MONTHLY MONITORING REPORT

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

August 2014

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Cover: *Looking north at workers installing rebar and formwork for shear wall #2 at the north end of Platform B adjacent to new Track 3*.

DISCLAIMER

This report and all subsidiary reports are prepared solely for the Federal Transit Administration (FTA). This report should not be relied upon by any party, except the FTA or the project sponsor, in accordance with the purposes as described below.

For projects funded through FTA's Lower Manhattan Recovery program, the FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a project sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a sponsor may develop for project execution.

Therefore, the information in the monthly reports may change from month to month, based on relevant factors for the month and/or previous months.

REPORT FORMAT AND FOCUS

This monthly report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60-09-D-00008, Task Order No. 002. Its purpose is to provide information and data to assist the FTA in continually monitoring the grantee's technical capability and capacity to execute a project efficiently and effectively, and hence, whether or not the grantee continues to receive federal funds for project development.

This report covers the project management activities on the Permanent World Trade Center (WTC) Port Authority Trans-Hudson (PATH) Terminal (Hub) project, conducted by the Port Authority of New York and New Jersey (PANYNJ) as grantee and funded by the FTA's Lower Manhattan Recovery Office (LMRO).

EXECUTIVE SUMMARY

In the east bathtub, the Oculus Steel contractor *duplicated its July performance by again erecting* an additional 20 rafter elements during *August, bringing the total quantity of rafters erected to 59 out of a total requirement of 114*. *The first spliced rafter was also set during the month*.

In the west bathtub, Platform B continued to be the focus of activity during *August*. *Extension* of the utility tunnel *structure* that crosses beneath the new platform and adjacent Tracks 2 and 3 *was completed* during the month. *Shear wall #2 at the track level and north end of the station was also cast during the month.*

Migration of Hub project electrical loads from the Temporary Primary Distribution Center (TPDC), located in the North Temporary Access, to the Primary Distribution Center (PDC), located in Tower 1, commenced during August, when the contractor successfully performed the first of multiple planned transfers.

Project Description

The WTC PATH Hub Terminal serves the PATH electrified rail transit system in Lower Manhattan. The PATH Hub is an extensive underground complex of pedestrian corridors and train station facilities that will replace the original WTC PATH Terminal destroyed by terrorist attack on September 11, 2001.

Construction Agreement (CA)

The CA was signed by the LMRO on April 25, 2006. A Revised and Restated Construction Agreement (RRCA) was executed on September 18, 2012. The RRCA establishes a Required Completion Date (RCD) of December 17, 2015, and commits $2.872 billion in federal funding to the PATH Hub project. The RRCA establishes a not-to-exceed amount of $3.995 billion for the project.

Quarterly Progress Review Meeting (QPRM)

A QPRM for the second quarter of 2014 has not been scheduled.

Design Activity

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

Procurement Activity

World Trade Center Construction (WTCC) has completed all planned procurements for the PATH Hub project. However, Change Orders continue to be issued as necessary under the active construction contracts.

Construction Activity

Construction of the new Platform B continued to advance during the month. The section of the utility tunnel *structure* that passes under the platform and Tracks *2 and* 3 *was completed*. The contractor also *completed the installation of precast smoke purge ducts above Track 3, and commenced the installation of precast floor slab sections that span between the precast ducts over Tracks 2 and 3. The combination of precast ducts and precast floor slabs comprise the floor of the mezzanine level above the platform.*

At the Transit Hall, rafter erection continued *during August* along both the north and south sides of the oculus structure, *keeping pace with the erection quantity of 20 rafters achieved during July. However, this pace continues to lag behind the planned rate of rafter erection*.

The first step of a multi-step process in the migration of PATH Hub project electrical loads, from the TPDC, located in the North Temporary Access, to the PDC, located in Tower 1, was successfully accomplished during August.

Schedule

In July 2014, WTCC released Integrated Master Schedule (IMS) 74 (b) (4) [redacted]

Cost Data

WTCC submitted its monthly cost model revision on *August 27, 2014*. It shows that, based on the contract awards and estimates through *July 31, 2014,* WTCC's estimate at completion (EAC) for the federally funded PATH Hub project is just over $3.7 billion, which is unchanged from the cost model revision submitted at the end of the prior month. WTCC reported total PATH Hub expenditures through *July 31, 2014*, to be more than *$2.91 billion, or 78.3 percent of the EAC.*

That total of PATH Hub expenditures includes an additional amount of *$29.3 million* in PATH Hub expenditures over the total contained in the *July 31, 2014 report.*

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. As information on the impacts of Hurricane Sandy became available, the PMOC conducted PEP workshops in June 2013 to discuss and quantify the impacts to cost and schedule from the storm. The PMOC then reconciled the results of the workshops with WTCC, and the outcome of this effort was used to update the PEP. The PEP was finalized in February 2014 and recognized WTCC's eligibility for receiving partial release of risk retainage by achieving beneficial use of Platform A on February 25, 2014. In July *of 2014*, the PMOC initiated a review of the 2013 PEP update in consideration of various project developments that have arisen during the intervening period. *In August, the PMOC updated the contingency draw-down curve to reflect the evaluation of the project's residual risks and the potential risk retainage release amounts associated with each of the remaining PEP milestones.*

Technical Capacity and Capability Review (TCCR)

The TCCR will be updated as necessary in conjunction with the update of the PEP.

Project Management Plan (PMP)

The grantee *updated* its PMP and *submitted version 6.0 of the plan* in early August 2014. *The PMOC is currently reviewing that submission.*

Project Quality Assurance (QA)

During August 2014, WTCC QA completed ten oversight audits that included observing the Construction Manager (CM) QA's field audits and performing its own audits of field construction activities. No corrective actions were identified by WTCC QA during these audits. The August 2014 audit total reflects the ten WTCC QA audit reports that were issued and received at the time this monthly report was drafted.

Site Safety

The WTC PATH Hub project has established safety performance goals for its Total Case Incident Rate (TCIR) and Lost Time Incident Rate (LTIR) of less than 5.0 and less than 2.0, respectively. In July 2014, the project recorded two recordable incidents and two lost-time incidents which resulted in a TCIR of 2.45 and an LTIR of 2.45, based on 163,378 hours worked. In comparison, the June 2014 incident totals were two recordable incidents and no lost-time incidents, resulting in a TCIR of 2.69 and an LTIR of 0.0, based on 148,651 hours worked. In reviewing the July safety performance, WTCC Safety continues its active role in managing worker safety, evaluating the causes of each incident, and developing lessons learned. The August 2014 safety data for the project was not fully available at the time this report was drafted but is expected to be available after mid-September 2014.

Issues/Problems/Suggestions

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

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 terrorist attack on September 11, 2001.

B. Project Status

Construction Agreement

The CA was signed on April 25, 2006. An RRCA was executed on September 18, 2012. The RRCA established an RCD of December 17, 2015, and commits $2.872 billion in federal funding to the PATH Hub project. It also includes an FTA-allowable not-to-exceed amount of $3.995 billion. The FTA approved WTCC's February 18, 2014 Recovery Plan, thereby establishing a revised RCD of December 31, 2016. Also included in the Recovery Plan was a change in WTCC's forecasted substantial completion date to December 31, 2015.

Quarterly Progress Review Meeting

A QPRM for the second quarter of 2014 has not been scheduled.

WTC Site Master Plan

WTCC's current site master plan is Master Plan Version 10, released October 1, 2010.

Environmental Compliance

(Reported on separately by FTA's LMRO.)

Design Support During Construction

The designer continued providing post-award design support services for the PATH Hub construction, including responding to contractor Requests for Information (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.

Construction Status

Oculus Steel: *Although the progress made in August on oculus steel erection matched the improved results recorded in July, the number of rafters set was again about half of the planned*

monthly rafter quantity: *The total number of rafters set in August was again 20. A significant event in August was the setting of the first rafter that had been brought to the site in two pieces and splice-welded on the ground before erection (rafter +2N). This will be followed by the splice welding and erection of 31 more field-spliced rafters. Favorable weather throughout August contributed to the good progress in rafter erection, but it remains challenging given the limited laydown area at the site, the increasing size of the rafter components being handled, the competition for access to the work area from the other trades (including the oculus glass and skylight contractor), and the overall geometry control measures that must be deployed as each piece is set in place.* The following table summarizes the rafter erection progress during *August*:

Summary of Rafter Erection Progress (*August* 2014)

	Rafters Set	Purlin-to-Purlin Welds Completed	Rafter Base Welds Completed	Rafter Splice Welds Completed
Total Qty. Req'd	114	110	114	32
Last Month	*20*	*17*	*8*	0
This Month	20	*18*	*13*	*3*
Total to Date	*59*	*39*	*30*	*3*
Number Remaining	*55*	*71*	*84*	*29*

Oculus Glass: As currently planned, oculus glass panel installation will proceed after all of the steel rafters have been set by the Oculus Steel contractor, thereby ensuring that the steel structure will be in its final position when the installation of glass panels begins, *although an earlier start of glass panel installation is currently being evaluated in an effort to recover lost time in the schedule*. During *August*, the Oculus Glass contractor continued to attach glass panel support clips to the oculus steel upper portals at the north *and south* sides of the oculus. *The oculus glass contractor has not yet mobilized its erection crane; it is awaiting the availability of space for the crane and the need for its use with glass panel work.*

Oculus Skylight: The Oculus Skylight contractor, which is the same contractor as the Oculus Glass contractor, continued to advance the shop fabrication and assembly of skylight sections at multiple locations. Ultimately, all skylight sections will be completed at a facility located in Virginia and will be sent from there to the site when installation is ready to begin. Safe access for skylight installation will be provided by the contractor's planned installation of a hanging scaffold, which will be located just below the oculus roof line and will span from the eastern end of the oculus to the western end. *The crane required for the skylight installation is on hold until steel erection is completed and the steel erection tower cranes are removed.*

PATH Hall Construction (PHC): During *August*, platform construction activities continued at Platform B with the *completion of all of the* sections of precast concrete smoke purge ducts over Track 3. *Sections of precast slabs were installed between the precast smoke ducts over Tracks 2 and 3 to complete the mezzanine base floor slab at elevation 266, except in the area of the construction access opening at the north end of Track 2.* The contractor has started work on the common elevator pit for the two elevators to be installed at the south end of the platform but *continues to wait* for the removal of a temporary column from the elevator pit area in order to

continue this work. Work on the utility tunnel structure that passes under the platform and both of the adjacent tracks *and Platform B was completed in August.* At the north end of the platform, shear wall #2, *along with its associated footing, was cast. Electricians continued to install conduits under the platform for power, communication, and fire alarm systems. In the ceiling area above the mezzanine, Mechanical, Electrical, and Plumbing (MEP) and Fire Protection subcontractors continued the installation of light fixtures, sprinklers, ductwork, and fire alarm components. At the east side of this area, sections of the temporary work platform have been removed.*

East Bathtub Mechanical, Electrical, Plumbing, and Fire Protection Work: During *August, WTCC's plan to place the emergency generator plant in service was not realized, primarily because the ability to load diesel fuel into the fuel storage tanks and pump that fuel to the generator plant day tanks has not yet been achieved.* At the fuel oil tank room, the fire protection contractor *is preparing the* foam fire suppression system *for testing. Work on the fire alarm system is yet to be completed. The contractor made progress on the* installation of the fill and vent lines that will allow the delivery of fuel from tanker trucks to the below-grade tanks *during August; pressure testing of the first of three fill lines was accomplished.* This portion of the work is under the control of the building developer's mechanical contractor.

Primary Distribution Center (PDC) at Tower 1: *During August*, migration of *PATH Hub project* electric loads from the TPDC in the North Temporary Access to the PDC in Tower 1 *commenced*. The process is a multi-step activity and requires the connection of feeders from the PDC to each of the six spot networks throughout the site, with five of those six spot networks supporting PATH Hub project electrical demand. *The first feeder was energized from PDC Line-up D to spot networks SN-PS, SN-SE, and SN-TS during the month. This process is expected to continue for several additional weeks until all eight steps are completed.*

Vertical Circulation: During *August*, the contractor continued to install the escalators and elevators located in the Transit Hall at elevations 274, 296, and 306. The contractor also continued to work on the escalators located in the north-south concourse segments within the footprints of Towers 2, 3, and 4. Priority is being giving to the elevators and escalators required for the opening of the lower level of the north-south concourse and PATH Platform B. Work on all ancillary fire alarms and sprinklers is ongoing *at these vertical circulation elements. A critical Americans with Disabilities Act (ADA) element at the north-south concourse is elevator 23. Elevator 23 is in the footprint of Tower 2 and services all floors from elevation 274 to street level. The PANYNJ Retail Group is managing the installation of elevator 23.* A summary of the status of elevators and escalators on the project follows:

Item	In Service	On-site/Under Construction	Not Yet On-site	Total
Escalators	8	29	10	47
Elevators	4	11	6	21

North-South Concourse: At elevation 274 of the north-south concourse, all the architectural work has been completed south of the main floor of the oculus, *except for the installation of air diffusers at the ceiling-level ventilation duct outlets*. At elevation 296, most of the storefront

steel framing has been installed, and glass installation *continues to* follow behind the steel framing work. Also at elevation 296, the contractor has installed rough-in for electrical, plumbing, mechanical, *and fire protection* items *above the ceiling,* as well as the ceiling grid system. Work on the required elevators and escalators is also in progress. *Wall framing and ceiling rough-in work is proceeding in the north and south transepts at elevation 274, although some of the finish work details are still being reviewed. At the Tower 2 lobby area, wall panel and ceiling panel work is progressing. At the Tower 4 lobby area, finish work has not yet commenced.*

Architectural Trades*: At elevation 274, the storefront contractor has installed the steel framing and much of the glass at the retail space boundary that rings the oculus oval. The painting contractor is commencing the painting of overhead steel in the area. Separately in August, Retail started construction of the temporary early access pedestrian corridors that will serve as temporary pedestrian egress paths between the WTC PATH Station and the lower level of the north-south concourse. The rerouting of pedestrian traffic via this route through the east bathtub will allow for the decommissioning and demolition of the North Temporary Access.*

Telecom Work: During the month of *August*, room TH-083 was prepared to receive equipment. This is a vital room for the telecom system backbone. Additional telecom equipment and associated wiring were installed in room PL-077, which is also essential to the telecom system. Telecom room TH-028 has received its equipment and is ready to be energized.

Commissioning: WTCC *continues to* forecast a number of key milestone in-service events for the PATH Hub project in the third and fourth quarters of 2014. Among those project elements are the Emergency Diesel Generator Plant, the lower level of the north-south concourse, the south projection fan plant, the Emergency Chiller Plant, and the below-grade corridors and staircases serving PATH Hub equipment spaces within the podiums of Tower 2 and Tower 4. In most cases, the event being worked toward is the placement into service of a portion of the project element and not the full project element. Punch list work for the South Mezzanine, East-West Connector, and Platform A remains ongoing at present.

Central Fan Plant: Air Handling Unit (AHU)-6 and AHU-7 are projected to be the first to come online *at the Central Fan Plant,* and are intended to serve the Hub project back-of-house equipment rooms and associated access corridors that are located within the podiums of Tower 2 and Tower 4. *During August, Retail made progress on installing temporary chilled water supply and return lines. The two 20-inch pipes will intercept the permanent chilled water lines at the west wall of Platform D and bring them up over the mezzanine ceiling, back down into the Platform B area, and into the completed eastern portion of the utility tunnel. Chilled water could then be supplied to AHUs that will supply cool air to electrical areas with high heat loads. Steam lines and associated equipment are also being installed at the Central Fan Plant in preparation for handling steam from Con Edison.*

Construction Logistics

The WTCC Office of Program Logistics (OPL) continued biweekly logistics and coordination meetings to facilitate construction progress and the sharing of access, egress, and work zones among all contractors on-site. The oculus steel contractor is currently exploring options for

alternative routes for delivery of oculus steel to the site, since the New York City Department of Design and Construction project on Broadway is *currently* expected to breach the intersection at Fulton Street in *late* 2014. The sidewalk on Church Street adjacent to Tower 4 was opened for public access during July. *During August, a sidewalk shed was installed along Cortlandt Way, adjacent to Tower 4, in preparation for the initiation of structural work above the podium level of Tower 3.*

Interagency Coordination

OPL continued its coordination of site construction and logistics among the many project stakeholders, including contractors, construction managers, tenants, insurance firms, PATH operations, and the Port Authority Police Department.

Community Relations

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

C. Schedule

WTCC released IMS 74 in May 2014, with a data date of June 1, 2014. (b) (4) [redacted] WTCC achieved Platform A beneficial use on February 25, 2014, which is approximately two months later than the IMS 70 projected date of December 31, 2013. (b) (4) [redacted].

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

Significant Activity	**Action by**
Central Fan Plant Online	WTCC
Migrate PATH Hub Electrical Loads from the TPDC at the North Temporary Access to the PDC at Tower 1	WTCC
Start of Oculus Glazing Panel Installation	WTCC
Erect/Bolt/Weld Oculus Steel Rafters and Purlins	WTCC

D. Cost Data

The RRCA commits $2.872 billion in federal funding to the PATH Hub project and includes an FTA-allowable not-to-exceed amount of $3.995 billion.

On October 18, 2012, the Port Authority Board re-authorized the WTC PATH Hub project, at an estimated total project cost range of $3.74 billion to $3.995 billion. This re-authorization provided for an increase in the budget from approximately $3.4 billion to slightly more than $3.7 billion.

The $3.7 billion budget reflects the updated engineer's estimates for all packages in the completed procurement plan, and includes the PATH Hub project's share of the common infrastructure projects, such as Retail, the Central Chiller Plant, the Common Electrical System, and site-wide operational support elements. WTCC continues to update the cost allocations that are assigned to the PATH Hub project.

Although it was the opinion of the PMOC that the budget established after the October 18, 2012 project re-authorization by the Port Authority Board would not provide WTCC with adequate funding to complete the project given the impacts of Hurricane Sandy, WTCC has advised that the costs related to Hurricane Sandy are being funded from a separate operating account set up by PANYNJ for Hurricane Sandy and will not impact WTCC's current EAC of $3.7 billion.

The following table summarizes the latest available EAC (WTCC's forecast) and expenditures as of *July 31, 2014:*

Description	EAC (WTCC's Forecast) (in millions)	Expenditures (in millions)
Construction	$2,810	*$2,270*
Program Management and Design	695	*645*
Contingency	(b)	(
Total	(b) (4)	(b) (4)

WTCC submitted its monthly cost model revision on *August 27, 2014*. It shows that, based on the contract awards and estimates through *July 31, 2014*, WTCC's EAC for the federally funded PATH Hub project is just over $3.7 billion, which is unchanged from the cost model revision submitted at the end of the prior month.

WTCC reported total PATH Hub expenditures through *July 31, 2014*, of more than *$2.91 billion, or 78.3 percent of the EAC*. That total includes *$29.3 million* more in PATH Hub expenditures than the total contained in the *June 30, 2014* report. Over the last 12 months, the average project expenditure per month has been slightly more than *$25.0 million*. That monthly expenditure is below the monthly burn rate of *$47.6 million* that would be necessary to support the substantial completion date of December 2015.

For the first *seven* months of 2014, project expenditures have been $28 million, $17 million, $28 million, $29 million, $24 million, $18 million, *and $29 million,* respectively. It should be noted that the June value ($18 million) understated the actual project expenditure because it incorporated a downward adjustment of $6.04 million for soft costs that had been incorrectly

charged to the project in prior periods. Those costs were allocated to other stakeholders during June, thus skewing the PATH Hub project expenditure value.

E. Risk Management

The PMOC conducted a contingency assessment workshop in August 2011 to facilitate the completion of the PEP and the RRCA. WTCC and the PMOC reviewed the results of the cost and schedule risk models. Results from this workshop and subsequent analyses were used to develop the executed RRCA and PEP. To provide an improved project risk tool, the FTA, the PMOC, and WTCC completed the PEP in conjunction with the execution of the RRCA on September 18, 2012.

As information on the impacts of Hurricane Sandy became available, the PMOC conducted PEP workshops in June 2013 to discuss and quantify the hurricane's impacts on cost and schedule. The PMOC then reconciled the workshop results with WTCC, and the outcome of this effort was used to update the PEP. In July 2014, the PMOC began assessing the impacts on the project critical path of oculus steel delays. *In August, the PMOC updated the contingency draw-down curve to reflect the evaluation of the project's residual risks and the potential risk retainage release amount associated with each of the remaining PEP milestones.*

F. Technical Capacity and Capability Review

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

Project Management Plan (PMP)

The grantee *updated* its PMP and *submitted version 6.0 of the plan* in early August 2014. *The PMOC is currently reviewing that submission.* An updated draft of WTCC's Operations Management Plan, a PMP sub-plan, *was also received in August and is being reviewed. Finally, an updated Construction Phase Force Account Plan and Justification was received from WTCC in late August and is also under review by the PMOC at the present time.*

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 August 2014, WTCC QA completed ten oversight audits that included observing the CM QA's field audits and performing its own audits of field construction activities. No corrective actions were identified by WTCC QA during these audits. The August 2014 audit total reflects the ten WTCC QA audit reports that were issued and received at the time this report was drafted.

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 July 2014, the project recorded two recordable

incidents and two lost-time incidents which resulted in a TCIR of 2.45 and an LTIR of 2.45, based on 163,378 hours worked. In comparison, the June 2014 incident totals were two recordable incidents and no lost-time incidents, resulting in a TCIR of 2.69 and an LTIR of 0.0, based on 148,651 hours worked. In reviewing the July safety performance, WTCC Safety continues its active role in managing worker safety, evaluating the causes of each incident, and developing lessons learned. The August 2014 safety data for the project was not fully available at the time this report was drafted but is expected to be available after mid-September 2014.

H. Issues/Problems/Suggestions

The widespread regional damage caused by Hurricane Sandy in late October 2012 caused a delay to the forecast completion of the PATH Hub project. WTCC submitted its formal Recovery Plan document to the FTA on February 18, 2014. (b) (4) [redacted]

Construction of the oculus steel structure in the east bathtub continues to lag behind targeted monthly goals. Difficulties with geometry control and site logistics have combined with the large amount of welding required as each oculus steel rafter is erected to further delay the planned completion of the oculus steel work. As a result, the PMOC has re-assessed the project's critical path, and the east bathtub has overtaken the west bathtub as the controlling work area for the overall project completion date.

End of report. Appendix follows.

APPENDIX A – LIST OF ACRONYMS

ADA	Americans with Disabilities Act
AHU	Air Handling Unit
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
MEP	Mechanical, Electrical, and Plumbing
NYCT	New York City Transit
OPL	Office of Program Logistics
PANYNJ	Port Authority of New York and New Jersey
PATH	Port Authority Trans-Hudson
PDC	Primary Distribution Center
PEP	Project Execution Plan
PHC	PATH Hall Construction
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA	Quality Assurance
QPRM	Quarterly Progress Review Meeting
RCD	Required Completion Date
RFI	Request for Information
RRCA	Revised and Restated Construction Agreement
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