

MONTHLY MONITORING REPORT -

**World Trade Center Port Authority Trans-Hudson Terminal -
PORT AUTHORITY OF NEW YORK AND NEW JERSEY
New York, New York**

March 2014



PMOC Contract Number: DTFT60-09-D-00008

Task Order Number: T09002, Project Number: RV-43-0001, Work Order No. 005

O.P.s Reference: 01, 02, 25

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

PMOC Lead: Erick Peterson, Contact Information: 212-364-2112, egp@deainc.com

PMOC / Start of Assignment: David Evans and Associates, Inc. / October 2008

TABLE OF CONTENTS -

TABLE OF CONTENTS	2
DISCLAIMER.....	3
REPORT FORMAT AND FOCUS	4
EXECUTIVE SUMMARY	4
Project Description	4
Construction Agreement (CA)	4
Quarterly Progress Review Meeting (QPRM)	4
Design Activity	5
Procurement Activity	5
Construction Activity	5
Schedule	5
Cost Data.....	5
Risk Management	6
Technical Capacity and Capability Review (TCCR).....	6
Project Management Plan (PMP).....	6
Project Quality Assurance.....	6
Site Safety and Security Review	6
Major Issues/Problems	6
MONITORING REPORT	7
A Project Description	8
B Project Status.....	8
C Schedule	13
D Cost Data	13
E Risk Management.....	14
F Technical Capacity and Capability Review	14
G Site Safety and Security Review	15
H Major Issues/Problems	15
APPENDIX A – LIST OF ACRONYMS.....	16

Cover: *New fan plant equipment at the south projection.*

DISCLAIMER -

This report and all subsidiary reports are prepared solely for the Federal Transit Administration (FTA). This report should not be relied upon by any party, except the FTA or the project sponsor, in accordance with the purposes as described below.

For projects funded through FTA's Lower Manhattan Recovery program, the FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a project sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a sponsor may develop for project execution.

Therefore, the information in the monthly reports may change from month to month, based on relevant factors for the month and/or previous months.

REPORT FORMAT AND FOCUS

This monthly report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60-09-D-00008, Task Order No. 002. Its purpose is to provide information and data to assist the FTA in continually monitoring the grantee's technical capability and capacity to execute a project efficiently and effectively, and hence, whether or not the grantee continues to receive federal funds for project development.

This report covers the project management activities on the Permanent World Trade Center (WTC) Port Authority Trans-Hudson (PATH) Terminal (Hub) project, conducted by the Port Authority of New York and New Jersey (PANYNJ) as grantee and funded by the FTA's Lower Manhattan Recovery Office (LMRO).

EXECUTIVE SUMMARY

Demolition of the temporary mezzanine above existing Platform B, which started immediately following the opening of the new Platform A on February 25, 2014, was performed during March. Work trains were used to remove construction debris as well as to deliver sections of new precast smoke purge ducts and new steel truss girders that will support the new mezzanine. Oculus steel erection also advanced during March, which ended with a balance of eight upper portals and 16 arch-transitions remaining to be erected from a total population of 110 of each of those element types. Also in March, the fabrication subcontractor released the ninth and final shipment of oculus steel, and it is expected to arrive in New York during the third week of April 2014.

Project Description

The WTC PATH Hub Terminal serves the PATH electrified rail transit system in Lower Manhattan. The PATH Hub is an extensive underground complex of pedestrian corridors and train station facilities that will replace the original WTC PATH Terminal destroyed by terrorist attack on September 11, 2001.

Construction Agreement (CA)

The CA was signed by the LMRO 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.

Quarterly Progress Review Meeting (QPRM)

The QPRM for the fourth quarter of 2013 was held on February 24, 2014. *The QPRM for the first quarter of 2014 has been scheduled for May 19, 2014, at 1:30 p.m.*

Design Activity

The designer continues to provide construction support services, including the review of contractor shop drawings and other submittals.

Procurement Activity

World Trade Center Construction (WTCC) has completed all planned procurements for the PATH Hub project. *However, Change Orders continued to be issued as necessary under the active construction contracts.*

Construction Activity

March construction activity featured the demolition of the entire mezzanine above Platform B. The entire mezzanine was removed before the end of the month, and almost all of the debris was transported off-site. This work commenced immediately following the opening of Platform A, which occurred on February 25, 2014.

In the east bathtub, oculus steel erection continued, meeting the scheduled level of production for the month, and keeping pace with the January and February levels. The quantities of upper portal and arch-transition elements maintained the January and February performance levels. All three months of 2014 showed significantly better production from that recorded in 2013. Also during March, the fabrication subcontractor's shop released the ninth and last shipment of major oculus elements, which consisted of the last 54 steel rafter elements required, thus completing the fabrication of oculus steel.

Schedule

In March 2014, WTCC released Integrated Master Schedule (IMS) 71 and IMS 72, (b) (4)

[REDACTED]

Cost Data

WTCC submitted its monthly cost model revision on *March 31, 2014*. It shows that, based on the contract awards and estimates through *February 28, 2014*, WTCC's Estimate at Completion (EAC) for the federally funded PATH Hub project is just over \$3.7 billion, which is unchanged from the cost model revision submitted at the end of the prior month. WTCC is also reporting total PATH Hub expenditures through *February 28, 2014*, to be more than \$2.78 billion, or approximately 75 percent of the EAC. That total of PATH Hub expenditures includes an additional amount of nearly \$17 million in PATH Hub expenditures over the total contained in the *February 28, 2014* report. However, that monthly expenditure value is *well* below the required average monthly burn rate of approximately \$43 million that is necessary to complete the project by the forecast date of December 2015. *Given the size of the disparity, a review has*

been initiated to determine the factors behind this diminished monthly expenditure value, although it does not appear to be connected to a decline in the amount of work performed. Information on what the review reveals will be included in the April report.

Risk Management

To provide an improved project risk tool, the FTA, the Project Management Oversight Contractor (PMOC), and WTCC completed the Project Execution Plan (PEP) in conjunction with the execution of the RRCA on September 18, 2012. As information on the impacts of Hurricane Sandy became available, the PMOC conducted PEP workshops in June 2013 to discuss and quantify the impacts to cost and schedule from the storm. The PMOC then reconciled the results of the workshops with WTCC, and the outcome of this effort was used to update the PEP. The PEP was finalized in February 2014 and recognized WTCC's eligibility for receiving partial release of risk retainage by achieving beneficial use of Platform A on February 25, 2014.

Technical Capacity and Capability Review (TCCR)

Update to the TCCR will be performed as necessary in conjunction with the update of the PEP.

Project Management Plan (PMP)

The grantee provided an approved copy of the WTC Project Quality Assurance Plan (PQAP), a PMP sub-plan, for FTA review on November 7, 2013. The PMOC completed its review and concluded that the PQAP is consistent with the FTA Quality Assurance/Quality Control (QA/QC) Program Guidelines. However, the PMOC's conclusion included a recommendation that the FTA accept the PQAP contingent upon WTCC's providing clarification on the reporting lines between WTCC QA and WTCC management in order to demonstrate the independence of the WTCC QA organization. WTCC has agreed to modify the PMP section that describes its organizational relationships to reflect that independence but has not yet transmitted that revision.

An update to the grantee's Operations Management Plan, which is another PMP sub-plan, remains outstanding. The grantee has provided a draft construction phase Force Account Plan and Justification, and the PMOC is currently reviewing it.

Project Quality Assurance

During March 2014, WTCC QA completed three QA oversight audits to review the CM QA field observations and WTCC activities performed in March 2014. For the QA audits completed in March 2014, no corrective actions were identified. The March 2014 audit total reflects the three audit reports that were issued, and received, at the time this report was drafted.

Site Safety

A review of safety performance indicators for the PATH Hub project through February 2014 identifies an increase in safety incidents in 2014. For the year to date (through February 2014), both the Total Case Incident Rate (TCIR) and the Lost-Time Incident Rate (LTIR) increased to levels above the project's goals for those rates. The TCIR increased to 6.19, which is above the

project's goal of 5.0 and the national average of 3.2. The LTIR increased to 3.09, which is above the project's goal of 2.0. WTCC Safety has continued its active role in managing worker safety and is reviewing the causes for the increased rates. The project's March 2014 safety data was not fully available at the time this report was being drafted.

Issues/Problems/Suggestions

The widespread regional damage caused by Hurricane Sandy in late October of 2012 caused a delay to the forecast completion of the PATH Hub project. (b) (4)

[REDACTED]

[REDACTED]

MONITORING REPORT

A. Project Description

The PATH Hub facility is an intermodal terminal serving the PATH electrified heavy rail transit system, which has a total of 13 PATH stations in New York and New Jersey. When completed, the PATH Hub will connect to 11 New York City Transit (NYCT) subway lines in Lower Manhattan. The PATH Hub will include a platform level, associated mezzanine and concourse levels called the PATH Hall, and a terminal building called the Oculus, or Transit Hall, with north-south and east-west pedestrian connections to the NYCT subways, the World Financial Center, and WTC above-grade site development. It will be a permanent replacement of the original WTC PATH Terminal complex destroyed by terrorist attack on September 11, 2001.

B. Project Status

Construction Agreement

The CA was signed on April 25, 2006. An RRCA was executed on September 18, 2012. The RRCA establishes an RCD of December 17, 2015, and commits \$2.872 billion in federal funding to the PATH Hub project. It also includes an FTA-allowable not-to-exceed amount of \$3.995 billion.

Quarterly Progress Review Meeting

The QPRM for the fourth quarter of 2013 was held on February 24, 2014. *The QPRM for the first quarter of 2014 has been scheduled for May 19, 2014, at 1:30 p.m.*

WTC Site Master Plan

WTCC's current site master plan is Master Plan Version 10, released October 1, 2010.

Environmental Compliance

(Reported on separately by FTA's LMRO.)

Design Support during Construction

The designer continued providing post-award design support services for the PATH Hub construction, including responding to contractor Requests for Information and providing design certifications for completed elements of construction. *During March, the designer also issued addenda 42 and 43. These addenda typically incorporate multiple issued RFI responses where the designer authorized changes to the base design documents. They bring those design documents into conformance with the RFI responses.*

Construction Status

Oculus Steel: The ninth and final shipment of major oculus steel elements departed the fabrication subcontractor's facility on March 27, 2014, and is scheduled to arrive in New York during the third week of April. That shipment consists of the final 54 rafter elements and

completes the total of 146 required rafter elements. Progress on erection of oculus steel elements during March kept pace with the progress recorded during January and February, thus avoiding any further schedule erosion, but also not recovering any of the time lost during 2013. If the March pace is maintained during April, the last upper portals and the last arch-transitions should be completed before the end of the month. The erection of the rafters will then be the only remaining major oculus steel elements to be set. Given the different configuration and geometry of the rafter assemblies, and the fact that they are connected to one another via a purlin system, the erection production rates will be closely watched in the initial period to help predict the overall duration of that work. The following table quantifies the field progress during the month:

Summary of Oculus Steel Erection Progress (March 2014)

	Upper Portals	Arch-Transitions	Rafters
Total Quantity	110	110	146
Set Last Month	12	16	1
Set This Month	14	11	1
Total Set to Date	102	94	2
Number Remaining	8	16	144

Oculus Glass: Although previously forecast to begin in the third quarter of 2013, commencement of oculus glass installation continues to await the turnover of the oculus steel structure. Mobilization of the glass contractor *is currently* forecast to occur during the summer of 2014. All of the glass panels have been fabricated and shipped from the contractor's fabrication subcontractor, and are being stored at the contractor's storage facility in Harrison, New Jersey. The glass contractor has applied for additional compensation as a result of the delay in starting the glass panel installation, although this issue has not been settled at present. Additionally, designer comments remain open on the mock-ups of the oculus glass and metal panels that were erected on-site in November 2013. Meetings to discuss the comments and what can be done to address them continued during *March 2014*, along with team visits to observe the site mock-ups and review how some of the open comments could be addressed. Not all of the comments have been resolved, *but some progress has been made. Final resolution of the comments is expected to occur during April 2014.*

Oculus Skylight: During *March*, testing of a full-size mock-up of a typical section of the oculus skylight *concluded* at the contractor's testing facility. Testing was *successfully* completed for air infiltration, static water penetration, dynamic water penetration, thermal cycling, soft body impacts, hard body impacts, and breakage. However, skylight cycle testing at various temperatures continued *yielded some* unfavorable results for condensation formation at exterior temperatures of 5 degrees Fahrenheit and 12 degrees Fahrenheit. *At present, the design/build contractor for the skylight system is preparing a submittal addressing the unlikelihood of any condensation formation in the actual permanent installation configuration of the oculus, intending to technically justify that the current design is acceptable with regard to the condensation phenomenon.*

Transit Hall Interior Stone: Under this contract, stone floor and wall finishes are to be furnished and installed throughout the Transit Hall side of the project, including at both of the grand staircases; the oculus floors at elevations 274 and 296; both levels of the north-south concourse;

and various other associated stairs, passageways, and entryways. Phase 1 installation, consisting of the stone flooring at the southern end of the lower level of the north-south concourse, commenced during October and continues to advance in the northerly direction toward the oculus. During March, the contractor *reached 90 percent completion of floor installation at elevation 274 south of the oculus. In April, installation will commence at elevation 296 south of the oculus.* Stone fabrication is following the same phasing sequence, with *some pieces of stone for the grand staircase at the western end of elevation 274 of the oculus on-site and the balance in fabrication.* However, installation of the stone stair treads and risers is constrained by the need to first install stone treatments on the walls at the northern and southern ends of the grand staircase. That wall stone has been *delayed* because the initial shop drawing set submitted by the contractor was partially rejected in mid-February and was returned to the contractor to revise and resubmit the drawings for approval before proceeding.

PATH Hall Construction (PHC): *Immediately following the February 25, 2014 opening of Platform A, the existing Platform B was removed from revenue service followed by start of demolition. During March, the entire mezzanine above Platform B was demolished, and the construction debris was transported off-site via work trains. Also during March, demolition of the existing Platform B began and by month's end had advanced to approximately 50 percent completion. The PHC contractor has also been working at the track-level location of new Platform D, primarily performing demolition work. A former crash wall has been removed, and a temporary timber retaining wall for the support of excavation has also been installed. WTCC is currently projecting that the rock removal necessary to construct the portion of the utility tunnel that will pass under Platform D will start during April 2014.*

Structural Steel to Grade (SSTG): During February, WTCC indicated that performance issues have again arisen with regard to the SSTG contractor. This contractor is responsible for furnishing and installing structural elements at the PATH Hall, including pre-cast concrete smoke purge ducts and steel truss girders, both of which run longitudinally above each side of new Platform B and are necessary to the advancement of that work. During March, WTCC indicated that many of those structural elements remained off-site and under the contractor's control but should have been released and staged for delivery and ultimate installation at the project site. WTCC is currently actively pursuing action to force their release in order to avoid the accrual of any delay to the Platform B work. WTCC is also reporting that the SSTG contractor is staffing the project with a crew of only six workers as of the end of the month of March, which is a substantial decrease from the SSTG contractor's crew size of 30 to 35 workers in the prior two months of 2014.

East Bathtub Mechanical, Electrical, Plumbing, and Fire Protection Work: During March, work on spot networks SN-PN and SN-NW continued, along with work at the Central Fan Plant and in the PATH Hub project back-of-house equipment spaces located in Tower 2 and Tower 4. Emphasis is being placed on contract work and related temporary workarounds needed to support the achievement of critical schedule milestone events in the second quarter of 2014, including the start of pedestrian traffic through the east bathtub, the securing of Temporary Permits to Occupy (TPTOs) for hub equipment spaces located in the podium of Towers 2 and 4, and the removal from service of the North Temporary Access (NTA). During March, the electrical contractor brought electric service to the escalators serving the new pedestrian egress routes through Towers 2 and 4. The mechanical contractor advanced the work on AHU-19 and

RF-19 on the fourth floor of Tower 4, and the fire protection contractor performed installations at the lower level of the north-south concourse.

Emergency Generator Plant and Emergency Chiller Plant: Following February's startup of generators #4 and #5, March work at the Emergency Generator Plant included the startup of the remaining six emergency generators. The startup of generators #7 and #8 included running each of those units for two hours, since both had been subjected to repairs made at the site by the manufacturer to correct a factory deficiency. WTCC has identified the placement into service of the Emergency Generator Plant as a critical milestone that needs to be completed by June 1, 2014. Among the activities that must be completed to accomplish that objective are the delivery and installation of the fuel oil pump sets and associated control panels at the tank room, which is located at elevation 240' of Tower 3. The mechanical contractor, which is providing the pumps, is currently reporting that their delivery to the site is expected during the first week of April 2014.

Primary Distribution Center (PDC) at Tower 1: Four of the eight line-ups at the Tower 1 PDC had been energized as of the end of October 2013. Energization of the next set of line-ups, line-ups E and F, had been projected to occur by the end of March 2014, but energization was not accomplished because of continuing concerns of Con Edison regarding testing and test reports that have not been satisfied. Additionally, although line-ups A, B, C, and D are live, they are not yet feeding the PATH Hub project elements that they will serve in the future. Instead, the Temporary Primary Distribution Center (TPDC) at the NTA continues to supply the PATH Hub project's electrical requirements. Migration from the TPDC source to the PDC source had also been projected to begin by the end of the first quarter of 2014 but was not accomplished. Completion of those electrical load transfers is required during April and May 2014 to allow for the planned demolition of the NTA to begin on June 1, 2014, as currently scheduled. Eight separate load transfer events are planned to incrementally migrate the PATH Hub project loads from the TPDC to the PDC.

Vertical Circulation: During March, the contractor continued to installing the escalator and elevator components located in the Transit Hall at elevations 274, 296 and 306. The contractor also continued to work on the escalators in Towers 2, 3 and 4. The contractor had also begun his operational testing for Escalator 23/24 located in the Hub/Tower 2 area. Elevators 16/17 (which are required for the North/South Connector opening in June of 2014) have had the rail and clip installation work completed.

Architectural Trades: The stone contractor has completed the floor installation at elevation 274 in the area south of the Oculus toward the Tower 4 leg. It will commence the stone floor installation in the same area of elevation 296 on 4/1/2014. Ornamental metal, glass store fronts and steel wall panels in the north-south concourse at elevation 274 are progressing to their final stages. The Construction Manager (CM) continues coordinating the work of the various crafts in the concourse areas under construction. At the Transit Hall, the contractor continues to coordinate architectural steel installation and fit-up with the oculus steel contractor. At the mezzanine level, D1-D13, the contractor is installing ceiling panels, ornamental metal, and stairway rough-in elements. The contractor's goal continues to be the completion of fit-out construction by the end of June 2014.

North and South Projections: During March, work advanced at both the north projection and south projection facilities. At the north projection, the two new smoke purge fans were placed on

their respective equipment pads, and sections of the required transition duct elements were delivered to the fan chamber. However, a significant water infiltration condition remains in adjacent and lower spaces within the north projection facility, and work to remedy this condition is ongoing. At the south projection, the work is approaching completion: The fans are fully installed, and the related electrical gear installation and terminations are ongoing. The south projection fan plant is currently forecast to go into service by the end of the second quarter of 2014.

Commissioning: There are currently a number of key milestone events for the PATH Hub project that are projected to occur during the second quarter of 2014. Those events are linked to commitments to other stakeholders, and to the PATH Hub project's plan to take the NTA out of service and start routing pedestrian traffic through the east bathtub as an alternate route. Project elements that must be completed and commissioned are the Central Fan Plant, the Emergency Diesel Generator Plant, the lower level of the north-south concourse, the south projection, the Emergency Chiller Plant, and the below-grade corridors and staircases serving PATH Hub equipment spaces within the podiums of Tower 2 and Tower 4. In most cases, the event being worked toward is the placement into service of a portion of the project element and not the full project element.

Central Fan Plant

AHU-6 and AHU-7: Both units appear to have their piping, valving, and insulation completed as well as the partial insulation of the duct system. Both unit have their Variable Frequency Drives (VFDs) installed but not fully wired. According to the BATC contractor, the VFDs do not have power, and therefore installation of the control work cannot commence. The control work is scheduled to be installed soon; however, it will not be activated until power to the units is completed. Fire alarm wiring, termination, and interfacing at the VFD appears to be completed for AHU-6; AHU-7 fire alarm work is ongoing.

Construction Logistics

The WTCC Office of Program Logistics (OPL) continued biweekly logistics and coordination meetings to facilitate construction progress and the sharing of access, egress, and work zones among all contractors on-site. The oculus steel contractor is exploring options for alternative routes for delivery of oculus steel to the site, since the New York City Department of Design and Construction project on Broadway is expected to breach the intersection at Fulton Street later in the spring. *The opening of the Memorial Museum is currently scheduled for May 21, 2014, and the logistics plan for handling museum visitors is under active development.*

Interagency Coordination

OPL continued its coordination of site construction and logistics among the many project stakeholders, including contractors, construction managers, tenants, insurance firms, PATH operations, and the Port Authority Police Department.

Community Relations

OPL continued to distribute construction alerts, updates, and monthly construction progress newsletters to the community and stakeholders.

C. Schedule

WTCC released IMS 71 and IMS 72 in March 2014, with data dates of December 1, 2013, and February 1, 2014, respectively. (b) (4)

(b) (4) The delay is primarily attributed to the effects of Hurricane Sandy. However, re-sequencing of platform construction in support of the early demolition of the NTA may further delay the project's substantial completion date. WTCC continues to assess opportunities for workarounds, in particular for platform construction. WTCC achieved Platform A beneficial use on February 25, 2014, which is approximately two months later than the IMS 70 projected date of December 31, 2013. (b) (4)

(b) (4)

(b) (4)

(b) (4)

The following table summarizes the 90-day look-ahead for significant activities:

Significant Activity	Action by
Central Fan Plant On-line	WTCC
Demolition of Platform B	WTCC
Erect/Bolt/Weld Oculus Steel Upper Portals and Arch-transitions	WTCC

D. Cost Data

WTCC submitted its monthly cost model revision on March 31, 2014. It shows that, based on the contract awards and estimates through February 28, 2014, WTCC's EAC for the federally funded PATH Hub project is just over \$3.7 billion, which is unchanged from the cost model revision submitted at the end of the prior month. WTCC is also reporting total PATH Hub expenditures through February 28, 2014, to be more than \$2.78 billion, or approximately 75 percent of the EAC. That total includes an additional amount of nearly \$17 million in PATH Hub expenditures over the total contained in the February 28, 2014 report. However, that monthly expenditure value is below the required average monthly burn rate of approximately \$43 million that is necessary to complete the project by the forecast date of December 2015.

On October 18, 2012, the Port Authority Board re-authorized the WTC PATH Hub project, at an estimated total project cost range of \$3.74 billion to \$3.995 billion. This authorization provided for an increase in the budget from approximately \$3.4 billion to slightly more than \$3.7 billion.

The \$3.7 billion budget reflects the updated engineer's estimates for all packages in the completed procurement plan and includes the PATH Hub project's share of the common infrastructure projects, such as Retail, the Central Chiller Plant, the Common Electrical System, and site-wide operational support elements. WTCC continues to update the cost allocations that are assigned to the PATH Hub project.

The following table summarizes the latest available EAC (WTCC's forecast) and expenditures as of February 28, 2014:

Description	EAC (WTCC's Forecast) (in millions)	Expenditures (in millions)
Construction	\$2,823	\$2,160
Program Management and Design	682	625
Contingency	(b)	(
Total	(b) (4)	(b) (4)

The RRCA commits \$2.872 billion in federal funding to the PATH Hub project and includes an FTA-allowable not-to-exceed amount of \$3.995 billion.

Although it was the opinion of the PMOC that the budget established after the October 18, 2012 project re-authorization by the Port Authority Board would not provide WTCC with adequate funding to complete the project given the impacts of Hurricane Sandy, WTCC has advised that the costs related to Hurricane Sandy are being funded from a separate operating account set up by PANYNJ for Hurricane Sandy and will not impact WTCC's current EAC of \$3.7 billion.

E. Risk Management

The PMOC conducted a contingency assessment workshop in August 2011 to facilitate the completion of the PEP and the RRCA. WTCC and the PMOC reviewed the results of the cost and schedule risk models. Results from this workshop and subsequent analyses were used to develop the executed RRCA and PEP. To provide an improved project risk tool, the FTA, the PMOC, and WTCC completed the PEP in conjunction with the execution of the RRCA on September 18, 2012.

As information on the impacts of Hurricane Sandy became available, the PMOC conducted PEP workshops in June 2013 to discuss and quantify the hurricane's impacts on cost and schedule. The PMOC then reconciled the workshop results with WTCC, and the outcome of this effort was used to update the PEP.

F. Technical Capacity and Capability Review

The FTA uses the PEP to measure WTCC's technical capability and capacity.

Project Management Plan (PMP)

The grantee provided an approved copy of the WTC Project Quality Assurance Plan, a PMP sub-plan, on November 7, 2013. The PMOC completed its review and concluded that the PQAP is consistent with the FTA QA/QC Guidelines. However, the PMOC's conclusion included a recommendation that the FTA accept the PQAP contingent upon WTCC's providing clarification on the reporting lines between WTCC QA and WTCC management in order to demonstrate the independence of the WTCC QA organization. WTCC has agreed to modify the PMP section that

describes its organizational relationships to reflect that independence but has not yet transmitted the revision.

An update to the grantee's Operations Management Plan, which is another PMP sub-plan, remains outstanding. The grantee previously provided a draft construction phase Force Account Plan and Justification, and the PMOC is currently reviewing it.

Project Organization

WTCC continues to update consultant and contractor staff assignments across project areas to address staffing needs as the project advances.

Project Quality Assurance

During March 2014, WTCC QA completed three QA oversight audits covering CM QA field activities and WTCC activities performed in March 2014. For the QA audits completed in March 2014, no corrective actions were identified. The March 2014 audit totals reflect the three audit reports that were issued, and received, at the time this report was drafted.

G. Site Safety and Security Review

The WTC PATH Hub project's safety performance through February 2014 reflects a significant increase in safety incidents compared to the safety performance through the end of December 2013 (at the end of December 2013, the project had a TCIR of 3.67 and an LTIR of 1.51). By the end of February 2014, there have been 10 recordable incidents and 5 lost-time injuries on the project, and 323,319 hours worked. The resulting 2014 year-to-date TCIR for the project is 6.19, which is well above both the project's goal of 5.0. The corresponding LTIR is 3.09, which is above the project's goal of 2.0. WTCC Safety has continued its active role in managing worker safety and has been evaluating the causes for the increased injury rates. The project's March 2014 safety data was not fully available at the time this report was being drafted.

H. Issues/Problems/Suggestions

The widespread regional damage caused by Hurricane Sandy in late October 2012 caused a delay to the forecast completion of the PATH Hub project. WTCC submitted its formal Recovery Plan document to the FTA on February 18, 2014. (b) (4)

In the east bathtub, the oculus steel erection *continued* during March, meeting the scheduled level of production for the month, but recovery of the time lost in 2013 was not achieved, and the steel erection work remains behind schedule. At present, the oculus steel erection is projected to continue through the summer of 2014. If that occurs, the possibility for the east bathtub to overtake the west bathtub in schedule criticality will become more likely, especially if the weekend service shutdowns allow improved schedule advancement in the west bathtub.

End of report. Appendix follows.

APPENDIX A – LIST OF ACRONYMS

AHU	Air Handling Unit
BATC	Building Automatic Temperature Control
CA	Construction Agreement
CM	Construction Manager
EAC	Estimate at Completion
FTA	Federal Transit Administration
IMS	Integrated Master Schedule
LMRO	Lower Manhattan Recovery Office
LTIR	Lost-Time Incident Rate
NTA	North Temporary Access
NYCT	New York City Transit
OPL	Office of Program Logistics
PANYNJ	Port Authority of New York and New Jersey
PATH	Port Authority Trans-Hudson
PDC	Primary Distribution Center
PEP	Project Execution Plan
PHC	PATH Hall Construction
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
PQAP	Project Quality Assurance Plan
QA	Quality Assurance
QC	Quality Control
QPRM	Quarterly Progress Review Meeting
RCD	Required Completion Date
RFI	Request for Information
RRCA	Revised and Restated Construction Agreement
SSTG	Structural Steel to Grade
TCCR	Technical Capacity and Capability Review
TCIR	Total Case Incident Rate
TPDC	Temporary Primary Distribution Center
VFD	Variable Frequency Drive
WTC	World Trade Center
WTCC	World Trade Center Construction