

MONTHLY MONITORING REPORT

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

January 2015



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Cover: *PATH forces install new track elements at the north end of Track 3, which, along with Track 2, will serve the new 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 January, the oculus steel contractor released the northern and southern faces of the Transit Hall (oculus structure) above street level to the follow-on contractors that require access to those areas to perform their work, including the curtain wall contractor. This event at the end of January fulfilled the Project Execution Plan (PEP) milestone, "Oculus Steel Erection Complete," thereby initiating the release of a portion of the remaining risk contingency funds to the grantee.

Also during January, the work associated with the next PEP milestone, "Platform B Operational," advanced. PATH forces initiated the reconnection of the northern end of Track 3 to the existing right-of-way, laying new ties and rail for the curved section of track that links the tangent portion of Track 3 adjacent to the platform to the turnout that routes departing trains into Tunnel E. Other critical work for Platform B also advanced during the month, including the fit-out of the new fire alarm room and the new electrical distribution room behind the north 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 has been scheduled for 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 January, at the Transit Hall, the oculus steel contractor relinquished the northern and southern faces of the above-grade oculus structure to the follow-on contractors, including the curtain wall glass contractor. The oculus steel contractor removed the final portions of its scaffolding and work platforms during the month, thereby eliminating all of the remaining obstructions to the other contractors' access to these areas. Also during the month, the oculus skylight contractor erected its hammerhead crane, which will allow the start of the installation of the hanging scaffold at the roof level of the oculus. The hanging scaffold will also allow multiple trades to progress items such as smoke purge fans, roof drainage systems, and electrical conduit and lighting installations. Not unexpectedly, wind, precipitation, and ice formation delayed some of the above-grade work activities during the month. Construction of the new Platform B also continued to move forward during January. The installation of the two elevators serving the platform continued to advance: Both elevators are now operating and work on ancillary items such as pre-action sprinklers and the fire alarm continues. The last section of concrete platform was placed at the north end of Platform B and metal ceiling panel installation progressed at the platform level. The contractor also removed two temporary columns at the north end of the platform that had previously supported the overhead work platform above the mezzanine level.

Schedule

In January 2015, WTCC released Integrated Master Schedule (IMS) 77 (b) (4)

[REDACTED]

Cost Data

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 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. 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 January 2015, WTCC QA completed *seven* oversight audits that included reviewing the Construction Manager (CM) QA's field audits and performing its own field construction audits. The January 2015 audit total reflects the *seven* 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 *December* 2014, 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 *139,302* hours worked. In comparison, the *November* 2014 incident totals were *two* recordable incidents and two lost-time incidents, resulting in a TCIR of *2.61* and an LTIR of *2.61*, based on *153,510* hours worked. In reviewing the *December* safety performance, WTCC Safety continued its active role in managing worker safety, evaluating the causes of each incident, addressing actions to prevent recurrence, and developing lessons learned. *January* safety initiatives are discussed in the project monitoring section of this report. The *January 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-*February* 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)

Efforts to place the Emergency Generator Plant in service have proven difficult and continued to occupy project resources through January. An initial goal to activate the plant by August 2014 was not achieved, because fuel supply difficulties were encountered when the plant was tested under simulated full load. The fuel supply was insufficient to maintain simultaneous operation of all eight emergency generator units. A design change was subsequently issued, and implementation of the design modifications is expected to continue into March 2015.

(b) (4)

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 has been scheduled for 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 January, the contractor completed the removal of its remaining temporary work platforms and scaffolding, further enabling the follow-on contractors to have unobstructed access to the northern and southern faces of the oculus structure. In addition, welding activities associated with rafter base welds and purlin-to-purlin welds were completed, thus lessening the need to stage boomlifts at grade level around the exterior of the oculus structure. However, shell plate installation at the eastern and western abutments continued during the month and is expected to remain ongoing through February 2015. Among the other remaining activities for this contractor are the replacement of seven rafter tips at the southeast quadrant of the oculus and the heat-straightening of five rafters at the northeast quadrant. The rafter tip replacement work, which is intended to improve the visual alignment of the tips, commenced in late January 2015 and is expected to be completed by mid-February. The heat-straightening is expected to begin during February, but is currently constrained by the development of a revised procedure for submission and review by the designer of record.

Oculus Glass: During January, the oculus glass contractor continued to install exterior, interior, and center support clips in the pockets of the oculus steel upper portals. Clip angles that will support the WT-3 panels (metal panels) continued to be welded to the transition arches at the roof level of the oculus. As the work proceeds, various field conditions have arisen; these field conditions were discussed at the January weekly progress meetings. RFIs have been submitted for designer response in a number of these instances, and other similar submittals are anticipated going forward.

Oculus Skylight: The oculus skylight contractor, which is the same contractor as the oculus glass contractor, erected its hammerhead crane during January in preparation for the installation of the hanging scaffold from which the skylight installation and other work will be performed. Initial crane use was delayed when issues requiring cable re-spooling and rigging plan revisions surfaced shortly after crane erection. Both topics were subsequently dealt with during the month yielding a clear path for start of hanging scaffold installation in early February. The hanging scaffold will be located just below the oculus roof line and will span from the eastern end of the oculus to the western end, a total length of 305 feet. Stair towers to access the hanging scaffold are planned at both ends. The turnbuckles that will support the hanging scaffold are mostly in place as of the end of January. Ancillary items such as catwalk brackets, smoke damper supports, and gutter ledgers continued to be installed during the month. The skylight sections themselves remain off-site, but they will be delivered to the site when installation is ready to begin.

Platform B: During January, platform construction activities continued at Platform B. The enclosures for elevators 5 and 6 were completed, and the elevator cabs became operable. Electricians continued installing conduits for fire alarm systems and controls in the elevator shaft, and steamfitters installed sprinkler piping to the shafts. Also during January, cladding work on the escalators commenced. Work on escalator support systems, such as sprinklers and fire alarms, continued, and all three escalators went through load testing. Elsewhere on Platform B, the contractor continued to install conduits for power, fire alarms, and communications along the platform to the newly constructed rooms at the north end. A substantial amount of wire pulls and terminations remains to be completed throughout the platform. In the rooms at the north end of the platform, electrical conduit installations, wire pulls

and terminations, and panel installations advanced. Some of the reinforced concrete walls for the rooms on the platform were poured, and the remaining walls were prepared to receive concrete. Also during the month, the electrical subcontractor continued to install light fixtures along the smoke baffle section of the platform ceiling and along the sidewalls of the smoke purge duct systems. Concrete was placed for the direct-fixation track slab for Track 2, and ballasted track was installed at the north end of Track 3. Cable tray installation for signal cable was performed for Track 2. Fire smoke dampers were installed at the south end of the smoke purge duct over Track 2. Also during January, Twelve Metrocard Vending Machines (MVMs) were undergoing installation outside the fare control line at the mezzanine level. At the mezzanine level (elevation 266), glass rail shoe installations commenced at the north end of the mezzanine, allowing for the pending start of stone floor installation in that area. This area at the north mezzanine is critical to getting passengers from existing Platform C to the northern leg of the Early Access Pedestrian Corridor when it opens.

Platform D: Working from south to north, the contractor has completed constructing the Platform D concrete base slab and brought the level of progress to beyond 50% for the construction of the platform support walls during January. An area where the corner of the original North Tower footings is preserved has not been covered by the new platform base slab and will be subsequently exposed and viewable for its historical significance.

East Bathtub Mechanical, Electrical, Plumbing, and Fire Protection Work: During January, the two-phase process for addressing the ongoing issues with the fuel delivery system at the Emergency Diesel Generator Plant advanced. Minor modifications at the generator plant to isolate and operate generator #1 as a stand-alone unit were made in order to allow testing of the downstream emergency distribution Automatic Transfer Switches (ATSs) to move ahead. This step, referred to as Phase 1, was completed, and ATS testing was started based on a priority listing of ATSs. Phase 2 work at the emergency generator plant consists of the elimination of one of the two day tanks, installation of a manifold-style fuel delivery piping arrangement, and the introduction of three in-line fuel pumps intended to maintain pressure in the fuel piping as fuel circulates to all of the emergency generators. Phase 2 work was initiated via a formal design change and corresponding change order to the mechanical contractor, and was in the shop drawing submittal and review stage as of the end of the month. In the final built-out configuration, the emergency generator plant will be connected to a total of 201 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 North Temporary Access (NTA) can be decommissioned.

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 was unchanged during January. 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. WTCC is now forecasting the third electrical transfer to occur during February 2015. (b) (4)

Until all six load transfers have been completed, the TPDC at the NTA will remain in service.

Vertical Circulation: During *January*, 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. *Preliminary testing of escalator units continued through January, and punchlist items were generated. Those punchlist items are being addressed by the contractor. Ancillary elements such as fire alarms, communications, Closed Circuit Television (CCTV), and emergency power, remain to be tested on many of these units.* Work on the Platform B vertical circulation elements is discussed above. *The elevators that must 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 final 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 *January* is summarized in the following table:

| 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 | 32 | 34 | 5 | 47 |
| Elevators | 4 | 4 | 13 | 13 | 4 | 21 |

North-South Concourse: *During January, the stone contractor continued the stone floor installations, working northward at the upper level (elevation 296') of the concourse just south of the south transept. Once installed, this section will complete the stone floor work on both levels of the southern portion of the North-South Concourse. At the Tower 2 street-level entrance area, interior finish work in the lobby advanced. Stone floor and stair work was completed from the lobby level to the first below-grade landing, and wall panel installation reached approximately 95 percent completion. Similarly, at the Tower 4 street-level entrance area, stone work on the stairs and floors is nearly complete.*

Fire Alarm System: During *January*, 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 overtime 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. *Throughout the Hub Project areas, additional fire alarm conduits, wiring, and devices are being installed. In many areas, preliminary testing to local panels is occurring.*

Commissioning: *Commissioning activities advanced during January with several ATSS tested using emergency generator #1 at the new Emergency Generator Plant. These commissioning activities were allowed to advance under a workaround that was implemented at the Emergency Generator Plant that isolated generator #1 from the rest of the generator sets, preventing the "fuel-starving" phenomenon from impacting the testing. ATS testing will be continuing under this condition during February.*

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. Various low-voltage systems at the PATH Hub will use the new sitewide redundant backbone to interconnect system elements and will utilize redundant high capacity “core” routers located in two primary communications rooms, PL-077 and MZ-195. *As of the end of January, the provision of power has been accomplished to a portion of the communications rooms; however, some of the batteries within the Uninterrupted Power Supply (UPS) systems serving those rooms will likely need to be replaced given the length of time that they went without power. This could also affect testing of the ATS function.* A total of 12 equipment rooms must have connectivity to the core network in order for the low-voltage systems to be fully activated. *Also during January, the CM raised a concern that there are no cable runs or jacks for telephone service called for on the main floor of the Transit Hall, thus prompting an RFI to the designer.*

Central Fan Plant: During *January*, tinsmiths continued installing sheet metal wall lining in the fresh air intake shaft at the Tower 3 podium, which will provide fresh air to the Central Fan Plant for further distribution throughout the PATH Hub project spaces via Air Handling Units (AHUs). Supply of fresh air via supply fans SF-1, SF-2, and SF-3 is one of the critical elements of the work needed to place the Central Fan Plant in service. As of the end of *January*, the fresh air supply fans still remain to be installed along with their associated sound traps. *Also during January the electrical contractor continued installing conduits for power, fire alarms, and controls to the AHUs. High pressure steam was supplied to the Central Fan Plant during the month, when the utility company initiated flow beyond the point of entry in Tower 2 and down to the steam station in the Central Fan Plant, where it will be brought down to medium or low pressure for further use.*

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.

Community Relations

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

(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)

(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. (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 |

D. Cost Data

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 re-authorized 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) | (|
| Total | | (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 since the start of 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 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 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 triggering the initiation of an additional partial release of risk retainage.*

As of January 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 glass 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 *January 2015*, WTCC QA completed *seven* oversight audits that included reviewing the CM QA's field audits and performing its own field construction audit. The *January* audit total reflects the *seven* 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 *December 2014*, 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 *139,302* hours worked. In comparison, the *November 2014* incident totals were *two* recordable incidents and two lost-time incidents, resulting in a TCIR of *2.61* and an LTIR of *2.61*, based on *153,510* hours worked. In reviewing the *December* safety performance, WTCC Safety continues its active role in managing worker safety, evaluating the causes of each incident, addressing actions to prevent recurrence, and developing lessons learned. The decrease in the TCIR from *November's total of 2.61* to *December's total of 0.00* represents a significant effort within the WTCC Safety team. In addition, *WTCC Safety continues to provide Safety Bulletins and other safety information for use by its site safety managers, such as: WTCC Safety Bulletins on Site Sanitation, Cleanliness, and Housekeeping, and on the Miller Relief Step Safety Device; and handouts on topics such as "The 7 Steps to Get Rid of Bad Attitudes about Safety," the OSHA 300 recordkeeping and reporting requirements, and "Discipline Mistakes to Steer Clear Of."* The *January* safety data for the project was not fully available at the time this report was drafted but is expected to be available after mid-*February 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)

Efforts to place the Emergency Generator Plant in service have proven difficult and continued to occupy project resources through January. (b) (4)

(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 |
| CMU | Concrete Masonry Unit |
| 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 |
| MVM | Metrocard Vending Machine |
| 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 |
| 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 |