MONTHLY MONITORING REPORT

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

September 2015

PMOC Contract Number: DTFT60-14-D-00010
Task Order Number: 006
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Cover: *The Platforms C and D work area, looking northwest from the future mezzanine 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 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

After completion of rock excavation for the utility tunnel and ventilation tunnel that will pass beneath Platform C and Tracks 4 and 5, the reinforced concrete *tunnel* structure was *cast* during the month of September. *The erection of structural support steel for the mezzanine above Platform C was also advanced, including the setting of additional columns and truss girders.*

Within the Oculus, progress was made in multiple locations on the installation of radiant heating, stone floors, and stone stairs.

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

WTCC changed its approach by deferring the opening of an Early Access Pedestrian Corridor through the east bathtub; this new approach has allowed permanent construction to proceed unhindered in multiple east bathtub locations. Within the Oculus, progress was made in multiple locations on the installation of radiant heating, stone floors, and stone stairs in September 2015.

Also during September, considerable progress was made in the construction of the new Platforms C and D. After completion of rock excavation for the utility tunnel and ventilation tunnel passing beneath Platform C and Tracks 4 and 5, the reinforced concrete *tunnel* structures were *cast* during the month of September. *The erection of structural support steel for the mezzanine above Platform C was also advanced, including the setting of additional columns and truss girders.*

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 *September 30, 2015.* (b) (4) [redacted]

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, 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) The PMOC formally transmitted Spot Report 2146R to the FTA with that recommendation on July 22, 2015. Top risk drivers are mentioned within the body of the monitoring report, below. The PMOC is currently assessing the remaining risk to the project cost and schedule, and is developing potential additional PEP milestones, focusing on the various back-of-house support elements that are essential to the fulfillment of the RRCA PATH Hub project scope.

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 *September* 2015, WTCC Quality Assurance (QA) completed *eight* oversight audits that included reviewing the Construction Manager (CM) QA's field audits and performing its own field construction audits. The *September* 2015 audit total reflects the *eight* 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 August 2015, the project had no recordable incidents and no lost-time incidents, resulting in a monthly TCIR of 0.0 and an LTIR of 0.0, based on 113,520.5 hours worked. Safety initiatives that took place in September are discussed in the project monitoring section of this report. The September 2015 safety data for the project was not fully available when this report was drafted but is expected to be available after mid-October 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.

Until recently, the working assumption was that Platforms C and D would be opened concurrently. WTCC has recently indicated that it is considering a staged opening of Platform C or Platform D. If this staged opening occurs, the additional burden of out-of-sequence work will be added to the project.

(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. (b) (4) [redacted] 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) [redacted]

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, 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. The CM tracks contractor RFIs for each of the prime contractors working on the project. The CM, in concert with WTCC, then prioritizes the order in which those RFIs should be answered by the designer based on their relative importance in advancing project work.

Construction Status

Oculus Steel: *During September,* the oculus steel contractor *neared completion of the activities associated with the scope of work contained in its contract. By the end of the month, the work of the remaining* repainting of the oculus steel rafters and repair of the *rafter* steel surfaces *had been reduced to a very few activities. However, other surface repair and painting activities continued on the remainder of the oculus steel elements throughout September, with that work being performed under the prime painting contract, which is a separate agreement. In addition,* the *work of the prime painting contractor* continued to be encumbered by the work of other trades as well as by rain and humidity constraints. *WTCC continues to project that the remaining oculus steel surface repair and painting work will be complete before the onset of cold weather.*

Oculus Curtain Wall: During *September*, 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, *but at a reduced pace,* during the month in the work areas identified by the CM as available for contractor access. *As of the end of September, 800 metal trim panels remained to be installed; these remaining 800 metal trim panels represent approximately half of the total quantity required. Also, no additional vertical portions of the WT-3 metal panels were installed during the month, and therefore 87 vertical pieces still need to be installed. No horizontal pieces have yet been installed. During September, 50 of the 60 power-operated fan dampers were installed at the roof-level smoke purge fan locations. To achieve this installation, multiple* predecessor activities *were* completed, including installation of liner steel in the *exterior portions of the* fan openings, *and installation of* tube support steel, gaskets, power, *and control wiring*. *The integrated testing of the smoke purge fans and their associated dampers in the southeast quadrant also commenced at the end of the month. Once the integration testing is completed, the vertical portions of the WT-3 exterior panels can be installed over the dampers. At the horizontal and vertical faces of all of the arch elements, installation of waterproofing was completed during the month.* To date, the required water and air intrusion testing on the oculus curtain wall system has not commenced.

Oculus Skylight: During *September*, the oculus skylight contractor concentrated on adjusting and operating the skylight system. The contractor's subconsultant for synchronizing the skylight opening and closing operations *completed its work at the 20 north modules and began work on the south modules.* At the four skylight motor control centers (MCCs), all of the required cables have been pulled and terminated. The installation of skylight centerline gaskets and cap

installation *are projected to* start after the synchronization of the skylight module movements has been completed, *and air and water intrusion tests are projected to begin after those installations.*

Platforms C and D: *By the end of September, in the area north* of the utility tunnel, *most* of the truss girders had been set, and work on their bolted and welded structural connections was ongoing. These truss girders will support the precast concrete smoke purge ducts that will also serve as the mezzanine floor slabs. Also during *September, the concrete floor slab, walls, and roof slab of the utility tunnel were cast.* At the north end of Platform C, *rock anchors have been installed for shear wall SW-1. At the south end of Platform C, excavation commenced for the construction of the footings for the new platform. At the southernmost section of Platform C, foundation walls were constructed for future electrical rooms, and conduit rough-in work is also underway.*

East Bathtub Mechanical, Electrical, Plumbing (MEP), and Fire Protection Work: *During September, the plumbing contractor installed ten exterior hose hydrants around the perimeter of the Oculus. These will be used to provide water for cleaning and for watering plants.* At the main floor of the Oculus at elevation 274, the mechanical contractor continued installing the radiant floor heating system, *and nearly completed its work on the southern half.* Also in this area, the controls contractor *continues to install embedded* control boxes and wiring for the radiant heating system, *and the electrical contractor, working in front of the radiant heat installations, continues to install the special event embedded floor boxes. Control wiring for local air-conditioning units AC21 and AC21A were completed this month, thus allowing their startup. Room TH-015, which is the critical radio head end room, now has cooling from those units. The electrical contractor continued to install lighting around the oculus ring at both elevation 274 and elevation 296.* At the Emergency Generator Plant, the mechanical contractor *continued its efforts to clean the north fuel riser piping for the emergency generators. The pipes were chemically flushed, hydrostatically tested, and treated with nitrogen to remove moisture.*

East Bathtub Finish Work: During *September, the oculus plaza waterproofing and finish stone contractor continued* to install a metal box trench around the outside perimeter of the Oculus, just below the grade level of the future plaza. *The metal trench box was set on a waterproofing system, and the roof drains are being connected to the trench box. Formwork has been set along the south side of the Oculus to receive concrete to the elevation of the trench box adjacent to the oculus exterior wall. Most of the interior stone floor has been installed on the south half of the Oculus. The interior stone contractor commenced stone installation at the northeast quadrant during September and is working to the west; the contractor had completed installation of about 35 percent of the north half of this area by the end of the month. The stone contractor also installed floors at the elevation 274 south transept, tying into the previously installed stone floor in the leg of the north/south concourse under Tower 3, as well as stone treads and risers on stairs adjacent to escalators 29 and 30 at the south transept. The Transit Hall carpentry contractor continued to install metal ceiling panels* along the south oculus walkway at elevation 296 *and over the stairs to the Dey Street Corridor. This contractor also continued installing shoes for glass railing around the slab edge of the Oculus at elevation 296.*

Primary Distribution Center (PDC) at Tower 1: Migration of PATH Hub project electric loads from the Temporary Primary Distribution Center (TPDC) in the North Temporary Access (NTA) to the PDC in Tower 1 *continues to be a high priority*. All normal power feeds for the project

are now originating from the PDC at Tower 1. However, the project remains dependent on the NTA for emergency power from the two temporary emergency diesel generators that are housed there and 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. *Once those permanent generators are in service, the project will be fully independent of the temporary electrical services housed in the NTA, and they can then be decommissioned.*

Vertical Circulation: *Previously,* PANYNJ had accepted *eleven escalator units and two elevator units* required for the Early Access Pedestrian Corridor through the east bathtub. However, *because the* plan for the Early Access Pedestrian Corridor *has been* deferred, these elevator and escalator units were treated with temporary protection that *will remain in place* until they are placed in service. Work continues on the remaining contract elevators and escalators, *and final inspections are being held for Escalator 29.* In the east bathtub, Elevators 16 and 17 remain behind schedule due to field conditions, and the scenic elevators, Elevators 14 and 18, also remain behind schedule because of late design changes. In the west bathtub, the construction of Platforms C and D must advance further before elevator and escalator installations can begin. The material lift at the west side of the Central Fan Plant (ML-2) was completed during July, and *in September, testing took place and a punch list was generated. The construction of Material Lift 1 at the east side of the Central Fan Plant is projected to commence in October 2015. At the end of September, Escalator 21and Elevator 12 were placed into service to provide direct access to Tower 1 via a temporary passageway.* The status of elevators (and material lifts) and escalators through the end of September 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	11	12	31	30	5	47
Elevators	6	7	11	10	4	21

Fire Alarm System: During *September,* work continued at the new PATH Hub project Fire Command Station *that is* being built in the back-of-house space at elevation 306 of the Transit Hall. *At the Operations Command Center located in the south mezzanine, all of the required fire alarm equipment, including cables and terminations, is approaching completion. During September, the equipment at all three of the fire command locations was turned on, so that technicians could adjust and program the equipment. WTCC currently forecasts that the three fire command locations will be completed before the end of November 2015.*

Commissioning: *During September, initial testing of the smoke purge fans at the roof level of the Oculus continued, and initial testing of the fan dampers began.* Preparations *continued* for the testing of the oculus curtain wall and the oculus skylight with the development of Pre-Functional Checklists and Functional Performance Tests for both elements. *The skylight contractor began the initial testing for the operation and control of the movable skylight elements.* Also in September, WTCC *reaffirmed* the priorities for the CM and the Commissioning Entity moving forward by establishing *as the first priority* the pedestrian corridors leading to the new Vesey Street and Liberty Street Hub entrances, followed by the full

Emergency Generator Plant *as the second priority, and* the remaining elevators and escalators in the east bathtub as the third priority.

Communications Systems: During *September, achieving the cooling of communications rooms continued to be challenging. As cooling equipment controls are installed and chilled water piping runs are completed, additional communications rooms receive cooling capability. Critical among those rooms is radio head end room PL-017. This room received air conditioning late in September, thereby allowing the equipment to be powered up and testing to commence. However, some of the* other communications rooms continue depend on temporary spot coolers. The back-of-house telephones are being installed, but at a slow pace. *The procedure for the public address system factory acceptance test was submitted in September 2015 and is under review at present; testing is projected to begin during November 2015.* The Supervisory Control and Data Acquisition (SCADA) system factory acceptance test *procedure* was approved during August, *and this testing is scheduled to begin during October 2015 at an off-site location. The SCADA system factory acceptance testing will be witnessed by a third-party inspection entity. WTCC also reported that the interoperability issues between the Lenel communications network and the Firecom fire alarm system have been resolved and, if a protocol gets established for the integration of the systems, then integration is projected to begin in early October 2015. Permanent radio service equipment still must be relocated to room TH-015 from room MZ-194. The retail radio room has yet to be constructed by Retail. The east bathtub radio system contractor will install the radio equipment in that room when it becomes available.*

Central Fan Plant: During *September*, the mechanical contractor set *the last of the three* fresh air supply fans *into position* at the top of the fresh air shaft located in the Tower 3 podium. *Electrical power and control wiring work is ongoing for these fans.* However, the fresh air shaft that will feed fresh air to the Central Fan Plant still contains a work scaffold system and openings in the shaft walls at locations where the emergency diesel fuel riser piping has been undergoing repair and retesting. Restoration of the wall openings and removal of the work scaffold are both necessary before the fresh air shaft can begin to handle outside air to the Central Fan Plant. During *September,* five air-handling units at the Central Fan Plant *continued to supply* tempered air to Platform B, as well as to the mezzanine over Platforms A and B. Contractor personnel are operating air-handling units 11, 8A, 1, 2, and 5B *in manual mode* until the work at the Central Fan Plant progresses and the testing and commissioning of those units takes place.

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 *September*, OPL *was involved in the coordination efforts for the 911 Memorial Services and the September 25th Papal Visit. Street closures and temporary pedestrian routes were organized along with security check points. OPL also provides coordination with the Metropolitan Transportation Authority Capital Construction (MTACC) contractor that is working on the Cortlandt Street Station. Access points and laydown areas are established and MTACC weekly construction plans are reviewed by OPL.*

Interagency Coordination

Also during *September*, 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 September* included coordination with New York State Department of Transportation (NYSDOT) and the Battery Park City Authority (BPCA) with regard to the remaining work involved in completing the eastern portion of the Liberty Street pedestrian bridge, which lands on the roof of the Vehicle Security Center and provides direct access to the adjacent Liberty Street Park.

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 selected schedule tools to forecast upcoming critical schedule milestones. The results of that effort identified the following forecast dates for three milestone events:

Schedule Tool Topic	PMOC Forecast
(b) (4)	

D. Cost Data

(b) (4)

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 *August 31, 2015*:

Description	EAC (WTCC's Forecast) (in millions)	Expenditures (in millions)
Construction	$2,807	*$2,478*
Program Management and Design	*719*	*694*
Contingency	(b)	
Total		(b) (4)

WTCC submitted its monthly cost model revision on *September 30, 2015*. It shows that WTCC's EAC for the federally funded PATH Hub project is (b) (4)

(b) (4)
[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.* The PMOC is currently assessing the remaining risk to the project cost and schedule, and is developing potential additional PEP milestones, focusing on the various back-of-house support elements that are essential to the fulfillment of the RRCA Hub project scope.

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

- Coordination among the oculus curtain wall and skylight contractor and the other contractors working at the Transit Hall space.
- Completion of the Fuel Oil Delivery system at the Emergency Generator Plant.
- Delivery of fresh air to the Central Fan Plant by the supply fans located in the Tower 3 podium.
- Remaining work to be performed by the controls contractor.

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. *The PMOC has compiled comments on the updated version for the FTA's consideration.*

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 September 2015, WTCC QA completed eight oversight audits that included reviewing the CM QA's field audits and performing its own field construction audit. The September audit total reflects the eight 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 August 2015, the project had no recordable incidents and no lost-time incidents, resulting in a monthly TCIR of 0.0 and an LTIR of 0.0, based on 113,520.5 hours worked*. As part of its ongoing safety initiatives, WTCC Safety holds weekly safety committee meetings with all site contractor safety managers. *During September, WTCC Safety issued safety information for use by its site safety managers, including information that addressed the topics of: Heat Stress (because the weather continued to be unseasonably hot) and Safety Practices for Boom Lifts (to ensure that back-up alarms are not disengaged prior to use of boom lifts; this topic was discussed as a result of CM Safety spot checks on boom lifts that identified the issue). Site safety managers were encouraged to discuss these topics at toolbox talks and also to verify that back-up alarms are properly engaged before the equipment is used.*

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

H. Issues/Problems/Suggestion

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

(b) (4) [redacted]

Although good progress has been made on Recovery Plan 04 activities, it is likely that a Recovery Plan 05 will be needed before the end of the year.

End of report. Appendices follow.

APPENDIX A – LIST OF ACRONYMS

BPCA	Battery Park City Authority
CA	Construction Agreement
CM	Construction Manager
EAC	Estimate at Completion
FTA	Federal Transit Administration
IMS	Integrated Master Schedule
LMRO	Lower Manhattan Recovery Office
LTIR	Lost-Time Incident Rate
MCC	motor control center
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
TPDC	Temporary Primary Distribution Center
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*	*Manage-ment*	*Use of Building Information Modeling 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.*