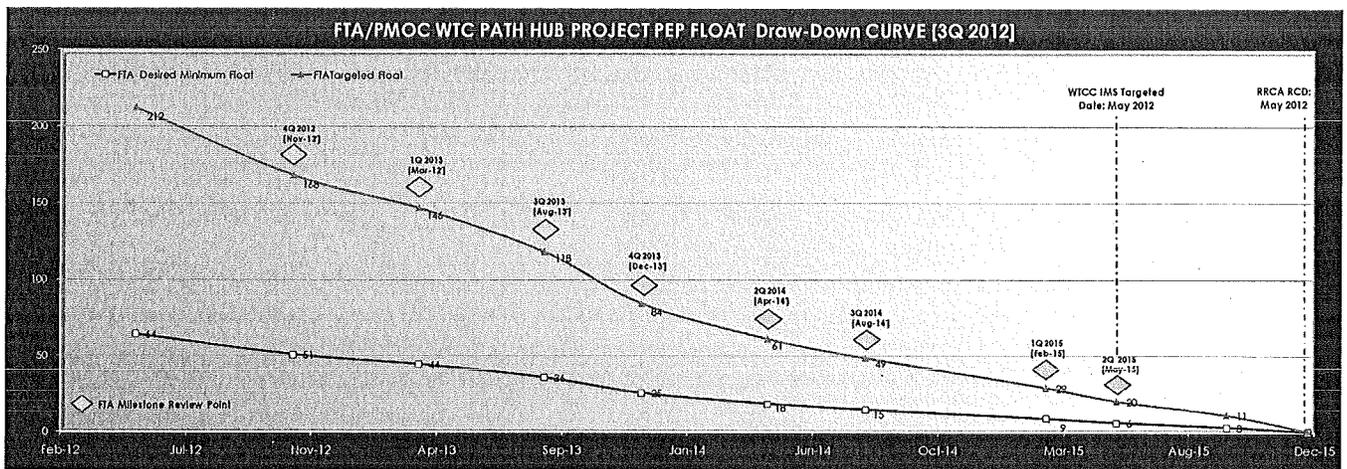
- 51 calendar days through the completion of the Structural Steel to Grade Area 3. Currently, this is forecast to occur during the fourth quarter of 2012. Before this date, the following milestones are anticipated to be completed:
 - The Beneficial Use of Platform A; and
 - The start of Oculus Steel Erection.
- 44 calendar days through the completion of Oculus Abutments and Lower Portals Steel Fabrication. Currently, this is forecast to occur during the first quarter of 2013. Before this date, the following milestones are anticipated to be completed:
 - The turnover of East-West Connector to Retail; and
 - The East Bathtub Weathertight at elevation 274.
- 25 calendar days through the Beneficial Use of Platform B. Currently, this is forecast to occur during the fourth quarter of 2013. Before this date, the following milestones are anticipated to be completed:
 - The operation of Systems at Central Plant;
 - The completion of Oculus Glazing Fabrication; and
 - The completion of Oculus Skylight Field Measurement and Fabrication.

Schedule Float Draw-down Curves

The following additional curves shown in the graph below are defined as follows:

- FTA Target Float: The FTA's targeted float curve based on the RRCA RCD.

Exhibit 4.1 Schedule Float Draw-down Curve



LIST OF ABBREVIATIONS & ACRONYMS

ADA	Americans with Disabilities Act	QMS	Quality Management System
A/E	Architect/Engineer	RCD	Required Completion Date
BCE	Baseline Cost Estimate	RFI	Request for Information
CA	Construction Agreement	RM	Risk Management
CCM	Cost Contingency Management	RRCA	Revised and Restated Construction Agreement
CM	Cost Management	SCM	Schedule Contingency Management
CM/GC	Construction Manager/General Contractor	SM	Schedule Management
CO	Change Order	TCC	Technical Capacity and Capability
DSC	Design Support during Construction	WBS	Work Breakdown Structure
EAC	Estimate at Completion	WTC	World Trade Center
EWA	Extra Work Allowances	WTCC	World Trade Center Construction (Department)
FEMA	Federal Emergency Management Agency		
FFGA	Full Funding Grant Agreement		
FTA	Federal Transit Administration		
GMP	Guaranteed Maximum Price		
ICC	Independent Cost Consultant		
IMS	Integrated Master Schedule		
MEP	Mechanical, Electrical, and Plumbing		
MEU	Materials Engineering Unit		
NYCT	New York City Transit		
PACC	Post-Award Contract Change		
PANYNJ	Port Authority of New York and New Jersey		
PATH	Port Authority Trans-Hudson		
PCM	Procurement and Construction Management		
PDC	Power Distribution Center		
PEP	Project Execution Plan		
PMOC	Project Management Oversight Consultant		
PMP	Project Management Plan		
PQAP	Project Quality Assurance Plan		
PW	Project-Wide		
QA	Quality Assurance		
QM	Quality Management		