

MONTHLY MONITORING REPORT

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

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THIRD PARTY DISCLAIMER

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

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

REPORT FORMAT AND FOCUS

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

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

EXECUTIVE SUMMARY

Project Description

The PATH Hub facility is an intermodal terminal serving 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. Completion of the Revised and Restated CA (RRCA) is planned for the *second* quarter of 2012.

Quarterly Progress Review Meeting (QPRM)

The next QPRM, for the first quarter of 2012, will be scheduled for May 2012.

Design Activity

The designer continued to provide post-award design support services.

Procurement Activity

To date, World Trade Center Construction (WTCC) has completed more than 95 percent of its planned procurements. The remaining procurements are planned for the second quarter of 2012. WTCC expects to recommend award of the Oculus Skylight contract at the April 26, 2012 PANYNJ Board Meeting.

Construction Activity

At the Greenwich Street Corridor, the contractor has completed work and is demobilizing from the site.

At the PATH Hall, the contractor continued platform and track construction. Concrete placement on the roof was completed. The Package 20 Structural Steel to Grade (SSTG) contractor completed punch list work for the welded connections for the PATH Hall roof and East Box Girder (EBG). The completion of roof concrete and structural steel permitted the start

of load transfer of the PATH Hall roof to its permanent supports and will be followed by the removal of temporary supports. Completion of the load transfer will be a major event since this will enable the completion of Platform A, which is on the critical path for the overall PATH Hub project completion. Mechanical, electrical, and plumbing (MEP) fit-out work continued at the Bermuda triangle, south mezzanine, and Platform A.

At the Transit Hall, superstructure concrete work continued at elevations 254 and 274. MEP contractors continued coordinating their installations with concrete placement. Demolition of the Hudson & Manhattan (H&M) east bathtub wall continued. Oculus steel fabrication continued. The SSTG contractor continued Area 3 structural steel erection at elevation 274 and began reconfiguration of its crane arrangement.

Progress continued on site-wide electrical distribution infrastructure. The PATH Primary Distribution Center (PDC) in Tower 1 was energized.

Schedule

In February 2012, WTCC released Integrated Master Schedule (IMS) 60 [REDACTED] [REDACTED] The release of IMS 61 is expected in April 2012.

Cost Data

WTCC submitted an updated cost model on March 23, 2012. The cost model is currently under review by the Project Management Oversight Contractor (PMOC). Based on awards through January 31, 2012, the WTCC Estimate at Completion (EAC) for the federally funded PATH Hub project is \$3.4 billion. WTCC is reporting that PATH Hub expenditures through January 31, 2012 are \$2.1 billion, or 61 percent of the current EAC.

Risk Management

The PMOC conducted a contingency update workshop in August 2011. To provide an improved project risk tool, the FTA, the PMOC, and WTCC are completing the Project Execution Plan (PEP) in conjunction with the completion of the RRCA.

Technical Capacity and Capability Review (TCCR)

An update to the TCCR and the ensuing TCCR Spot Report are anticipated in the fourth quarter of 2012.

Project Management Plan (PMP)

The grantee is addressing FTA/PMOC comments on its final draft of the PMP version 5.5.

Project Quality Assurance

During March 2012, the PMOC oversaw three audits performed by WTCC Construction Management Quality Assurance (QA) staff that verified implementation of contractor quality program and field construction activities.

In addition, the PMOC participated in two biweekly QA meetings with the WTCC QA staff; the discussions during these meetings focused on the status of the WTCC QA Program and WTCC Hub construction activities.

Site Safety and Security Review

From the start of the year through March 9, 2012, there have been five lost-time injuries and sixteen recordable injuries on the WTC PATH Hub project and 561,401 total hours of work. The resultant year-to-date Lost-Time Incident Rate (LTIR) for the WTC PATH Hub project is 1.43, which compares favorably to the national average of 2.10. The corresponding Total Case Incident Rate (TCIR) for the same period is 5.70, which is above the national average of 5.10.

Major Issues/Problems

- It is the opinion of the PMOC, based on its assessment of risk and evaluation of the available information and current trends, recent contract awards, and engineer's estimates, that the cost of the project may increase to approximately \$3.8 billion. However, it should be noted that this opinion may change as WTCC advances the project and either incurs or mitigates risk.
- The trend for current project construction indicates that delays have occurred in several construction packages. The overall completion of the PATH Hub project has not slipped in the past quarter, but with the large quantity of steel installation remaining, additional delays continue to be a concern. WTCC continues to mitigate schedule delays to prevent further slippage.

MONITORING REPORT

A Project Description

The PATH Hub facility is an intermodal terminal serving the PATH electrified heavy rail transit system, which has a total of 13 PATH stations in New York and New Jersey. When completed, the PATH Hub will connect to 11 New York City Transit (NYCT) subway lines in Lower Manhattan. The PATH Hub will include a platform level, associated mezzanine and concourse levels called the PATH Hall, and a terminal building called the Oculus, or Transit Hall, with north-south and east-west pedestrian connections to the NYCT subways, the World Financial Center, and WTC above-grade site development. It will be a permanent replacement of the original WTC PATH Terminal complex destroyed by terrorist attack on September 11, 2001.

B Project Status

Construction Agreement

The original CA was signed on April 25, 2006. *WTCC and the LMRO continued to resolve issues related to the RRCA. Completion of the RRCA is planned for the second quarter of 2012.*

Quarterly Progress Review Meeting

The next QPRM, for the first quarter of 2012, will be scheduled for May 2012.

WTC Site Master Plan

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

Environmental Compliance

(Reported by FTA's LMRO.)

Preliminary Engineering (PE) and Final Design (FD)

The designer continued providing post-award design support services for the PATH Hub construction.

Procurement and Contracting Activities

To date, WTCC has completed over 95 percent of its planned procurements. WTCC reports that the procurements planned for completion in the second quarter of 2012 are the stone installation, the Oculus coatings, and the Oculus skylight procurements. These are the last expected major procurements for the PATH Hub project.

The stone installation procurement was cancelled due to poor bidder response, and a revised procurement will be prepared.

The Oculus coatings bid due date was postponed to April 10, 2012.

WTCC is completing analysis of the Oculus skylight proposals, and expects to recommend contract award approval at the April 26, 2012 PANYNJ Board meeting.

WTCC and its Construction Manager (CM) provided to the PMOC the construction and professional services Change Order (CO) logs and updates to the procurement schedule.

Construction Status

Package 20 Greenwich Street Corridor (GSC): The GSC contract is substantially complete. The contractor is completing punch list work and demobilizing from the site. *This contract will no longer be reported.*

Package 20 Transit Hall Foundations: Contract work was substantially completed, *and the contractor is completing punch list work. This contract will no longer be reported.*

Package 20 Transit Hall Concrete: The contractor continued placement of multiple sections of the Transit Hall concrete slabs at elevations 254 and 274, *working from the east to the west limits of the contract.*

Package 20 H&M Wall Demolition: Removal of applicable portions of the H&M east bathtub wall continued on the second shift. *The contractor continued removal and reinforcement of the final section of the H&M east bathtub wall alongside the R Line subway structure.*

Package 20 Structural Steel to Grade (SSTG): *The structural steel contractor substantially completed the steel erection for the PATH Hall roof and the EBG during the month of March 2012. The contractor began the PATH Hall roof load transfer and the gravity transfer of east and west arch trusses of the 1 Line box on March 23, 2012. The load transfer and the gravity transfer activities are expected to be completed in early April 2012. Completion of the load transfer will enable the removal of the temporary supports that have delayed the completion of Platform A. The platforms are on the critical path to overall project completion.*

Package 20 SSTG – Area 3: *The structural steel contractor continued erection of the structural steel framing above elevation 274 during March. The contractor also began converting the east tower crane to a traveler crane system, which will facilitate the completion of Area 3 steel erection. Additionally, the contractor began installation of a temporary roadway extension structure that will provide logistical support for delivery and erection of the steel.*

The SSTG contractor also began welding the Area 3 west end arch during March. Welding includes some fracture-critical welds on the lower arch chord. Work is proceeding on two shifts, with completion expected during late April 2012.

Package 20 PATH Hall Construction (PHC): The PHC contractor *substantially completed placement of the PATH Hall roof concrete slabs and walls to elevation 307. The contractor continued to make progress on Track 1 construction and completed installation of columns at Platforms A and B. The precast ductwork installation on Platforms A and B continued. WTCC expects Platform A to be completed in the fourth quarter of 2012. The PHC contractor continued placing concrete for Platform A and for the Cortlandt Street Station roof. The PHC contractor also made progress on the extensive MEP installation and architectural construction for the operational support areas on elevations 266 and 284 in the south mezzanine, the Bermuda triangle, Platform A, PATH substation No. 3, and level 4 in Tower 4. The PHC contractor continued interior fit-out work at the East-West Connector.*

Package 20 MEP Work: The three MEP contractors and the fire protection contractor *increased* their field construction activities during *March 2012*. Significant progress continued for two of the spot networks that will serve the PATH Hub project. *Energization of Spot Network SN-PS was initiated during March. This is the first of the total of six spot networks to be energized.* It provides power to both the PATH Hub and the Vehicular Security Center projects. *At present, Spot Network SN-PS is being supplied from the Temporary Primary Distribution Center located in the North Temporary Access, but it will ultimately be fed from the PDC in Tower 1.* Spot Network SN-TN is advancing at the B4 level of Tower 2 and *is currently forecast to be placed in service by June 1, 2012, which would make it the second of the six overall spot networks to be placed in service.* This spot network will also serve the PATH Hub project as well as selected other stakeholders. In coordination with the concrete placements, the MEP contractors continued installing embedded elements into the slabs and walls being constructed by the Transit Hall concrete contractor.

Several major pieces of mechanical and electrical equipment were delivered during the month and rigged into their final locations for subsequent installation and connection, including in the PATH Hub equipment rooms that are located in various locations within Towers 2, 3, and 4.

Permanent Electric Power System: Initial energization of line-ups *PDC A and PDC B* at the *Primary Distribution Center* in Tower 1 *was achieved during the weekend of March 24 and 25, 2012.* Energization of these components provides the PATH Hub *and other WTC* projects with initial access to permanent electric power. Subsequent energization *of the remaining six line-ups* will increase that permanent power availability over the succeeding periods until all PATH Hub electrical power is available through the shared PDC facility.

Package 20 Oculus Steel: Fabrication of *Oculus steel* continued during *March.* *Current metrics on the status of fabrication of the principal Oculus steel elements, based on recent shop status reports issued by the fabrication subcontractor, indicate that fabrication is 60 percent complete for sub-portals, 10 percent complete for lower portals, and 0 percent complete for upper portals. Biweekly shop status reports are expected to be received, and these reports will allow for increased monitoring of the work to determine whether the production rates that were established in order to meet the delivery dates currently defined in the PATH Hub IMS are being achieved.*

Package 20 Oculus Glass: *Regular biweekly meetings with the contractor continue to occur, and submittals of various shop drawings, product data sheets, test procedures, Requests for Information (RFIs), and product samples were all proceeding during March. The CM, the designer, and WTCC are currently considering scheduling a visit to the glass manufacturing facility in Austria at the start of the manufacturing process for the Oculus glass. Details for the visit should be finalized during April.*

Package 20 Vertical Circulation: The contractor continued submitting engineering drawings and technical data for review and approval by the designers. Multiple elevators and escalators *were fabricated and were placed in a storage facility, and several others are currently in fabrication and are anticipated to be shipped to the site in the second quarter of 2012.*

Package 20 Architectural Trades: A mock-up of a typical storefront in the East-West Connector *was installed during the month of March 2012, and it is currently under review by the designer and the WTCC, who will give comments.*

Package 20 Miscellaneous Metals: *Various miscellaneous metals items were delivered to the site during March. The miscellaneous metals contractor also mobilized an installation crew during the month and is actively installing steel components at various PATH Hub locations, including the spot network rooms.*

Package 18bx Route 9A Underpass: The contractor has substantially completed work and is now completing punch list work.

Package 18by North Projection Structural Rehabilitation: The contractor continued repairs to the existing slurry wall and reinforcing steel installation of the north liner wall. The contractor completed placement of the concrete *columns* to elevation 284. The installation of the formwork and reinforcing steel of the concrete slab at elevation 284 *continued*.

Package 2.06 General Site Work via Work Order #6, PATH Harrison West Transfer Yard (Harrison Rail Yard): Utilization of the yard for loading and delivering materials via work train to the WTC site is pending activation of the signal system.

Construction Logistics

The WTCC Office of Program Logistics (OPL) continued weekly logistics and coordination meetings to facilitate construction progress and the sharing of access, egress, and work zones among all contractors on-site.

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. *OPL began logistics coordination for the delivery of Oculus structural steel to the site. Considerable coordination is needed to efficiently deliver steel from its New York City delivery point.*

Community Relations

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

C Schedule

WTCC released IMS 60 in February 2012. This latest IMS, with a data date of December 1, 2011, shows no slippage to the PATH Hub project overall completion date [REDACTED]

This projection is based on the PMOC's assessment of risk and its evaluation of the available information and current productivity trends. However, WTCC's current projected completion date of [REDACTED] is achievable if risks are properly managed. *The release of IMS 61 is expected in April 2012.*

The completion of the east and west bathtubs is equally critical to the project substantial completion. The following chart highlights the status of Recovery Plan milestones.

Project Unit (PU)*	Description	Recovery Plan Date	Forecast (IMS 60)	Variance (Weeks)
4	1 Line Underpinning			
	Temporary Underpinning Complete	6/30/2008	6/30/2008 (A)	0
5	East Bathtub and North/South Corridors			
	East Bathtub Complete (Foundation Walls and Excavation)	3/31/2009	8/29/2009 (A)	-21
6	Transit Hall Substructure			
	Complete Demolition of Temporary Concourse	9/30/2009	12/22/2009 (A)	-12
	Complete Transit Hall Substructure (to Elevation 276)	9/20/2011		
7	Transit Hall Superstructure			
	Complete Transit Hall Superstructure (Glazing)	3/31/2014	4/4/2014	-1
8	PATH Facilities			
	Temporary Access Operational	3/31/2008	3/31/2008 (A)	0
	Platform A Complete	6/30/2011		
	Platform B Complete	9/17/2012		
	PATH Hub Substantially Complete	6/30/2014		
9	West Bathtub and East/West Connector			
	East-West Connector Substantially Complete	12/31/2012	12/26/2012	+1
11	Vertical Circulation Element			
	Vertical Circulation Units Operational	5/3/2014		
12	Site Common Infrastructure			
	MEP Systems Operational	6/30/2014	9/19/2013	+39
13	Early Action Site Preparation			
	Complete Ductbank Relocation	5/1/2008	5/1/2008 (A)	0

* PUs 1, 2, and 3 are not construction-related and, therefore, are not included in the table.

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

Significant Activity	Action by
Award of the Oculus Skylight contract	WTCC
Completion of RRCA	WTCC and FTA
Completion of Transit Hall Foundation to elevation 274	WTCC

Significant Activity	Action by
PATH Hall roof complete	WTCC
Load transfer of PATH Hall roof	WTCC
<i>Removal of PATH Hall roof temporary shoring</i>	<i>WTCC</i>
SSTG Area 3 Slider Crane in Operation	WTCC

D Cost Data

WTCC submitted an updated cost model on *March 23, 2012*. The PMOC is reviewing the model and continues to discuss the cost model with WTCC. Meanwhile, based on the contract awards and estimates through *January 31, 2012*, WTCC's EAC for the federally funded PATH Hub project is approximately \$3.4 billion or approximately \$1.1 billion more than the 2006 CA budget. WTCC is reporting the PATH Hub expenditures through *January 31, 2012*, as approximately *\$2.1 billion*.

The \$3.4 billion budget reflects the updated engineer's estimates for many of the packages awarded over the past several months. The total cost to complete the PATH Hub project includes the EAC and the non-Hub shares of the common infrastructure projects, such as Retail, the Central Chiller Plant (CCP), the Common Electrical System, and Operational Facilities. WTCC continues to update the shared cost allocations associated with the non-Hub costs. Updated information was not available at the time of this report.

The following chart summarizes the latest available EAC (WTCC's forecast) and expenditures as of *January 31, 2012*:

Description	EAC (WTCC's Forecast) (in millions)	Expenditures (in millions)
Construction	\$2,538	\$1,463
Program Management and Design	693	621
Contingency	153	0
Total	\$3,384	2,084

Although the PANYNJ increased the PATH Hub budget to \$3.4 billion, it is the opinion of the PMOC that the budget may increase to approximately \$3.8 billion, based on the PMOC's evaluation of the continuing trends, including delays to construction, and the PMOC's analysis of remaining risks. However, it should be noted that this opinion may change as WTCC

advances the project and either incurs or mitigates risk. The FTA and WTCC are working on an RRCA to address the budget and schedule issues.

WTCC Project Cost by Project Unit

PU #	Construction Agreement Project Unit and Milestone Descriptions	Cost (in millions)				
		Original CA Budget	Current Approved Budget	Spent through October 2010	Estimate at Completion	Variance from Baseline Budget
1	Project Direction and Admin.	\$405.0	\$407.0	\$366.7	\$466.9	\$61.9
2	Project Design	\$215.0	\$217.0	\$255.6	\$236.0	\$21.0
3	NEPA Environmental Review	\$3.8	\$3.8	\$3.8	\$4.0	\$0.2
4	1 Line Subway Temporary Underpinning	\$82.1	\$84.8	\$105.9	\$88.2	\$6.1
5	East Bathtub, North/South Corridors	\$277.0	\$302.4	\$217.2	\$606.3	\$329.3
6	Transit Hall Substructure	\$102.0	\$122.6	\$6.3	\$89.5	\$(12.5)
7	Transit Hall Superstructure	\$127.4	\$129.4	\$0	\$134.9	\$7.5
8	PATH Facilities	\$286.9	\$344.4	\$266.4	\$567.1	\$280.2
9	West Bathtub/East-West Connector, Route 9A Underpass, Vent Structures	\$163.0	\$393.2	\$266.8	\$406.8	\$243.8
10	MEP Systems	\$296.7	\$296.3	\$0	\$269.5	\$(27.2)
11	Vertical Circulation Elements	\$100.5	\$86.5	\$0	\$31.6	\$(68.8)
12	Cost Share	\$128.0	\$120.0	\$88.09	\$270.4	\$142.3
13	Early Action	\$33.6	\$33.6	\$20.6	\$32.8	\$(0.7)
	General Conditions (budget included in Constr. PUs above)	\$0	\$0	\$155.6		
	Total Project Cost	\$2,221.0	\$2,541.0	\$1,752.9	\$3,203.9	\$982.9

The total EAC in the table above is below the current PANYNJ Board-approved budget of \$3.4 billion. A breakout of the \$3.4 billion in PU format was not available at the time of this report.

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. Preliminary results from this workshop and subsequent analyses are being used to develop the final RRCA and PEP. The FTA and the PMOC expect WTCC to complete the PEP in conjunction with the completion of the RRCA.

F Technical Capacity and Capability Review

An update to the TCCR and a new TCCR Spot Report are anticipated in 2012, after the FTA receives the completed RRCA and PEP. It is expected that the PEP will be used by the FTA to measure WTCC's capability and capacity.

Project Management Plan (PMP)

The WTCC PATH Hub PMP version 5.5 is currently in final draft form and the grantee is addressing FTA/PMOC comments on the final draft.

Project Organization

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

Project Quality Assurance

During March 2012, the PMOC observed three audits performed by WTCC QA staff that verified implementation of contractor quality programs and field construction activities.

In addition, the WTCC QA Manager chaired two biweekly QA meetings between the WTCC QA staff and the PMOC. The discussions during these meetings focused on the status of the WTCC QA Program and WTCC Hub construction activities.

G Site Safety and Security Review

The *February 2012 year-to-date* safety data shows that WTCC's PATH Hub safety program performance *worsened during the month*. From the start of the year through *March 9, 2012*, there *have been five* lost-time injuries and *sixteen* recordable injuries on the WTC PATH Hub project and *561,401* hours of work. The resultant year-to-date LTIR for the WTC PATH Hub project is *1.43*, which compares favorably to the national average of 2.10. The corresponding TCIR for the same period is *5.70*, which is *above* the national average of 5.10.

It is noteworthy that the decline in the PATH Hub project's safety performance continues to result from the unfavorable individual results recorded by the SSTG contractor. *This entity's 2012 year-to-date safety performance results are significantly above the national averages, with an LTIR of 6.21 and a TCIR of 22.07.*

WTCC developed an action plan to address the recent spikes in the safety performance indices of the SSTG contractor and the structural concrete contractors. As part of this action plan:

- *WTCC requested the SSTG contractor to formulate a plan to improve its safety performance.*
- *WTCC convened a monthly safety executive meeting to sharpen the focus on safety.*
- *WTCC safety supervisors met with contractor supervisors to increase engagement in safety.*
- *WTCC made contact with union representatives to ask for their support in promoting safety.*
- *WTCC now requires a formal evaluation of each recordable lost-time injury.*
- *WTCC instituted a construction shanty safety inspection program.*

H Major Issues/Problems

- Although the PANYNJ increased the PATH Hub project budget to \$3.4 billion, it is the opinion of the PMOC that the project cost may increase to approximately \$3.8 billion, based on the PMOC's evaluation of the continuing trends and analysis of remaining risks (such as risks associated with steel fabrication and erection and with the contract packages not yet awarded). However, it should be noted that this opinion may change as WTCC advances the project and either incurs or mitigates risk. WTCC should complete an evaluation of the remaining project risks and update its cost model and forecast as part of its completion of the RRCA.
- The trend for current project construction indicates that delays have occurred in several construction packages. IMS 60 does not show any delay to the completion of the PATH Hub project [REDACTED] WTCC continues to mitigate schedule delays to prevent further slippage. However, with the large quantity of steel installation remaining, delays to the completion of the project remain a concern.

I Action Items

Key Project Action Item Checklist

Key Project Action Item	Agency	Target Completion	Status/Comments
A risk assessment update will be conducted to support the completion of an executable RRCA.	PANYNJ/ LMRO/ PMOC	Second Quarter 2012	Analysis completed in fourth quarter 2011. Finalization of the report continues.

End of report. Appendices follow.

APPENDICES

APPENDIX A – LIST OF ACRONYMS

CA	Construction Agreement
CCP	Central Chiller Plant
CM	Construction Manager
CO	Change Order
EAC	Estimate at Completion
EBG	East Box Girder
FD	Final Design
FTA	Federal Transit Administration
GSC	Package 20 Greenwich Street Corridor
H&M	Hudson & Manhattan
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
PE	Preliminary Engineering
PEP	Project Execution Plan
PHC	Package 20 PATH Hall Construction
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA	Quality Assurance
QPRM	Quarterly Progress Review Meeting
RFI	Request for Information
RRCA	Revised and Restated Construction Agreement
SSTG	Package 20 Structural Steel to Grade
TCCR	Technical Capacity and Capability Review
TCIR	Total Case Incident Rate
WTC	World Trade Center
WTCC	World Trade Center Construction

APPENDIX B – LESSONS LEARNED

No update.