

## MONTHLY MONITORING REPORT

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

*January 2014*



PMOC Contract Number: DTFT60-09-D-00008

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

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Cover: *Workers installing temporary weathertight construction partition wall from main floor level of Transit Hall to sidewalk level.*

## **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 FTA or the project sponsor, in accordance with the purposes as described below.

For projects funded through FTA's Lower Manhattan Recovery program, 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

*The focus of the project during January remained on completing and opening Platform A to revenue service, including adjacent Track 1 and the associated portion of the mezzanine level directly above the platform. A February opening is now forecast by World Trade Center Construction (WTCC). Multiple support spaces and systems are also necessary to accomplish the opening of Platform A, and during the month, resources remained dedicated to advancing those elements towards completion. Additionally, progress on the erection of oculus steel improved in January over the December progress, thereby limiting further schedule erosion in this major element of project work.*

### 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. 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 has been scheduled for February 24, 2014.*

### Design Activity

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

## Procurement Activity

WTCC has completed all planned procurements for the PATH Hub project.


## Construction Activity

*Advancing the work necessary to open Platform A to revenue service remained the focus of the project throughout January 2014. Adjacent Track 1 and the mezzanine level above Platform A are also being advanced on a priority basis in support of the same goal, as are the various back-of-house support spaces, including those housing life safety, power, signal, and communications systems. Some testing and commissioning activities were performed during the month on these elements, and that work is expected to continue up through the time of the platform opening.*

*In the east bathtub, progress on the erection of oculus steel improved during the month. Despite the sub-freezing weather, January saw the erection of 14 upper portals and 10 arch-transitions. Both of these erection quantities represent marked improvements over the December results of 4 upper portals and 2 arch-transitions erected. The oculus steel structure includes a total of 110 of each of these elements.*

## Schedule

In November 2013, WTCC released Integrated Master Schedule (IMS) 70, (b) (4)



## Cost Data

WTCC submitted its cost model revision on *January 31, 2014*. Based on the contract awards and estimates through *December 31, 2013*, WTCC's Estimate at Completion (EAC) for the federally funded PATH Hub project is just over \$3.7 billion, which is unchanged from the previous month's cost model. WTCC is reporting the PATH Hub expenditures through *December 31, 2013*, to be more than \$2.75 billion, or approximately 74 percent of the EAC. This amount represents *an increase of nearly \$43 million* in PATH Hub expenditures since the *November 30, 2013* report, *which is above the* required average monthly burn rate of approximately \$40 million that is necessary to complete the project by the forecast date of December 2015.

## 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. A final draft of the revised PEP showing all of the proposed changes was provided to WTCC during November 2013, and it *remains* under review by WTCC *at the time of this report*.

#### Technical Capacity and Capability Review (TCCR)

An update to the TCCR will be performed 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.*

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

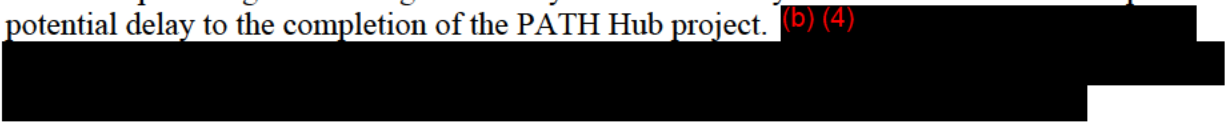
*During January 2014, WTCC QA completed four QA oversight audits. For the QA audits completed in January 2014, no corrective actions were identified. WTCC QA also provided three audit reports to address: (1) an outsized transition arch, (2) the process for replacing equipment impacted by Hurricane Sandy, and (3) the design certification process that supports the PANYNJ's process to issue a certificate to occupy/use. The January 2014 audit totals reflect the audit reports issued at the time this report was drafted.*

#### Site Safety and Security Review

*Safety performance indicators for the PATH Hub project through November 2013 remained relatively stable compared to those for the previous month. For the year to date (through November 2013), both the Total Case Incident Rate (TCIR) and the Lost-Time Incident Rate (LTIR) decreased slightly and are below the established project goals of 5.00 and 2.00, respectively. WTCC has continued its active role in managing worker safety. The December 2013 safety data for the project was not fully available at the time this report was drafted, because technical problems with the WTCC Safety Management System Tracking Tool (SMST2) database have limited the ability to input and retrieve data.*

#### Issues/Problems/Suggestions

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



(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 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 has been scheduled for February 24, 2014.*

#### 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.

#### Construction Status

**Transit Hall Concrete:** During *January*, the concrete contractor continued placement of miscellaneous concrete items and concrete wall sections located at the lower levels of the Transit Hall. Current work includes the removal of formwork material and punch list work. The concrete contractor is approximately *99 percent complete with its work*.

**Oculus Steel:** *The only major oculus steel elements that remained in fabrication during January are rafter and purlin elements. All of the other major elements have been fabricated and shipped during previous months, including the sub-portals, lower portals, upper portals, abutment components, and arch-transitions. Of the total of 146 rafter components required, 44 have already been shipped, 47 are fabricated and being loaded for departure no later than February 3, 2014, and the remaining 55 are in fabrication as of the end of the January. Tentative dates for the departure and arrival of the last shipment of major oculus steel elements are projected for late February and late March, respectively, at this time.*

*Through December, challenges encountered in remaining within the required tolerances for the installed locations during field erection of upper portals and arch-transitions continued to create delays to the contractor's erection schedule, setting that work behind plan by approximately 100 calendar days. Erection progress during January improved, as detailed in the table below. Of the total quantity of 110 upper portals and 110 arch-transitions, approximately 76 upper portals have now been set in position, and approximately 65 arch-transitions have also been set, with the number of each erected in January tallied at 14 and 10, respectively. No rafters have yet been erected. The following table shows recent oculus steel erection results compared to the total quantity required for the three remaining major element types still being erected.*

***Summary of Oculus Steel Erection Progress***

|                          | <b><i>Upper Portals</i></b> | <b><i>Arch-Transitions</i></b> | <b><i>Rafters</i></b> |
|--------------------------|-----------------------------|--------------------------------|-----------------------|
| <i>Total Quantity</i>    | 110                         | 110                            | 146                   |
| <i>Set Last Month</i>    | 2                           | 4                              | 0                     |
| <i>Set This Month</i>    | 14                          | 10                             | 0                     |
| <i>Total Set to Date</i> | 76                          | 65                             | 0                     |
| <i>Number Remaining</i>  | 34                          | 45                             | 146                   |

**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 structure. Currently, mobilization of the glass contractor is forecast for April of 2014. All of the glass panels have been fabricated and shipped from the contractor's fabrication subcontractor, and most 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, a number of designer comments remain open on the mock-ups of the oculus glass panels that were erected on-site in November 2013. Meetings to discuss the comments and what can be done to address them were conducted during January and will continue during February 2014.

**Oculus Skylight:** During December, testing of a full-size mock-up of a typical section of the oculus skylight continued at the contractor's testing facility. Testing was 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 during January and is expected to extend into early February. Representatives from the project team have been visiting the testing facility in eastern Pennsylvania during the testing to assess the testing methods and the test results to date.

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. At the end of January, work had advanced to the north-south portion of the concourse adjacent to Tower 3. Stone fabrication is following the same phasing sequence, with the next major portion of stone to be furnished targeted for the grand staircase at the western end of elevation 274 of the oculus. That stone is currently forecast to be delivered in late April 2014.*

PATH Hall Construction (PHC): During *January*, the PHC contractor continued the demolition and excavation work on the closed portions of Platform B at the north end and east section of the station. The PHC contractor has constructed multiple concrete sections of the east portion of Platform B. The mechanical trades continued installing the overhead mechanical work under the PATH Hall roof. The metal panel contractor continued installation of the ceiling metal panel system of the PATH Hall roof above the mezzanine level of Platform A, and the stone contractor continued the stone installation at the mezzanine level above Platform A. *The commissioning of the escalators; the elevators; the Mechanical, Electrical, and Plumbing (MEP) systems; and the fire alarm system is under way. On January 25, 2014, the third rail at Track 1 (Platform A) was energized. Construction workers are now required to be certified under the PATH On-Track Safety Training Program before they are allowed to enter the PATH track area. WTCC forecasts that the turnover of Platform A and sections of the mezzanine level will occur in mid-February 2014.*

Structural Steel to Grade (SSTG): During *January*, the SSTG contractor continued erecting structural steel members and installing the precast concrete box girders that also serve as ductwork over Track 2 at the north end section of Platform B in the PATH Station.

East Bathtub Mechanical, Electrical, Plumbing, and Fire Protection Work: Work by these four contractors continued during *January* in several locations, including Spot Networks SN-PN and SN-NW, along with work at the Central Fan Plant. *WTCC is currently forecasting that the energization of these last two spot networks will occur in April 2014. In addition, each of these contractors has upcoming work to be performed within the oculus structure, including work extending up to the roof level, where smoke exhaust fans, power supply for those fans, and roof drainage leaders all need to be installed as attachments and inserts to the oculus structure. That work is currently being reviewed and coordinated with regard to scaffold access and sequencing in order to limit interference, whenever possible, with the work of the oculus glass and oculus skylight contractors.*

Emergency Generator Plant and Emergency Chiller Plant: During *January*, installation of the emergency generator equipment and emergency chiller equipment advanced. Work is also ongoing to install the fuel delivery system that will supply diesel fuel from the fuel tanks located at elevation 240 of Tower 3 up to the fourth floor location of the emergency generators at elevation 386. *During January, two 350-gallon day tanks were set and generator sets #4 and #5 were treated with exhaust piping in anticipation of their initial start-up testing during February 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, *is pending review and approval of test reports by Con Edison* and will likely occur during the first quarter of 2014. Additionally, although line-ups A, B, C, and D are live, they are not yet feeding the Hub project elements that they will serve in the future. Instead, the Temporary Primary Distribution Center (TPDC) at the North Temporary Access continues to supply the PATH Hub project's electrical requirements. Migration from the TPDC source to the PDC source will likely begin in the first quarter of 2014, with completion of those electrical load transfers required during the second quarter to allow for the planned demolition of the North Temporary Access. The PDC power supply is currently being utilized by some of the other WTC site stakeholders, including Tower 1.

Vertical Circulation: During *January*, the contractor continued installing the escalator components at Platform A and the escalator components located in the Transit Hall at elevations 274 and 286. The contractor also continued to work on the Platform A elevator cabs and the escalators located in Tower 4.

Architectural Trades: *The contractors continue to install stone flooring, ornamental metal, and steel wall panels in the north-south concourse. The Construction Manager (CM) is 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 is to complete fit-out construction by the end of June 2014.*

Telecommunications, Wayfinding, and Supervisory Control and Data Acquisition (SCADA) Contract: *The contractor's scope of work includes telecommunications/data, networking, telephone, direct broadcast satellite (DBS), television service (TV), customer information system (CIS), WTC SCADA, PATHVision monitors, and the WTC Hub operations control center system. At the East-West Connector, the contractor is finishing LED signage. At Tower 2, the contractor has been delayed in installing backbone cabling due to a lack of supporting infrastructure. Telecommunications work must follow other craft work; therefore, telecommunications work will be delayed until other infrastructure and building fit-out are in place. Telecommunications work has been delayed until the structural work and room finishes are completed. At Platform A and the PATH Hall, the contractor has been placing a high priority on completing all required work for an anticipated opening date in February 2014. Telephones (including elevator), PATH speakers, and PATHVision require final installation and testing to meet the opening date. The CM will schedule a CIS training program for PATH employees upon completion of all testing and commissioning. Because of wiring and SCADA design changes, delays to work on SCADA have also occurred, thus impacting the contractor's ability to run wiring and conduit and install equipment.*

WTC Radio System Contract: *The contractor is continuing with the installation of the interoperable radio system for the various security and emergency response entities that will have access to it. The contractor is currently focusing on PATH Hub Platform A installations. For the head-end rooms, all radio hardware has been received locally (off-site) and is being configured and prepared for installation on-site. The contractor is installing New York City Fire*

*Department, New York City Police Department, and mutual aid channels as a first priority for the 80-channel radio system.*

**North Projection Structural Rehabilitation:** During the month of *January 2014*, the contractor continued cleaning areas and performing punch list work.

**Commissioning:** The current focus is the commissioning of systems required for the Platform A temporary permit to occupy, which *is now* scheduled for *mid-February 2014*. The areas to be turned over are Track 1, Platform A, and the mezzanine level above Platform A. The emphasis is on the commissioning of all low-voltage systems, specifically the life safety system/fire alarm/*smoke management system* and the Building Automation Temperature Control System that are necessary to support the operation of Platform A. The commissioning of the vertical circulation system to support Platform A has commenced. Commissioning of elevators #7 and #8 and escalators #11 and #12 is scheduled to be performed during the week of January 27, 2014, but will probably be completed by the week of *February 3, 2014*. *A weekly progress meeting for Platform A low voltage system turnover was held on January 28, 2014, and these weekly meetings are expected to continue until the Platform A temporary permit to occupy is issued.*

#### 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. Tower 4 connector work at grade *continues*. *Upon completion of below-grade electrical utilities, bollards, and Church Street median work, access on Church Street will improve for pedestrian and vehicular traffic.* The contractor *continues* to encounter problems with space limitations *as a result of street utility work around the site area.* *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 this spring.*

#### 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 70 in November 2013. This IMS, with a data date of October 1, 2013, continues to show a six-month slippage of the PATH Hub project's overall completion date to

(b) (4)



(b) (4) WTCC continues to assess opportunities for workarounds, in particular for platform construction. IMS 70 continued to show the opening of Platform A on December 31, 2013, which did not occur, but it changed the forecasts for some of the oculus steel erection milestones to later dates. IMS 71, with a data date of December 1, 2013, was expected to be submitted during January 2014, *but it did not arrive by the end of the month.*

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

| Significant Activity  | Action by |
|---|-----------|
| Platform A Mezzanine Structure                                | WTCC      |
| Platform A Operational  | WTCC      |
| Mobilization of Oculus Glazing                                | WTCC      |
| Erection/Bolt/Weld Oculus Steel Upper Portals and Transitions | WTCC      |

#### D. Cost Data

WTCC submitted its cost model revision on *January 31, 2014*. Based on the contract awards and estimates through *December 31, 2013*, WTCC's EAC for the federally funded PATH Hub project is slightly more than \$3.7 billion. WTCC is reporting the PATH Hub expenditures through *December 31, 2013*, to be over \$2.75 billion, or approximately 74 percent of the EAC. This represents a \$43 million increase in PATH Hub expenditures since the *December 31, 2013* report, *which is above* the required average monthly burn rate of \$40 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 *December 31, 2013*:

| Description                   | EAC (WTCC's Forecast)<br>(in millions) | Expenditures<br>(in millions) |
|-------------------------------|--|-------------------------------|
| Construction                  | \$2,823                                | \$2,137                       |
| Program Management and Design | 682                                    | 616                           |
| Contingency                   | (b) (4)                                | (b) (4)                       |
| 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 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. A draft of the revised PEP, showing all of the proposed changes, was provided to WTCC during November 2013, and it currently remains under review by WTCC.

#### F. Technical Capacity and Capability Review

An update to the TCCR and a new TCCR Spot Report are anticipated to be completed later in 2014. The FTA will use the PEP to measure WTCC's 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/QA 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.*

An update to its 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 January 2014, WTCC QA completed four QA oversight audits of the CM QA activities and of installation of structural steel. For the QA audits completed in January 2014, no corrective actions were identified. In addition, WTCC QA completed three audit reports related to: (1) an outsized transition arch, (2) the process for replacing equipment damaged by Hurricane Sandy, and (3) the design certification process that supports the PANYNJ's process to issue a certificate to occupy/use. The January 2014 audit totals reflect the audit reports completed at the time this report was drafted.*

#### G. Site Safety and Security Review

The safety performance of the PATH Hub project through November 2013 remained relatively stable, decreasing only slightly from the safety performance in October 2013. From the start of the year through the end of November 2013, there have been 38 recordable injuries and 16 lost-time injuries on the project, with 1,926,436 hours worked. The resulting year-to-date LTIR for the project is 1.66, which is below the established project goal of 2.00. The corresponding TCIR for the project for the same period is 3.94, which is also below the established goal of 5.00. WTCC has continued its active role in managing worker safety on the site. *The December 2013 safety data for the project was not fully available at the time this report was drafted, because technical problems with the WTCC SMST2 database have limited the ability to input and retrieve data.*

#### H. Issues/Problems/Suggestions

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

[REDACTED]

In the west bathtub, the opening of Platform A continued to lag behind the forecast date of December 31, 2013, and WTCC has now reforecast it to occur in February. Many project elements are linked to achievement of that milestone event, and WTCC is focusing its resources on completing the construction and testing of those elements at present.

In the east bathtub, the oculus steel erection continues to prove difficult and is also lagging behind the established intermediate schedule milestones. Geometry control issues during erection

and seasonal weather delays *have* combined to place the oculus steel erection further behind schedule, *although the progress in January improved.*

#### Action Items

##### Key Project Action Item Checklist

| Key Project Action Item    | Agency                   | Target Completion | Status/Comments  |
|----------------------------|--------------------------|-------------------|--|
| PEP Milestone Review Point | PANYNJ/<br>LMRO/<br>PMOC | TBD               | This will be delayed until the schedule impacts from the hurricane are fully recognized. |

End of report. Appendix follows.

## APPENDIX

### APPENDIX A – LIST OF ACRONYMS

|        |   |
|--------|---|
| CA     | Construction Agreement                          |
| CIS    | <i>Customer Information System</i>              |
| CM     | Construction Manager                            |
| DBS    | <i>Direct Broadcast Satellite</i>               |
| EAC    | Estimate at Completion                          |
| FTA    | Federal Transit Administration                  |
| IMS    | Integrated Master Schedule                      |
| LMRO   | Lower Manhattan Recovery Office                 |
| LTIR   | Lost-Time Incident Rate                         |
| MEP    | <i>Mechanical, Electrical, and Plumbing</i>     |
| 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   | <i>Project Quality Assurance Plan</i>           |
| QA     | Quality Assurance                               |
| QC     | <i>Quality Control</i>                          |
| QPRM   | Quarterly Progress Review Meeting               |
| RCD    | Required Completion Date                        |
| RRCA   | Revised and Restated Construction Agreement     |
| SCADA  | <i>Supervisory Control and Data Acquisition</i> |
| SMST2  | <i>Safety Management System Tracking Tool</i>   |
| SSTG   | Structural Steel to Grade                       |
| TCCR   | Technical Capacity and Capability Review        |
| TCIR   | Total Case Incident Rate                        |
| TPDC   | <i>Temporary Primary Distribution Center</i>    |
| TV     | <i>Television Service</i>                       |
| WTC    | World Trade Center                              |
| WTCC   | World Trade Center Construction                 |