

MONTHLY MONITORING REPORT

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

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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

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Cover: New track ballast is being placed by PATH trackworkers at the southern end of Track 2 on the approach to Platform B.

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

During February, expected winter weather conditions created some adverse impacts on the project but did not prevent significant progress. Work on the Transit Hall side of the project, where most of the work areas remained unprotected from the weather, included the erection of the hanging scaffold that spans the entire length of the structure just below the skylight level. Progress was also made in preparing the northern leg of the Early Access Pedestrian Corridor for opening to public use.

On the PATH Hall side of the project, where weather was less of a factor, Platform B construction continued on a directed premium time basis in an effort to complete the next critical project construction milestone, which is to place Platform B into revenue service before the end of the first quarter of 2015. Architectural finish work on portions of the platform and mezzanine levels was advanced during the month, and included the setting of the first section of stone at the north end of the mezzanine and the installation of column finish treatments starting from the southern end of the platform. Track installation work on Track 2 and Track 3 included completion and connection of the two running rails on each track, tying them back into the existing right-of-way at each end of the platform.

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. Recovery Plan 02 was processed in early 2014 and established an updated RCD of December 31, 2016.

Quarterly Progress Review Meeting (QPRM)

A QPRM for the fourth quarter of 2014 *was held on* February 25, 2015.

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 continue to be issued as necessary under the active construction contracts.

Construction Activity

During February, winter weather conditions slowed construction activities at the Transit Hall, where most of the work areas remains exposed to the elements. Conversely, work within the PATH Hall was less susceptible to the inclement conditions. Nonetheless, significant construction gains were made in both locations during February. At the Transit Hall, the recently installed hammerhead crane was used to erect all of the sections of the hanging scaffold just beneath the roof level of the oculus. The oculus steel contractor replaced seven rafter tips during the month, thus completing its work on the south side of the structure. The oculus curtain wall contractor capitalized on its control of the north and south sides of the structure, and utilized that access to expand its installation of support steel elements that will ultimately allow the fastening of the curtain wall glass and metal panel elements. At the PATH Hall, Platform B continued to be the primary focus of construction. Stone installation on the mezzanine level started during the month, and extended workday and workweek activities were utilized on many of the systems and components needed to make Platform B operational. Track-level work during February included the connection of the new Tracks 2 and 3 into the existing track configuration on both ends of the platform. Platform-level work included installation of lighting, column covers, and ceiling panels. Installation of the three escalators and two elevators that will serve Platform B approached completion during the month.

Schedule

In January 2015, WTCC released Integrated Master Schedule (IMS) 77 (with a data date of December 1, 2014), (b) (4)

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Cost Data

WTCC had not submitted its end of February cost model revision at the time of this report. The following paragraph is restated from the January Monthly Report.

WTCC submitted its monthly cost model revision on January 31, 2015. It shows that, based on the contract awards and estimates through December 31, 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 reported total PATH Hub expenditures through December 31, 2014, to be over \$3.08 billion, or approximately 82.8 percent of the EAC. That total of PATH Hub expenditures includes an additional \$58.1 million in PATH Hub expenditures over the total contained in the December 31, 2014 report.

Risk Management

To provide an improved project risk tool, the FTA, the 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 (*which occurred at the end of October 2012*) 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. In July of 2014, the PMOC initiated a review of the 2013 PEP update in consideration of various project developments that had arisen during the intervening period. In August of 2014, the PMOC updated the contingency drawdown curve to reflect the evaluation of the project's residual risks and the potential risk retainage release amounts associated with each of the remaining PEP milestones. During October 2014, the PEP exhibits were finalized, and the PMOC, through the FTA, issued a spot report reflecting those updates to WTCC. During January, the PEP milestone defined as "oculus steel erection complete" was achieved, triggering the initiation of an additional partial release of risk retainage. Top risk drivers are mentioned within the body of the monitoring report, below.

Technical Capacity and Capability Review (TCCR)

The TCCR will be updated as necessary in conjunction with the update of the PEP.

Project Management Plan (PMP)

The grantee updated its PMP and submitted version 6.0 of the plan in early August 2014.

Project Quality Assurance (QA)

During *February* 2015, WTCC QA completed *three* oversight audits that included reviewing the Construction Manager (CM) QA's field audits and performing its own field construction audits. The *February* 2015 audit total reflects the *three* WTCC QA audit reports that were issued and

received at the time this monthly report was drafted. No quality issues were identified for corrective action.

Site Safety

The WTC PATH Hub project has established its own project safety performance goals for Total Case Incident Rate (TCIR) and Lost-Time Incident Rate (LTIR) of less than 5.0 and less than 2.0, respectively. In *January 2015*, the project had no recordable incidents and no lost-time incidents, resulting in a TCIR of 0.00 and an LTIR of 0.00, based on 133,231 hours worked. In *December 2014* there were also *no* recordable incidents and *no* lost-time incidents, resulting in a TCIR of 0.00 and an LTIR of 0.00, based on 139,302 hours worked. *Maintaining both a zero TCIR and a zero LTIR from December 2014 through January 2015 represents a significant effort by the WTCC Safety team and site workers. Ongoing February safety initiatives are discussed in the project monitoring section of this report. The February 2015 safety data for the project was not fully available at the time this report was drafted but is expected to be available after mid-March 2015.*

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)

Absence of the new Emergency Generator Plant as a source of back-up power continued during February and requires the project to depend upon the temporary generators that are in place at the North Temporary Access (NTA) facility. It also necessitates the implementation of workarounds for the areas of the project that are coming online to ensure that vital systems supporting those areas have emergency power available in the event of a loss of primary power.

A second topic that grew in importance during February is the delay in activating portions of the Central Fan Plant because the fresh air supply shaft is not yet complete and the supply fans that will deliver fresh air to the Central Fan Plant have not yet been installed. The Central Fan Plant, although it is in the advanced stages of completion, is rendered inoperable until supply air is dependably available.

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 Transit Hall, or oculus, 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 the 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 established 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. The FTA approved WTCC's February 18, 2014 Recovery Plan 02, thereby establishing a revised RCD of December 31, 2016. Also included in the Recovery Plan was a change in WTCC's forecasted substantial completion date to December 31, 2015.

Quarterly Progress Review Meeting

A QPRM for the fourth quarter of 2014 *was held on* February 25, 2015.

WTC Site Master Plan

WTCC's current site master plan is Master Plan Version 11, dated October 10, 2013.

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 (RFIs) and providing design certifications for completed elements of construction. The designer also continues to prepare and issue addenda that incorporate multiple, issued RFI responses in which the designer authorized changes to the base design documents that bring those documents into conformance with the RFI responses. Contractor RFIs are tracked by the CM for each of the prime contractors working on the project. The CM, in concert with WTCC, then prioritizes the order in which those RFIs are answered by the designer based on their relative importance in advancing project work.

Construction Status

Oculus Steel: During February, cold temperatures, precipitation, and wind conditions limited the contractor's progress on the remaining oculus steel activities. However, the contractor was able to replace the rafter tips on seven rafters located in the southeast quadrant of the oculus structure, thus completing that activity before the end of the month. Shell plate installation at the east and west abutments advanced during the month but continued to encounter alignment issues at the weld joints between adjacent shell plates. Those alignment issues were addressed but forced the shell plate work to carry over into March 2015. Separately, the heat-straightening of a group of five rafters, primarily at the northeast quadrant of the oculus, did not commence during February, as previously planned. Rather, the approved procedure was deemed unworkable by the specialty subconsultant that was brought to the site by the oculus steel contractor to oversee that work, and a revised procedure was developed and remained under review at the end of the month. The heat-straightening work was reforecast to start in early March 2015, pending the approval of the revised heat-straightening procedure.

Oculus Glass: During February, the oculus glass contractor continued to install exterior, interior, and center support clips in the pockets of the oculus steel upper portals at the northeast and southwest corners of the oculus. Brackets that will support the WT-3 panels (metal panels) continued to be welded to the transition arches at the roof level of the oculus. This work advanced at a slower pace than expected. Weather conditions during the month of February also had an adverse effect on the contractor's work schedule. As the work has proceeded, some field conditions have arisen such as bowed glazing pockets at column lines -8AN to -12N and dimensional variations at column lines +14N, +14S, -14N and -14S; these field conditions were discussed at the February weekly progress meetings. RFIs have been submitted for designer response in a number of these instances, and other similar submittals are expected going forward.

Oculus Skylight: The oculus skylight contractor, which is the same contractor as the oculus glass contractor, commenced the installation of the hanging scaffold during February. Currently, all the main sections of the scaffold platform have been installed. Because of the changes in elevation of the oculus roof across the structure, the work platform sections step up in elevation and will need to be interconnected by ship ladders. The contract also requires additional tiers of platform and a waterproof system to protect the area below from water intrusion. At the end of the month, those elements were not yet in place. Stair towers to access the hanging scaffold are also required at both ends but are not yet completed. Also during February, the contractor began installing support steel at the roof level that will support motor-operated smoke purge dampers at each of the 60 openings where others will install smoke purge fans. This support steel work was added to the skylight contractor's scope via change order and will have to be completed before the subsequent installation of curtain wall metal panels (WT-3s) can be performed. The skylight sections themselves remain off-site, but they will be delivered to the site when installation is ready to begin.

Platform B: During February, platform construction activities continued at Platform B on an extended workday and workweek basis in an effort to advance placement of the platform into revenue service. Work continued in the shafts of elevators 5 and 6 as electricians installed conduits for fire alarm systems and other low-voltage devices. Also during February, cladding work on the three escalators continued and reached approximately 75 percent completion. Work on escalator ancillary systems, such as sprinklers and fire alarms, also continued. Elsewhere on

Platform B, the contractor worked to complete the fit-out of the new electrical and fire alarm rooms at the north end of the platform. In these rooms, electrical conduit wire pulls, terminations, and panel installations approached their final stages. Fan coil units and communications equipment racks, with the associated equipment, have been installed. Plumbing rough-in for the employee bathroom in this area was also completed. Fire alarm work continued during February, including the installation of conduit, cables, and devices. The installation of cladding on platform-level columns also commenced. Ceiling panel work progressed with the installation of horizontal ceiling panels at the south end of the platform. New Track 3 was connected at the north turnout, and third rail installation began on both Track 2 and Track 3. Signal cables were placed in the previously installed cable trays at Tracks 2 and 3. At the mezzanine level (elevation 266), glass rail shoe installations continued, and the shoes at the two northern stair openings were completed. At the end of the month, stone floor installation started at the north end of the mezzanine. Temporary heaters and tents are being used to maintain acceptable temperature levels during the setting of the stone floors.

Platform D: Working from south to north, the contractor placed about 100 feet of platform slab during February. Construction of the platform slab is expected to proceed on a continuous basis throughout March 2015 and beyond. Work on the new mezzanine level above Platform D remains constrained by the presence of temporary smoke purge equipment that protects existing temporary Platform C and its mezzanine.

East Bathtub Mechanical, Electrical, Plumbing, and Fire Protection Work: During February, work at the Emergency Generator Plant continued to receive priority attention. Removal of one of the two day tanks was performed and the contractor ordered the three booster fuel pumps that will be installed to improve fuel flow to all eight generators under a full load condition. They are forecast to be delivered in early April 2015. The installation of those pumps, once completed, will also require modification of the controls for the facility. The new Emergency Generator Plant, which is located in the podium of Tower 3, is essential to the placement into service of a number of other project elements, and its ongoing absence, while not insurmountable, requires the project to take temporary interim measures to provide backup power supply to essential systems and components as they come online. In the final built-out configuration, the Emergency Generator Plant will be connected to a total of 201 Automatic Transfer Switches (ATSs) via the eight Emergency Distribution Switchboards (EDSs) that are located around the site. All of the EDSs and ATSs will need to be tested under simulated emergency conditions before the current temporary emergency generators at the NTA can be decommissioned. Separately, work on the Emergency Chiller Plant, which is also located in the podium of Tower 3, was advanced during February with additional chilled water supply and return line piping installation performed. This facility is designed to provide an alternate source of chilled water for cooling of vital equipment rooms in the event of a loss of primary chilled water supply from the Central Chiller Plant. A current emphasis on making this facility available for service is spurred by the lack of chilled water supply from the Central Chiller Plant to the east bathtub.

Primary Distribution Center (PDC) at Tower 1: Migration of PATH Hub project electric loads from the Temporary Primary Distribution Center (TPDC) in the NTA to the PDC in Tower 1 remained unchanged during February. The migration of loads was initially expected to advance in two-week increments through a six-step transfer process. However, only two transfers have been completed to date, one in August of 2014 and the second in December 2014. During

February, some of the necessary cable splicing associated with the third transfer was performed but subsequent activities, including labeling and testing, remained to be completed as of the end of the month. (b) (4)

Vertical Circulation: During *February*, work continued on the installation of escalators and elevators located in both the Transit Hall and the PATH Hall. Some of these units are required to support WTCC's revised plan to reroute pedestrian traffic through the east bathtub *and for the operation of Platform B*. Preliminary testing of escalator units continued throughout *February*, and punch list items *continued to be generated and addressed*. Ancillary elements, such as fire alarms, communications, Closed Circuit Television (CCTV), and emergency power, remain to be *completed* on many of these units. A *discussion of the work on the Platform B vertical circulation elements is included above in the "Platform B" paragraph*. The elevators that *are needed to support the opening of the northern portion of the Early Access Pedestrian Corridor* are elevators 12 and 23. No emergency power is yet available for most of the elevators and escalators, although it will be required for commissioning. Escalators required for the northern portion of the *Early Access Pedestrian Corridor* are escalators 23, 24, 47, and 48. These units have been tested, and punch list work is underway. The overall status of elevator and escalator installation at the end of *February* is summarized in the following table. *It is noted that the five elevators and four escalators listed as "Not Yet Onsite" represent the quantities of those elements that are required for Platforms C and D.*

Item	In Service Last Month	In Service This Month	Onsite/Under Construction Last Month	Onsite/Under Construction This Month	Not Yet Onsite	Total
Escalators	8	8	34	34	5	47
Elevators	4	4	13	13	4	21

North-South Concourse: During *February*, the stone contractor *commenced stone floor installations at the south transept at elevation 274. This area is required for the southern portion of the Early Access Pedestrian Corridor. Currently most of the stone floor installations have been completed south of the south transept.* At the Tower 2 street-level entrance area, interior finish work in the lobby *approached completion during the month except for the staircase between elevations 296 and 306, which requires stone installation on the concrete stairs.* At the Tower 4 street-level entrance area, stone work on the stairs and floors is nearly complete. *The finish work and mechanical work for the North-South Concourse are nearly complete. Installation and testing of the fire alarm system and other low-voltage systems continued in these areas during the month of February.*

Fire Alarm System: During *February*, fire alarm work necessary for the relocation of the temporary fire command station at the NTA to the new permanent fire command station at elevation 306 of the Transit Hall continued. Among the other ongoing priority fire alarm activities was the fire alarm work at Platform B, where *directed premium time* is being used to hasten the installation of local fire alarm panels and connection of those panels to the platform devices, as well as the connection of the panels to the downstream data-gathering panels and

ultimately to the new fire command station. Additional fire alarm conduits, wiring, and devices are being installed *throughout the PATH Hub project areas*. In many areas, preliminary testing to local panels is occurring.

Commissioning: Commissioning activities advanced during *February* with several ATSS tested using emergency generator #1 *in isolation* at the new Emergency Generator Plant. *An initial population of 70 ATSS was identified as the priority for testing, and approximately 40 of those had been successfully tested by the end of the month. WTCC has established Platform B commissioning activities as a second priority for the commissioning entity, and lists of equipment that must be tested have been developed with input from the CM. Most of the Platform B systems had not yet advanced to a stage at which testing and commissioning activities could start as of the end of the month.*

Low-Voltage Systems: Low-voltage systems typically include systems such as fire alarm, building temperature control, access control, public address, CCTV, and other data transmission systems over media such as small gauge copper wiring or fiber optic cable. *During the month of February, the fiber optic cable between systems interfaces were connected to switches, and the network redundancy was being tested. The fit-out of Platform B communications and radio rooms with racks and cable tray continued, and termination blocks and radio equipment were being put into position. Telephone wiring is being provided to public access areas, although no telephones have been installed to date. Also, no fire alarm, CCTV cameras or PA speaker devices have yet been installed for Platform B due to the heavy construction work that is in progress. Replacement UPS batteries have been received and are being installed for those UPS cabinets where the batteries had not received charges for extended periods.*

Central Fan Plant: *During February, in the Tower 3 podium, tinsmiths completed the installation of sheet metal linings in the vertical fresh air intake shaft, which will carry fresh air to the Central Fan Plant for treatment and further distribution throughout the PATH Hub project spaces via Air Handling Units (AHUs). Installation of supply fans SF-1, SF-2, and SF-3 and the associated sound traps at the top of the air intake shaft had not started as of the end of the month, but remains critical to bringing the Central Fan Plant on line. Color-coded painting of the various pipes serving the Central Fan Plant to differentiate their respective purposes was started during February.*

Construction Logistics

The WTCC Office of Program Logistics (OPL) continued to facilitate construction progress and the sharing of access, egress, and work zones among all contractors onsite. Among the recent logistical changes are the relocation of site boundary fencing along Vesey Street, which widened the available walkway for pedestrian traffic to the PATH Temporary Station at the NTA; opening of the northern and southern sidewalk areas around Tower 1 to the public in conjunction with the initial occupancy of Tower 1 by its first tenant in early November 2014; and the start of truck screening operations at the Vehicle Security Center.

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. *During February, transfer of the responsibility for constructing the new #1-Line Station within the PATH Hub envelope was advanced. The MTA is assuming the responsibility from the PANYNJ for managing that work. The construction contract with the contractor is also being assigned from the PANYNJ to the MTA.*

Community Relations

OPL continued to distribute construction alerts, updates, and monthly construction progress newsletters to the community and stakeholders. *During February, OPL published a delivery requirements memorandum detailing the procedure for deliveries to the WTC, including security requirements.* Updates on the project are also listed at the wtcprogress.com website, and specific presentations are periodically made to Manhattan's Community Board #1.

C. Schedule

WTCC released IMS 77 in January 2015, with a data date of December 1, 2014. (b) (4)

WTCC achieved Platform A beneficial use on February 25, 2014, which is approximately two months later than date of December 31, 2013, that was projected in IMS 70. (b) (4)

WTCC continued to refine details related to the oculus MEP, painting, and glazing trades in response to the risk drivers outlined by the PMOC. The added schedule logic potentially reduces risk exposures to the coordination of the oculus trades. The Platform B beneficial use projected to be achieved by the end of February 2015 in IMS 77 was not achieved. If the delay trends in the platform construction continue, the possibility that (b) (4)

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

Significant Activity	Action by
Platform B Operational	WTCC
Central Fan Plant Online	WTCC
Migrate PATH Hub Electrical Loads from the TPDC at the NTA to the PDC at Tower 1	WTCC
Start of Oculus Glazing Panel Installation	WTCC
Demobilization of Oculus Steel Contractor	WTCC

(b) (4)

D. Cost Data

WTCC had not submitted its end of February cost model revision at the time of this report. The following paragraphs are restated from the January Monthly Report.

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.

On October 18, 2012, the Port Authority Board reauthorized the WTC PATH Hub project, at an estimated total project cost range of \$3.724 billion to \$3.995 billion. This reauthorization 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.

Although it was the opinion of the PMOC that the budget established after the October 18, 2012 project reauthorization 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.

The following table summarizes the latest available EAC (WTCC's forecast) and expenditures as of December 31, 2014:

Description	EAC (WTCC's Forecast) (in millions)	Expenditures (in millions)
Construction	\$2,798	\$2,416
Program Management and Design	706	668
Contingency	(b) (4)	(b) (4)
Total	(b) (4)	(b) (4)

WTCC submitted its monthly cost model revision on January 31, 2015. It shows that, based on the contract awards and estimates through December 31, 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 reported total PATH Hub expenditures through December 31, 2014, of over \$3.08 billion, or approximately 82.8 percent of the EAC. That total includes \$58.1 million more in PATH Hub expenditures than the total contained in the December 31, 2014 report.

Over the last 12 months, the average project expenditure per month has been \$27.5 million. That monthly expenditure is below the monthly burn rate of \$53.4 million that would be necessary to support the substantial completion date of December 2015.

Monthly project expenditures for 2014 are as follows:

January	\$28 million	July	\$29 million
February	\$17 million	August	\$59 million
March	\$28 million	September	\$3 million
April	\$39 million	October	\$25 million
May	\$24 million	November	\$22 million
June	\$18 million	December	\$58 million

It should be noted that the June value (\$18 million) understated the actual project expenditure, because it incorporated a downward adjustment of \$6.04 million for soft costs that had been incorrectly charged to the project in prior periods. Those costs were allocated to other stakeholders during June, thus skewing the PATH Hub project expenditure value. The August expenditure of \$59 million is higher than typical, because it includes an amount of approximately \$40 million in payment to the Structural Steel to Grade (SSTG) contractor consisting of accumulated payments for prior work and the PATH Hub project share of a settlement of multiple commercial issues. The September expenditure of \$3 million is significantly lower than expenditures in other months because WTCC allocated \$15 million of PATH Hub cost to the line item designated "PATH Hub work performed by SPI." The December expenditure of \$58 million was higher than typical monthly expenditures mainly due to an unusually high accrual in the *PATH Hall Transit Hall (PHTH)* line item.

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 (*which occurred at the end of October 2012*) 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. In July 2014, the PMOC began assessing the impacts of oculus steel delays on the project's critical path. In August, the

PMOC updated the contingency drawdown curve to reflect the evaluation of the project's residual risks and the potential risk retainage release amount associated with each of the remaining PEP milestones. During October 2014, the PEP exhibits were finalized, and a spot report reflecting those updates was issued through the FTA to WTCC. Also during October, WTCC submitted drafts of its Risk Management Plan and Contingency Management Plan. The PMOC reviewed both of these documents and, during December, issued a spot report that discusses the results of that review. That spot report was in turn issued to WTCC by the FTA, also during December 2014. During January, the PEP milestone defined as "oculus steel erection complete" was achieved, thus triggering the initiation of an additional partial release of risk retainage. *In late February, WTCC re-submitted its combined Risk and Contingency Management Plan and it is under review as of the end of the month.*

As of *February* 2015, the PMOC considers the following issues among the top risks to the PATH Hub project:

- Placement into service of the Emergency Generator Plant.
- Coordination among the oculus *curtain wall and skylight* contractor and the other contractors working in the Transit Hall space.
- Fabrication and delivery of the stone for the Transit Hall main floor.

F. Technical Capacity and Capability Review

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

Project Management Plan

The grantee updated its PMP and submitted version 6.0 of the plan in early August 2014. The PMOC is currently reviewing that submission. An updated draft of WTCC's Operations Management Plan, a PMP sub-plan, was also submitted in August, but it was found to lack essential elements. The grantee is preparing an updated version of the Operations Management Plan.

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 *February* 2015, WTCC QA completed *three* oversight audits that included reviewing the CM QA's field audits and performing its own field construction audit. The *February* audit total reflects the *three* WTCC QA audit reports that were issued and received at the time this monthly report was drafted. No quality issues were identified for corrective action.

G. Site Safety

The WTC PATH Hub project has established its own safety performance goals for its TCIR and LTIR of less than 5.0 and less than 2.0, respectively. In *January 2015*, the project had no recordable incidents and no lost-time incidents, resulting in a TCIR of 0.00 and an LTIR of 0.00,

based on 133,231 hours worked. The *December* 2014 incident totals were also *no* recordable incidents and *no* lost-time incidents, resulting in a TCIR of 0.00 and an LTIR of 0.00, based on 139,302 hours worked. *Maintaining a zero TCIR and a zero LTIR from December 2014 through January 2015 represents a significant effort by the WTCC Safety team and site workers. Additional ongoing safety initiatives during February included the issuance by WTCC Safety of Safety Bulletins and other safety information for use by its site safety managers, such as: WTCC Safety Bulletins on Site Sanitation, Cleanliness, and Housekeeping; the Use of Pallet Jacks; the Use of Portable Halogen Work Lights; and handouts on topics such as “First Aid and CPR in the Workplace” and “Safety Week 2015.” Site safety managers are encouraged to use this material at toolbox talks, and copies are available in the work shanties.*

The *February* safety data for the project was not fully available at the time this report was drafted but is expected to be available after mid-March 2015.

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)

Absence of the new Emergency Generator Plant as a source of back-up power continued during February and requires the project to continue to depend upon the temporary generators that are in place at the NTA facility. It also necessitates the implementation of workarounds for the areas of the project that are coming online to ensure that vital systems supporting those areas have emergency power available in the event of a loss of primary power.

(b) (4)

End of report. Appendix follows.

APPENDIX A – LIST OF ACRONYMS

AHU	Air Handling Unit
ATS	Automatic Transfer Switch
CA	Construction Agreement
CM	Construction Manager
CCTV	Closed Circuit Television
EAC	Estimate at Completion
EDS	Emergency Distribution Switchboard
FTA	Federal Transit Administration
IMS	Integrated Master Schedule
LMRO	Lower Manhattan Recovery Office
LTIR	Lost-Time Incident Rate
MEP	Mechanical, Electrical, and Plumbing
NTA	North Temporary Access
NYCT	New York City Transit
OPL	Office of Program Logistics
PA	Public Address
PANYNJ	Port Authority of New York and New Jersey
PATH	Port Authority Trans-Hudson
PDC	Primary Distribution Center
PEP	Project Execution Plan
PTH	PATH Hall Transit Hall
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA	Quality Assurance
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
WTC	World Trade Center
WTCC	World Trade Center Construction