

MONTHLY MONITORING REPORT

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

October 2015



PMOC Contract Number: DTFT60-14-D-00010

Task Order Number: 006

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Cover: *Future WTC PATH Hub Fire Command Station at elevation 306’ of the oculus.*

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. DTFT60-14-D-00010, Task Order No. 006. 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

October brought continued steady progress on the work at Platforms C and D. The use of two daily shifts allowed for the setting of the remaining steel truss girders along the platform edges and also allowed for multiple concrete placements for the under-platform walls at Platform C.

At the oculus, testing of the smoke purge fans at the oculus roof level was ongoing at the end of the month, and the installation of the skylight ridge gasketing started. At the main floor of the oculus, multiple trades worked primarily on low voltage system installations and installation of architectural finishes.

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. (b) (4)

[REDACTED]

Quarterly Progress Review Meeting (QPRM)

The next QPRM will address the third quarter of 2015 and is scheduled for November 24, 2015.

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. However, change orders continue to be issued as necessary under the active construction contracts.

Construction Activity

Efforts to accelerate the work on Platforms C and D continued during October, and primarily heavy structural work advanced on a two-shift basis throughout the month. Multiple concrete placements were made for the Platform C support walls, and the remaining sections of steel truss girders above the edges of both platforms were set.

At the oculus, multiple trades worked at the main floor installing various low voltage systems and architectural finishes. The roof-level smoke purge fans were also tested during the month, and near the end of the month, installation of the skylight ridge gasketing began.

Back-of-house work at the north and south projection fan plants continued, but at an increased level of activity, during October. Work on the back-of-house PATH Hub project support rooms in the Tower 3 footprint areas adjacent to the levels of elevations 274 and 296 of the North-South Concourse was also underway during the month.

Schedule

On September 1, 2015, WTCC released Integrated Master Schedule (IMS) 81 (with a data date of August 1, 2015), (b) (4)

[REDACTED]

Cost Data

WTCC submitted its monthly cost model revision on *October 30, 2015*. (b) (4)

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. That document sets forth a series of project review points with specific project milestones that must be met in order to trigger the release of defined amounts of risk contingency funds to the grantee. As each PEP milestone event is achieved, the PMOC updates the contingency drawdown curves 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 July 2015, the PMOC reviewed the residual risk associated with the remaining work at Platform D and determined that the amount of advance work on that project element (b) (4)

Throughout October 2015, the PMOC performed an assessment of the remaining project work scope, based on the detailed scope of work contained in the RRCA, and quantified the cost and schedule risks associated with that remaining work. A draft spot report providing the results of that assessment was submitted to the FTA for review at the end of October.

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)

An updated draft of WTCC's Operations Management Plan, a PMP sub-plan, was submitted in August 2014, but it was found to lack essential elements. The grantee submitted an updated version of the Operations Management Plan in mid-July 2015. The PMOC is currently reviewing that document and compiling comments.

Project Quality Assurance

During *October 2015*, WTCC Quality Assurance (QA) completed *seven* oversight audits that included reviewing the Construction Manager (CM) QA's field audits and performing its own field construction audits. The *October 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 *September* 2015, the project had *one* recordable incident and no lost-time incidents, resulting in a monthly TCIR of *1.69* and an LTIR of 0.0, based on *118,051* hours worked. Safety initiatives that took place in *October* are discussed in the project monitoring section of this report. The *October* 2015 safety data for the project was not fully available when this report was drafted but is expected to be available after mid-*November* 2015.

Issues/Problems/Suggestions

Because of the high concentration of contractors needing access in and around the oculus and the difficulty in coordinating all of the competing activities, it is likely that remaining work for the oculus and the plaza around the oculus will not be completed before the winter. Weather-sensitive work will likely be further delayed.

(b) (4) [Redacted text block]

WTCC continues to focus on opening portions of the project for public use. However, the project's back-of-house and support elements also require completion in order to fulfill the terms of the CA and deliver a fully functional WTC PATH Hub facility. A broader focus by WTCC on the complete project scope would be beneficial.

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. (b) (4)

(b) (4)

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. WTCC submitted Recovery Plan 03 on April 15, 2015. In late April, the PMOC recommended acceptance of Recovery Plan 03, which maintains the PATH Hub project's substantial completion date and RCD from Recovery Plan 02. On June 4, 2015, the FTA approved Recovery Plan 03. Recovery Plan 03 identifies new target dates for two of the RRCA milestones, extending the date for "Transit Hall Superstructure Complete (Glazing)" from January 13, 2015, to August 31, 2015, and extending the date for "Mezzanine Structural Steel at Platform C Substantially Complete" from June 30, 2015, to October 31, 2015. (b) (4)

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(b) (4)

Quarterly Progress Review Meeting

The next QPRM will address the third quarter of 2015 and is scheduled for November 24, 2015.

WTC Site Master Plan

WTCC's latest 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 *during October*, including responding to contractor Requests for Information (RFIs), *reviewing contractor submittals*, and providing design certifications for completed elements of construction. *Through the end of September 2015, WTCC reports that the designer has issued a total of 52 design certification letters for the PATH Hub project.*

Construction Status

Oculus Painting: Surface repair and painting activities by the prime painting contractor continued on the oculus steel elements throughout *October*, although the work continued to be encumbered by the work of other trades that were also accessing the structure using boomlifts. *Both the interior side and the exterior side of the oculus steel are receiving surface repairs and repainting on a widespread basis to address the scratches and gouges to the finished surfaces that were likely introduced by the boomlifts and by installed materials making contact with the steel surfaces. It now appears that the remaining oculus steel surface repair and painting work will continue up until the onset of the cold weather season.*

Oculus Curtain Wall: During *October*, the curtain wall contractor continued to perform finish work on the glass panel portion of the curtain wall system. Installation of insulation, gaskets, metal trim pieces, and caulking for the glass portion advanced during the month in the work areas identified by the CM as available for contractor access. As of the end of *October*, 650 metal trim panels remained to be installed; *these 650 remaining panels represent approximately 40 percent of the total quantity required and include a significant number of trim panels that are custom-sized so that they close the gaps at the tops of each bay of the oculus.* Also during *October*, an additional 77 vertical portions of the WT-3 metal panels were installed, leaving 10 vertical pieces yet to be installed. *Installation of WT-3 horizontal pieces started during the month, and by month's end, 54 of these horizontal pieces had been set. There are 58 horizontal pieces that remain to be set.* To date, the required water and air intrusion testing on the oculus curtain wall system has not commenced.

Oculus Skylight: During *October*, the oculus skylight contractor *achieved a successful outcome on the chamber test for air and water intrusion. This in-place testing was performed under subcontract by the same testing entity that had performed testing of several skylight and curtain wall elements at its Pennsylvania testing facility in late 2012.* Also during *October*, the skylight ridge gasketing and capping materials were delivered to the site, and their installation began. *Installation of these materials is one of the remaining activities that requires access from the hanging scaffold at the oculus roof level. WTCC has forecast that the hanging scaffold will be removed by the end of November 2015.*

Platforms C and D: *WTCC continued to prosecute the work at Platforms C and D on a two-shift basis during October, with Saturday work also included in the acceleration program. At the end of the month, the setting of the remaining pieces of truss girder steel for the mezzanine level had occurred, although substantial amounts of aligning and welding of those elements were continuing at the end of the month. The truss girders, once completed, will allow for the installation of the pre-cast concrete smoke purge duct sections that also serve as the floor of the mezzanine above. Also at the end of October, following some load transfer at the north end of the*

work area, additional demolition of the existing floor slabs at elevations 274 and 264 began. At the south end of the work area, construction of back-of-house rooms behind Platform C and Platform D was advanced, and some equipment deliveries were made to those new rooms. Last, the placement of the Platform C concrete support walls approached the halfway point during October; this placement is progressing primarily from south to north.

East Bathtub Mechanical, Electrical, Plumbing (MEP), and Fire Protection Work: During October, a subgroup consisting of three of the eight emergency generator sets in the Emergency Generator Plant was placed in the automatic mode so that it could supply emergency power in the event of a loss of primary power at PATH Hub project elements that were recently placed into service. These three generator sets have a limited available diesel fuel supply, since the day tank that supplies fuel to them remains isolated from the permanent fuel storage tanks as it awaits completion of the repairs and testing of the north fuel riser piping. Also during October, the mechanical contractor continued to install the radiant floor heating system, and at the end of the month only a small portion of the floor still needed that system installed. Work advanced during October on MEP and Fire Protection elements throughout the east bathtub at many of the back-of-house rooms that will serve the PATH Hub project, and that are located both within the footprint of the oculus and within PATH Hub spaces located in the podiums and subgrade portions of Towers 2, 3, and 4. Rooms housing communications equipment, radio equipment, fire alarm equipment, electrical distribution equipment, elevator systems, air conditioning equipment, and the like were receiving active installation of required MEP and fire protection treatments during October.

East Bathtub Finish Work: During October, the Transit Hall ornamental metal and glass contractor installed most of the straight pieces of the glass railing around the interior of the oval at elevation 296 within the oculus. The curved pieces of glass railing at the eastern and western ends of the oval were not yet placed. Also during the month, the stone contractor made progress installing stone at multiple locations in the east bathtub, including the east grand stairs and the stairs spanning from elevation 284 to elevation 296 that connect the oculus to the transportation lobby at Tower 2. Stone fabrication continues at the fabrication facility in Italy. At the end of the month, the fabricator requested inspection of the proposed blending of the stone pieces for stair 38 and for the oculus northwest balcony areas. Other portions of the stone fabrication scope that were not yet underway as of October are the stone benches that will ring the oculus at the plaza level and the stone floors for the eastern and western street-level oculus entrances. A small number of granite pavers for the plaza surface around the oculus exterior were received on-site in late October, and these granite pavers will be used to create a mock-up for review near the tree planters on south side of the oculus in early November.

Primary Distribution Center (PDC) at Tower 1: During October, the project remained dependent on the North Temporary Access (NTA) for emergency power from the two temporary emergency diesel generators that are housed there and from the Emergency Distribution Substation (EDS-NTA), which is located within the NTA facility. That temporary emergency power supply will be required until all of the permanent emergency generators at Tower 3 are in service and connected via EDSs to all of the Automatic Transfer Switches (ATSSs) that are currently in use. Once that transition occurs, the project will be fully independent of the temporary electrical services housed in the NTA, and they can then be decommissioned.

Vertical Circulation: *During October, work on elevators and escalators in the west bathtub was limited pending the further advancement of the structural work on Platforms C and D. At the end of the month, access for core-drilling the shafts for the two elevators at the southern end of Platform D remained unavailable, and therefore the forecast for starting that work was revised to mid-November 2015. At Platform C, the same core-drilling activities for the two elevators at the southern end of that platform were reforecast to occur in early December 2015. The escalator work for the two platforms is not expected to start until the first quarter of 2016. In the east bathtub, work continued during October at the eastern end of the oculus on Elevators 16 and 17, where premium time was selectively deployed to recover some of the time that was lost performing remedial work on the structural steel elements that house the two elevator shafts. The two scenic elevators (Elevators 14 and 18) remained in fabrication during October. Installation of these scenic elevators is now forecast to begin during the first quarter of 2016, and completion is projected to occur in the second quarter of 2016. Escalator work in the east bathtub during the month included advancement of the installation of Escalators 33 and 34. The contractor also reported that replacement parts for damaged trim pieces at Escalators 41 and 42 had been ordered, and their delivery is expected before the end of the year. The status of elevators (and material lifts) and escalators through the end of October 2015 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	12	14	28	26	7	47
Elevators	7	9	10	8	4	21

Commissioning: *During October, testing of the 60 motor-operated fan dampers at the oculus roof-level smoke purge fans was largely completed. Also, WTCC determined that the Heating, Ventilation, and Air Conditioning (HVAC) equipment in the South Mezzanine would be refurbished and that recommissioning of this equipment would follow, including balancing of the heating and cooling functions of the equipment. WTCC also reported that the PATH Hub steam service, which had been interrupted by a leak at the point of entry located in the steam meter room, would be restored during November, thereby allowing the flow of steam to the Central Fan Plant steam station and further allowing the downstream distribution of hot water for heating. Last, the commissioning entity advocated for revisiting Platforms A and B in order to address various elements that were excluded from the commissioning process when those platforms were initially placed into revenue service. By the end of the month, a target date for starting that process had not been established.*

Fire Alarm System: *The PATH Hub project fire alarm system will ultimately provide monitoring, detection, and notification of any fire condition throughout the Hub project facilities, including the Transit Hall, PATH Hall, East-West Connector, and North-South Concourse. In addition to covering these public spaces, the Hub project fire alarm system will provide the same coverage for all of the Hub project back-of-house spaces located throughout the WTC site. As designed, the fire alarm system will also be extended into the Retail spaces located within and adjacent to those same four primary PATH Hub project public spaces. A total of 6,000 points will transmit information to 22 Data Gathering Panels which will, in turn,*

transmit to the new Fire Command Station. At the end of October, WTCC reported that 20 of the Data Gathering Panels are active, although not all of the devices that will be connected to those panels have been installed and connected. WTCC also reported that, although the new Fire Command Station at elevation 306 in the northeast quadrant of the oculus is approaching completion, the temporary fire command station located in the NTA will remain in service as the only manned Fire Command Station until the NTA closes to public use. A target date for that closure has not been defined.

Radio System: Although the radio system contract is a WTC sitewide contract, significant portions of the system, including the head-ends, are being provided under the PATH Hub portion of that contract. WTCC has characterized this system as very robust and highly redundant. The two head-ends are being installed in rooms TH-015 and MZ-194. At present, radio transmissions are handled by a temporary head-end that was established at room MZ-194. As of the end of October, WTCC reports that approximately 75 percent of the radio nodes are up and running, albeit from the temporary head-end. Also during October, work was underway to relocate the temporary head-end equipment from room MZ-194 to allow for the installation of the permanent head-end equipment in that room. In addition, in late October the contractor submitted its initial radio cutover plan for review and approval.

Telecommunications and Security Systems: In early October, the telecommunications contractor reported that the Factory Acceptance Testing (FAT) of the Supervisory Control and Data Acquisition (SCADA) system had been performed at the supplier's facility in Georgia. WTCC reported in late October that the test was deemed successful, and therefore WTCC forecast that the equipment should arrive on-site during November 2015. Also during October, the security system contractor raised a liability concern with respect to the fire alarm contractor's intentions of working on the Lenel panels. WTCC expects to resolve this concern soon, and projects that the integration of the two systems will begin in early November.

Central Fan Plant: During October, the Central Fan Plant remained in limited use; five air-handlers were being operated by contractor personnel in manual mode and were primarily serving Platforms A and B and the mezzanine above those platforms. Pending activities that are expected to occur during November include the restoration of steam delivery from the Hub point-of-entry to the steam station in the Central Fan Plant, and then the utilization of the steam to make hot water for heating purposes during the coming cold weather season. Also pending at the Central Fan Plant is the installation of the remaining sections of permanent 20-inch chilled water supply and return piping within the recently completed utility tunnel leading to the Central Chiller Plant.

Construction Logistics

The WTCC Office of Program Logistics (OPL) continues to facilitate construction progress and the sharing of access, egress, and work zones among all contractors onsite. During October, OPL addressed issues of water infiltration at the boundary between MTACC's Cortlandt Street Station project and the WTC PATH Station mezzanine directly below. OPL also worked with the New York State Department of Transportation (NYSDOT) Route 9A contractor to provide access for that contractor's jacking operation to transfer Liberty Street pedestrian bridge loads from

the temporary support located in the new Route 9A right-of-way to the permanent support at the new bridge abutment, which is integrated into the west wall of the Vehicular Security Center.

Interagency Coordination

Also during *October*, OPL continued to coordinate site construction and logistics among the many project stakeholders, including contractors, construction managers, tenants, insurance firms, PATH operations, and the Port Authority Police Department (PAPD). Monthly meetings continue to be held among the various entities. Activity in *October* included *supporting the 53-hour weekend service diversions by Metropolitan Transportation Authority Capital Construction on the 1-Line in order to place concrete for new invert slabs. These concrete placements occurred on multiple weekends during the month.*

Community Relations

OPL continued to distribute construction alerts, updates, and monthly construction progress newsletters to the community and stakeholders. Updates on the project are listed at the website wtcprogress.com, and specific presentations are periodically made to Manhattan’s Community Board #1.

C. Schedule

On September 1, 2015, WTCC released IMS 81 (with a data date of August 1, 2015), (b) (4)

[REDACTED]

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

Significant Activity	Action by
Stone Floor Installation at Elevation 274	WTCC
Mezzanine Structural Steel Complete at Platform C	WTCC
Central Fan Plant Online	WTCC
Emergency Generator Plant Online	WTCC
Removal of Oculus Hanging Scaffold	WTCC

The PMOC, independent of the grantee’s schedule forecasts, has developed *independent* forecasts for various critical schedule milestones. The results of that effort identified the following forecast dates for the milestone events listed:

Schedule Tool Topic	PMOC Forecast
(b) (4)	

D. Cost Data

(b) (4)

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted] 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 September 30, 2015:

Description	EAC (WTCC’s Forecast) (in millions)	Expenditures (in millions)
Construction	\$2,807	\$2,489
Program Management and Design	721	698
Contingency	(b) (4)	
Total		(b) (4)

WTCC submitted its monthly cost model revision on October 31, 2015. It shows that WTCC’s EAC for the federally funded PATH Hub project (b) (4)

[Redacted]

[Redacted]

[Redacted]

[Redacted]

(b) (4)

[Redacted]

[Redacted]

E. 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. That document sets forth a series of project review points with specific project milestones that must be met in order to trigger the release of defined amounts of risk contingency funds to the grantee. As each PEP milestone event is achieved, the PMOC updates the contingency drawdown curves 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 May 2015, the PEP milestone defined as "Platform B Operational" was achieved, triggering the initiation of another partial release of risk retainage. An additional release of risk retainage was made in August based on the amount of advance work that had been completed at Platform D. *Throughout October 2015, the PMOC performed an assessment of the remaining project work scope, based on the detailed scope of work contained in the RRCA, and quantified the cost and schedule risks associated with that remaining work. The PMOC forwarded a draft spot report providing the results of that assessment to the FTA for review at the end of the month.*

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

- *Site-wide Systems Integration, Testing, and Commissioning.*
- *Completion of PATH Hub Support Rooms/Facilities/Elements.*
- *Remaining work to be performed by the low voltage contractors.*

F. Technical Capacity and Capability Review

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

Project Management Plan

An updated draft of WTCC's Operations Management Plan, a PMP sub-plan, was submitted in August 2014, but it was found to lack essential elements. The grantee submitted an updated version of the Operations Management Plan in mid-July 2015. Shortly thereafter the PMOC compiled comments on the updated version for the FTA's consideration. *As of the end of October, the OMP update effort continued through discussion among the FTA, PMOC and WTCC. Primary topics being addressed are any impacts on PATH service delivery resulting from the project construction, and the pedestrian flow levels of service in both the current temporary station configuration and the ensuing temporary station configurations when the NTA is removed from public use.*

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 *October* 2015, WTCC QA completed *seven* oversight audits that included reviewing the CM QA's field audits and performing its own field construction audit. The *October* 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 safety performance goals for its TCIR and LTIR of less than 5.0 and less than 2.0, respectively. In *September* 2015, the project had *one* recordable incident and no lost-time incidents, resulting in a monthly TCIR of *1.69* and an LTIR of 0.0, based on *118,051* hours worked. As part of its ongoing safety initiatives, WTCC Safety holds weekly safety committee meetings with all site contractor safety managers. During *October*, WTCC Safety issued safety information for use by its site safety managers, including information that addressed the topics of: "*Use of Site-Approved Space Heaters*" and "*Use of Portable Fire Extinguishers.*" Site safety managers were encouraged to discuss these topics at toolbox talks.

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

H. Issues/Problems/Suggestion

The high concentration of contractors needing access in and around the oculus and the difficulty of coordinating all of their competing activities make it unlikely that the remaining work for the oculus and plaza will be completed before the winter. Weather-sensitive work will likely be further delayed.

(b) (4)

WTCC continues to focus on opening portions of the project for public use. However, the project's back-of-house and support elements also require completion in order to fulfill the terms of the CA and deliver a fully functional WTC PATH Hub facility. A broader focus by WTCC on the complete project scope would be beneficial.

End of report. Appendices follow.

APPENDIX A – LIST OF ACRONYMS

CA	Construction Agreement
CM	Construction Manager
EAC	Estimate at Completion
FAT	Factory Acceptance Testing
FTA	Federal Transit Administration
HVAC	Heating, Ventilation, and Air Conditioning
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
NYSDOT	New York State Department of Transportation
OPL	Office of Program Logistics
PANYNJ	Port Authority of New York and New Jersey
PAPD	Port Authority Police Department
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
SCADA	Supervisory Control and Data Acquisition
TCCR	Technical Capacity and Capability Review
TCIR	Total Case Incident Rate
WTC	World Trade Center
WTCC	World Trade Center Construction

APPENDIX B – LESSONS LEARNED

LL#	Date	Phase	Category	Subject	Lessons Learned
1	2Q2015	Construction	Safety	Controlled Access Zone	Work at the oculus roof level and from the hanging scaffold at the roof level caused near-miss incidents in the work areas below. A controlled access zone was established to protect workers from entering areas where overhead work was being performed.
2	3Q2015	Construction	Management	Use of Building Information Modeling (BIM) to pre-order cable	Use of the project BIM is often an effective tool to expedite the ordering of long-lead-time cable before field measurements can be taken. However, sometimes the BIM does not represent exactly how the conduit was installed, and the pre-ordered cable is too short.