

## MONTHLY MONITORING REPORT

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

*November 2015*



PMOC Contract Number: DTFT60-14-D-00010

Task Order Number: 006

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Cover: *The steam station located within the Central Fan Plant.*

## **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

*Fueled by the use of two daily shifts and Saturday work, November progress on the work at Platforms C and D was significant. Setting of pre-cast concrete smoke purge ducts above Tracks 4 and 5 was the leading activity, and that work approached 90 percent completion at the end of the month.*

*During November, remedial work at the emergency diesel fuel supply system in the east bathtub allowed for the successful testing of the north riser fuel piping that runs between the basement-level fuel storage tanks and the Emergency Generator Plant on the fourth floor of the Tower 3 podium. That successful testing, in turn, allowed for the start of the restoration work in the fresh air supply shaft where the north riser piping had been concealed.*

### 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 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 QPRM for the third quarter of 2015 was held on 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

*Construction advances during November in the west bathtub were primarily in the area of heavy structural work at the Platforms C and D work areas. Concrete placement for Shear Wall #1 was performed and, working from south to north, pre-cast smoke purge ducts above Tracks 4 and 5 were set. The support walls and platform slab for new Platform C also were advanced beyond the 50 percent completion level by the end of the month.*

*In the east bathtub, the hanging scaffold just beneath the oculus roof level was removed, and the skylight contractor took its hammerhead crane out of service in anticipation of the removal of that crane in early December. Steam supply to the Central Fan Plant steam station and the generation of hot water for heating were also achieved during November.*

### Schedule

On November 5, 2015, WTCC released Integrated Master Schedule (IMS) 82 (with a data date of October 1, 2015), which (b) (4)

[REDACTED]

[REDACTED]

## Cost Data

WTCC submitted its monthly cost model revision on *November 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. (b) (4)

During 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.

## 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 resubmitted in mid-November following discussion of the expected document contents among the FTA, the PMOC, and WTCC. The PMOC was reviewing the resubmitted Operations Management Plan as of the end of the month.*

## Project Quality Assurance

During *November 2015*, WTCC Quality Assurance (QA) completed *six* oversight audits that included reviewing the Construction Manager (CM) QA's field audits and performing its own field construction audits. The *November 2015* audit total reflects the *six* 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 *October 2015*, the project had one recordable incident and no lost-time

incidents, resulting in a monthly TCIR of 1.64 and an LTIR of 0.0, based on 121,988.5 hours worked. Safety initiatives that took place in *November* are discussed in the project monitoring section of this report. The *November* 2015 safety data for the project was not fully available when this report was drafted but is expected to be available after mid-*December* 2015.

#### Issues/Problems/Suggestions

*The impending onset of the winter cold weather season poses two challenges: Some areas of the project that are still exposed to freezing temperatures remain isolated from the permanent heat supply system and will require temporary heat to prevent damage due to freezing. Second, the cold weather will curtail some of the ongoing outside work, such as the painting of the exterior oculus steel and placement of oculus plaza waterproofing and granite pavers, although tenting of smaller areas and utilization of temporary heating units could be considered as a way to continue this work.*

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[REDACTED]  
[REDACTED]

WTCC continues to focus on opening *areas* 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 RRCA and deliver a fully functional WTC PATH Hub facility. A broader focus 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 stations in New York and New Jersey. When completed, the WTC 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)

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

#### Quarterly Progress Review Meeting

The QPRM for the third quarter of 2015 was held on 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 *November*, including responding to contractor Requests for Information (RFIs), reviewing contractor submittals, and providing design certifications for completed elements of construction. *During November, the designer issued a design modification that modified the performance of the 60 smoke purge fan dampers at the oculus roof level so that the*



dampers will default to the open position in the event of a loss of primary power. Through the end of the third quarter of 2015, WTCC reports that the designer has issued a total of 52 design certification letters for the PATH Hub project.

## Construction Status

*Oculus Painting: Painting by the prime painting contractor, which includes the repair and filling of surface blemishes, continued in designated quadrants of the oculus exterior during November. This work, which was not originally included in the painting contract scope, was added by change order in early October. That change order was identified as “Rat Hole Remediation” at a settled change order value of \$1,321,000. By the end of November, colder temperatures and rain slowed progress on the exterior painting work. Coordination with other trades working at the oculus exterior was another constraint that limited access to the structure for the painter’s boomlifts. The exterior painting work is expected to be interrupted by weather during the coming winter. Resumption of the exterior painting work in the spring of 2016 and continuation through the second quarter of 2016 are both anticipated.*

*Oculus Curtain Wall: During November, 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 November, 516 metal trim panels remained to be installed, representing approximately 30 percent of the total quantity required and including a significant number of trim panels that are custom-sized in order to close the gaps at the tops of each bay of the oculus. Also during November, the remaining final vertical and horizontal sections of the WT-3 metal panels at the top of the curtain wall were set in place. Next, installation of the smaller-sized curved transition pieces and the adjacent checkered plate catwalk pieces will begin. Hose testing of finished portions of the glass curtain wall began during November, although there were reports of logistical problems with performing the testing at the start of the testing period.*

*Oculus Skylight: During November, the oculus skylight contractor made significant progress on a number of activities. At the centerline of the skylight, gaskets were installed along the entire length of that joint, and installation of capping metal strips above the gasketing commenced. Last, the hanging scaffold, which had provided access to the roof level of the oculus for multiple trades including the skylight contractor, was removed at the end of the month. WTCC is forecasting that the hammerhead crane used to erect the skylight and several of the other curtain wall and skylight elements will be removed during December 2015.*

*Platforms C and D: WTCC continued to execute the work at Platforms C and D on a two-shift basis during November, with Saturday work also included in the acceleration effort. Work in November focused on the mezzanine structural support steel, which is composed of a system of hammerhead columns, truss girders, and pre-cast smoke purge ducts above Tracks 4 and 5; welded and bolted fastening of the support steel was continuing at month’s end. The bank of temporary 8-inch conduits that was formerly mounted on the western boundary wall of Platform D (a/k/a the North-South Shear Wall), was de-energized and removed during the month, thus clearing the way for the start of the installation of the support system that will receive the stone tile wall finishes. Work on the under-platform walls that will support the Platform C slab advanced from south to north and reached approximately 75 percent completion by the end of*

*the month. The contractor advanced work on the setting of sections of the pre-cast smoke purge ducts above Tracks 4 and 5, and approximately 80 percent of the sections had been set in place at month's end. The placement of concrete for Shear Wall #1, adjacent to Track 4 and up to the underside of the existing 264' elevation slab, was also accomplished by the end of November 2015.*

**East Bathtub Mechanical, Electrical, Plumbing (MEP), and Fire Protection Work:** During November, focus remained on the PATH Hub project work related to the Emergency Generator Plant and associated diesel fuel delivery system, along with the adjacent Hub project work in the Tower 3 podium at the fresh air supply fans and fresh air supply shaft. By month's end, the north fuel riser piping had been tested and deemed ready to handle fuel between the storage tanks in the Tower 3 basement and the day tank in the generator plant. Similarly, the piping from the street-level fill lines to the tank room was tested and deemed ready to receive a fuel delivery to the storage tanks. At the end of the month, 6,000 gallons of diesel fuel were placed into tank #1. In the fresh air shaft, the shaft wall openings that were made to gain access to the north fuel riser piping were closed with concrete block as part of the shaft wall restoration. The repair of the insulation layer and the sheet metal air shaft lining is expected to occur during December, thus allowing the removal of the shaft scaffold system. Work also advanced during November on the 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 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 November.

**East Bathtub Finish Work:** During November, a mock-up of the granite stone treatments that will be installed at each of the street-level tree planters was installed and was inspected by the designer of record and WTCC. With comments, the mock-up was deemed satisfactory, and work was allowed to proceed at adjacent locations. Within the oculus interior, installation of most of the main floor stone flooring was completed and the floor was protected, except for the pieces at the boundary of the floor that require custom field cutting. Work on those pieces is expected to commence during December 2015. Earlier in November, the remaining straight sections of the glass railing at the interior edge of the 296' elevation oval were set into position, although the handrails that will be affixed to the top of the railings have not yet been received on-site. Following removal of the hanging scaffold, repairs to the approximately 40 points of temporary attachment of the hanging scaffold to the oculus structure are planned. Those repairs are expected to commence in December and will entail the restoration of the attachment system and will be followed by the application of the multi-coat painting system.

**Primary Distribution Center (PDC) at Tower 1:** During November, 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 (ATSs) that are currently in use. In November, as part of the transition, approximately 15 ATS swing-overs were

*performed. Once the transition is completed, the project will be fully independent of the temporary electrical services housed in the NTA, and they can then be decommissioned.*

**Vertical Circulation:** *During November, no significant work on elevators and escalators in the west bathtub was performed, because that work requires the further advancement of the structural work on Platforms C and D. At the end of the month, access for core-drilling of the shafts for the four elevators at the southern ends of Platforms C and D became available, and therefore it is now likely that the work on those four elevators can begin in early December. 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 November 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 November. 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 November 2015 is unchanged and is summarized in the following table:*

<b>Item</b>	<b>In Service Last Month</b>	<b>In Service This Month</b>	<b>Onsite/Under Construction Last Month</b>	<b>Onsite/Under Construction This Month</b>	<b>Not Yet Onsite</b>	<b>Total</b>
Escalators	12	14	28	26	7	47
Elevators	7	9	10	8	4	21

**Commissioning:** *During November, commissioning activities focused on three areas of the PATH Hub project. Those areas are: the swing-over of ATSS from the temporary emergency generators at the NTA to the permanent emergency generators housed in the Tower 3 podium, the testing of the Central Fan Plant air-handling units that are needed to provide heat to areas of the project that are vulnerable to freezing temperatures, and the commissioning of the components of the fuel oil delivery system that will deliver fuel from the emergency diesel fuel storage tanks to the generator plant day tank as needed. Progress was made in all three areas during the month, although at the end of the month, the testing of Air-Handling Units 12 and 12A, which serve Spot Network SN-TS, was delayed and now will occur in December. Other commissioning activity in November included the emergency diesel fuel tank storage room foam fire suppression system and exhaust fan EF-15, which covers the same space.*

**Fire Alarm System:** *During November, work on the new fire alarm system advanced, primarily in the east bathtub, where the installation of detection devices and annunciators, and the wiring of those devices to the various data-gathering panels, was advanced in both the public and back-of-house spaces.*

**Radio System:** *During November, radio transmissions continued to be handled by a temporary head-end that is in place at room MZ-194. Also during November, work continued to relocate the*

temporary head-end equipment from room MZ-194 *in order* to allow for the installation of the permanent head-end equipment in that room. WTCC *is forecasting that the migration of the radio system to the new head-end will take place during December 2015, although as of the end of November, the logistics of the migration and the approval of the migration procedure remained to be finalized.*

Telecommunications and Security Systems: *During November, and following the successful outcome of the Factory Acceptance Testing (FAT) of the Supervisory Control and Data Acquisition (SCADA) equipment in October, the contractor received the equipment on-site. Also during November, the contractor proceeded with pulling and terminating fiber optic cable at the north projection. The contractor estimates that it will install the SCADA panels and complete the remaining terminations by the end of December 2015. During November 2015, WTCC advised the electrical contractor that it was that contractor's responsibility to resolve the ongoing interoperability issues between Lenel and Firecom. It is WTCC's position that, because Firecom is the contractor's chosen vendor, and the contractor was aware of the interoperability requirement in the contract, it is the contractor's responsibility to resolve any issues raised by Firecom. After intermittent power outages interrupted attempts to perform the testing, the network integration is now scheduled for December 2015.*

Central Fan Plant: *During November, restoration of steam delivery from the Hub point-of-entry to the steam station in the Central Fan Plant was achieved, following the replacement by Con Edison of two steam supply valves that had malfunctioned. The malfunctions were reportedly a result of the excessively high temperatures in that location, as a result of the inability of temporary spot coolers to maintain the room at expected temperature levels. The restoration of steam delivery allowed for steam to again flow to the steam station at the Central Fan Plant, where it could be used to generate hot water for heating purposes. Heating has been initiated, albeit from air-handling units that are being operated in a construction start-up mode to some Hub project locations, such as the South Mezzanine and Platforms A and B. Also during November, the contractor advanced 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; approximately 60 feet of the remaining 200 feet of piping was installed. Installation of permanent chilled water piping is expected to continue during December.*

### 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 November, OPL continued to address issues of water infiltration at the boundary between MTACC's Cortlandt Street Station project and the WTC PATH Station mezzanine directly below.*

### Interagency Coordination

Also during *November*, 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.

## 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](http://wtcprogress.com), and specific presentations are periodically made to Manhattan's Community Board #1.

### C. Schedule

On *November 5, 2015*, WTCC released IMS 82 (with a data date of *October 1, 2015*), (b) (4)

[REDACTED]

(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

The PMOC, independent of the grantee's schedule forecasts, has *independently* developed 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)

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 *October 31, 2015*:

Description	EAC (WTCC's Forecast) (in millions)	Expenditures (in millions)
Construction	\$2,807	\$2,498
Program Management and Design	721	703
Contingency	(b) (4)	

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

(b) (4)

#### 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. *The most recent* release of risk retainage was made in August 2015 based on the amount of advance work that had been completed at Platform D. *During* 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.

As of *November* 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 resubmitted in *mid-November* following discussion of the expected document contents among the FTA, the PMOC, and WTCC. Primary topics *discussed were* 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. *As of the end of the month, the PMOC was reviewing the resubmitted Operations Management Plan.*

##### Project Organization

WTCC continues to update consultant and contractor staff assignments across project areas to address staffing needs as the project advances.

## Project Quality Assurance

During *November* 2015, WTCC QA completed *six* oversight audits that included reviewing the CM QA's field audits and performing its own field construction audit. The *November* audit total reflects the *six* 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 *October* 2015, the project had one recordable incident and no lost-time incidents, resulting in a TCIR of 1.64 and an LTIR of 0.0 for the month, based on 121,988.5 hours worked. As part of its ongoing safety initiatives, WTCC Safety holds weekly safety committee meetings with all site contractor safety managers. During *November*, WTCC Safety issued safety information for use by its site safety managers, including information that addressed the topics of: "*Overhead Work Safety and Controlled Access Zones*," "*Use of Lasers in Construction*," and "*Site Sanitation, Cleanliness and Housekeeping*." Site safety managers were encouraged to discuss these topics at toolbox talks.

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

## H. Issues/Problems/Suggestion

*The impending onset of the winter cold weather season poses two challenges: Some areas of the project that are still exposed to freezing temperatures remain isolated from the permanent heat supply system and will require temporary heat to prevent damage due to freezing. Second, the cold weather will curtail some of the ongoing outside work, such as the painting of the exterior oculus steel and placement of oculus plaza waterproofing and granite pavers, although tenting of smaller areas and utilization of temporary heating units could be considered as a way to continue this work.*

(b) (4)

A large rectangular area of the document has been redacted with black ink. The redaction covers approximately five lines of text, starting from the line containing the text "(b) (4)".

WTCC continues to focus on opening *areas* 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 RRCA and deliver a fully functional WTC PATH Hub facility. A broader focus on the complete project scope would be beneficial.

End of report. Appendices follow.



## APPENDIX A – LIST OF ACRONYMS

ATS	<i>Automatic Transfer Switch</i>
CA	Construction Agreement
CM	Construction Manager
EAC	Estimate at Completion
EDS	<i>Emergency Distribution Substation</i>
FAT	Factory Acceptance Testing
FTA	Federal Transit Administration
IMS	Integrated Master Schedule
LMRO	Lower Manhattan Recovery Office
LTIR	Lost-Time Incident Rate
MEP	Mechanical, Electrical, and Plumbing
NTA	North Temporary Access
NYCT	New York City Transit
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	<i>Required Completion Date</i>
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