

PMOC MONTHLY REPORT
East Side Access (MTACC-ESA) Project
Metropolitan Transportation Authority
New York, New York

Report Period November 1 – November 30, 2017



PMOC Contract No. DTFT60D1400017

Project No. DC-27-5287, Task Order No. 0002, Work Order No. 05

Urban Engineers of New York, D.P.C., 2 Penn Plaza, Suite 1103, New York, NY 10121

PMOC Lead: E. Williamson, 212-736-9100; ejwilliamson@urbanengineers.com

Length of time on project: Ten years on project for Urban Engineers

TABLE OF CONTENTS

Executive Summary	1
Monitoring Report	1
1.0 Project Status	1
a. Engineering Design and Construction Phase Services	1
b. Procurement	3
c. Construction	3
d. Quality Assurance and Quality Control	2
2.0 Schedule Data	1
3.0 Cost Data	5
4.0 Risk Management	1
5.0 ELPEP Compliance Summary	1
6.0 Safety and Security	2
7.0 Issues and Recommendations	2

APPENDICES

Appendix A – Acronyms

Appendix B – Tables

Table 1 – Summary of Critical Dates

Table 2 – Project Budget / Cost Table

Table 3 – Project Budget and Invoices

Table 4 – Comparison of Standard Cost Categories: FFGA vs. CBB

Table 5 – Summary by FTA Standard Cost Categories

Table 6 – Quarterly Actual and Planned Cash Flow – June 2014 Plan

Table 7 – ESA Core Accountability Items

Third Party 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 the FTA Full Funding Grant Agreements (FFGA) 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 will change from month to month, based on relevant factors for the month and/or previous months.

EXECUTIVE SUMMARY

This summary highlights key events and important issues for the current month.

1. Overall Program Status: The current Overall Program is 73.2% actual versus 77.4% planned (based on invoice cost).
2. Construction Status: The Construction Status is 73.3% actual versus 78.5% planned.
3. New Contracts Awarded/Active Contracts Completed: None.
4. Construction Progress Issues: CM014B, CS084, VS086, CH061A
5. Program Funding: Additional funding for forecast project overruns will not be available until 2020-2024 Capital Planning Cycle. MTACC evaluating interim budget solutions; results anticipated by March 31, 2018.

- [REDACTED]
- [REDACTED]
7. Risk Management: The Accelerated Amtrak Penn Station Program, May/Sep 2017 – had minimal impact. Risk resolved.
 8. Harold Interlocking: Completed 6th of 6 signal pre-cutover testing weekends during November 2017.
 9. Key Stakeholder Issues: LIRR – Late completion of Positive Train Control design; Amtrak – Continuing Force Account availability issues; MTACC - Change Oder processing issues.
 10. Construction Safety: 0.0 - Lost Time and 0.0 - Recordable Injuries during November 2017.
 11. ELPEP Compliance: No issues.
 12. Project Management Plan: No issues.

All Project Sponsor cost and schedule data included in this report is based on the MTACC “East Side Access Quarterly Progress Report, Q3 2017 (July, August, September 2017)” and referenced in this report as the ESA 3Q2017 Progress Report, which has a cost and schedule status data date of October 1, 2017.

MONITORING REPORT

Report Format and Focus

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60D1400017, Task Order No. 0002. Its purpose is to provide information and data to assist the FTA as it continually monitors the Project Sponsor's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development.

This report covers the project management activities on the East Side Access (ESA) Mega-Project managed by MTA Capital Construction (MTACC) with MTA as the Project Sponsor and financed by the FTA FFGA. The PMOC notes that the FFGA Amendment was fully executed with MTA's sign-off on August 2, 2016. The amended FFGA incorporates the changes in the Baseline Cost Estimate and Revenue Service Date that have occurred since 2006 when the original FFGA was signed.

1.0 PROJECT STATUS

a. Engineering Design and Construction Phase Services

The ESA 3Q2017 Progress Report shows that the overall Engineering effort is 98.7% complete vs. 100% planned; and 97.1% of the overall EIS and Engineering budget has been invoiced and 97.2% of the Design budget has been invoiced.

Status of Construction Packages Advertised

CS086, Systems Package 2 – Tunnel Systems, was advertised on August 10, 2017. A single proposal was submitted on October 31, 2017. This will be a negotiated procurement using the RFP method. Negotiations with the proposer continued through November 2017.

CH057D, Harold Track Work, includes completion of all the remaining track work in the Harold Interlocking Northeast and Southeast Quadrants. The 100% design was approved and the package has been finalized. Contract was advertised on November 30, 2017.

Status of Construction Packages Not Awarded

CM015 – 48th Street Entrance: Design work remained suspended through November 2017. The final disposition will be based on the outcome of ongoing MTA/MTACC negotiations with the building owner and their subsequent management decisions. The PMOC notes that MTACC-ESA is developing an alternative LIRR GCT entrance at 47th Street.

CH058A, Harold Structures – Part 3A, B/C Approach, will include construction of the Tunnel B/C approach structure. NYCDOT approved the package as revised to include the alternate support of excavation for the existing 39th Street Bridge piers. The scope of the required catenary work for Amtrak Force Account FHA04A has been finalized and is included in PCO 222. The scope also includes demolition of the existing LIRR GO2 Substation. The 100% design package is due on December 15, 2017.

FQA33A, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for west end yard access to the Amtrak mainline through a connection from Sub 4 to Line 2. Based on review and discussions between ESA, GEC and LIRR, it was decided to develop an expanded Option D scheme that will add additional track along the south section of the west end of the MDSY. Upon completion of the design, LIRR will review the package and then ESA and LIRR will engage

Amtrak for their concurrence. This will be the only exit route from the MDSY that will be provided under the ESA Program.

FQA33B, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for a second west end yard access to the Amtrak mainline through a connection from Sub 3 to Line 4. The 100% design package is temporarily on hold pending a decision based on the exiting option study. This exit route will be constructed by Amtrak after completion of construction of the MDSY by CQ033 and upon arranging the funding source.

FQL33, Mid-Day Storage Yard Facility – LIRR F/A, provides LIRR force account construction support for CQ033. The GEC has completed the 100% design package and it is currently being reviewed by LIRR.

Positive Train Control: The MOU between MTACC and LIRR for the implementation of Positive Train Control (PTC) on ESA was executed, and the Technical Concurrence Document has been agreed upon by MTACC and LIRR. LIRR continues to advance the PTC design, which is forecast to be completed by December 31, 2017. LIRR provided the GEC with advance design documents several months ago for use in preparing modifications to CS179, VS086 and CS086, which will provide for the LIRR designed PTC onto the ESA systems. In early October 2017, LIRR formally requested the FRA to waive the requirement to have PTC operational in the Harold Interlocking by December 31, 2018 based on the interlocking's status as an active construction area. The FRA's response is still pending.

Status of MTACC and LIRR Review and Approval of Systems Contractors' Final Designs

CS179, Systems Facilities Package No.1: The backlog of submittal and RFI reviews noted in earlier reports continues to be a primary focus for the CS179 project team. The contractor continues to assert that overdue responses on design submittals and Requests for Information (RFI), and unresolved Notices of Change (NOC), are impacting the completion of design work and delaying the contract schedule. The contractor continues to note that there are 47 NOCs (40 of which MTACC was to issue Contractor Proposal Requests (CPR) for) that contributing to its inability to finalize the design. The completion of Final Design (FD) for all 10 Control Systems, which were scheduled for completion 20 months ago, has not occurred yet; and, the FD of the 19 Non-Control Systems is also delayed. The full impact of the Control and Non-Control System FD delays on contract progress remains undetermined at this time. Previously noted Buy/Ship America issues that could impact design completion also remain unresolved. Additional information regarding system designs is provided in report Section 1.0-c.

CS084, Traction Power Systems Package 4: The contractor contends that unresolved design issues, differing site conditions, and coordination issues are causing day-to-day delays to the completion of this contract. The contractor indicates that all of the contract milestones are already delayed and will continue to experience day-to-day delays until the noted problems and issues are resolved. Additional information regarding system designs is provided in report Section 1.0-c.

VS086, Systems Package 3 – Signal Equipment Procurement: The contractor continues to raise concerns over the timeliness of responses from MTACC on design submittals and inquiries; and, asserts that the lack of timely responses is causing day-to-day delays in the progression of the work. MTACC needs to make key design decisions that have the potential to impact designs already in progress, interim contract milestones, and the overall substantial completion of this contract. Additional information regarding system designs is provided in report Section 1.0-c.

b. Procurement

The ESA 3Q2017 Progress Report shows that total procurement for the ESA project was 88.2% complete, with \$8.98 billion awarded of the \$10.178 billion current project budget (ESA Program only).

The status of the remaining major near-term procurements is summarized below:

- CM015, 48th Street Entrance – The ESA 3Q2017 Progress Report indicates that design work on this package remains suspended. Total bid advertisement delay through 2016 and into 2017 is 15 months.
- CS086, Systems Package 2-Tunnel Systems – CS086 will be a negotiated procurement via RFP. The package was advertised August 10, 2017 and single proposal was submitted on October 31, 2017. Planned NTP date remains Jan 2, 2018.

c. Construction

In the ESA 3Q2017 Progress Report, MTACC reported that total construction progress reached 73.3% compared to planned completion of 78.5%.

Manhattan Contracts

CM006 – Manhattan North Structures: The ESA 3Q2017 Progress Report shows that the forecast estimate-at-completion (EAC) decreased slightly to \$355,141,268 and extended the forecast substantial completion (SC) date to November 30, 2017 (from October 11, 2017). Construction progress was 0.1% versus 0.0% planned, and cumulative progress through October 1, 2017, was 98.8% versus 100.0% planned.

Construction Progress: Through November 2017, the CM006 contractor continued to complete base contract work, punch list work items, and completion of NCR work necessary for SC. SC was not declared in November 2017.

CM007 – GCT Station Caverns and Track: The ESA 3Q2017 Progress Report shows that the forecast EAC slightly increased to \$707,137,554 (from \$706,954,378). The MTACC forecast SC date is reported as June 4, 2020 (previously June 5), later than the contractual date of January 28, 2020, due to continuing delays in completing the Special Trackwork Resilient Tie Block (RTB) design qualification testing and approvals. Construction progress was 2.8% versus 2.7% planned and cumulative progress through October 1, 2017 was 24.2% versus 32.4% planned.

Schedule: Milestone 4 (Track and Third Rail Work Complete), originally August 7, 2019; now January 1, 2020 – Impacts to this milestone continue due to delays in LIRR review and approval of the RTB submittals, which also impacts Milestone 6A, Substantial Completion, and CS084, Traction Power Systems.

Track Installation – through November 26, 2017, cumulative track progress was 8.6% complete. Setting of ties/plinths was 18.7% complete, covering 3,020 LF (linear feet) of track.

Precast Concrete Installation – through November 26, 2017, 70.1% of the precast had been set and completed.

Construction Progress: Back of house concrete slab, CMU wall, electrical conduit and HVAC piping continued in both east and west caverns.

Cross Passageways 1, 2 and Access Tunnel 3: Preparations for PAC wall construction. CMU wall installation at Access Tunnel 1 also started.

Cross Passageway 4 and 5: Preparations for invert slab construction.

East and West Caverns: Exterior concrete wall construction (pneumatically applied concrete) and closure wall construction east cavern continued, completing all major structural concrete work in November 2017. Lower level precast wall panel construction continued, followed by installation of under platform conduit, fire standpipe and ductwork is ongoing. Core drilling for anchor bolts replacement of anchor bolts in the arch is ongoing.

Track: At Track WB1 placement of concrete plinths for the DFF track between Stations 167+00 and 162+50, and 129+00 and 125+00 continued. Setting of track and installation of formwork, alignment, temporary plates and fasteners is ongoing. At Tracks A, BC, and D, layout and setting of the RTB track is ongoing.

CM014A – Concourse and Facilities Fit-Out Early Work: The ESA 3Q2017 Progress Report shows that the forecast EAC remained \$58,117,478. MTACC continues to report that substantial completion will be retroactively declared as November 1, 2015. The MTACC Project Office advised the PMOC that the retroactive date was the result of negotiations with the contractor and their bonding company, which have not concluded. Cumulative construction progress remained at 96.6% versus 100.0% planned with 0.5% monthly progress.

Construction Progress: Through November 30, 2017, the contractor continued to complete punch list items.

CM014B – Concourse and Facilities Fit-Out: The ESA 3Q2017 Progress Report shows that the forecast EAC increased to \$488,568,063 (from \$487,312,109). The forecast substantial completion date remained March 4, 2020. The contract continues to be impacted by delays that occurred in the past, including critical structural steel submittals, fabrication, delivery; removal of existing unforeseen obstructions by MNR; and issues with the availability of subcontractors for finish work in the four wellways. Construction progress was 6.2% versus 5.7% planned and cumulative progress was 44.2% versus 77.2% planned.

Schedule: Milestone 4 (Communication Closets C3 and C7, and Room B3265); originally March 5, 2017; now April 1, 2018 – This milestone was further extended to April 1, 2018, due to continued slow progress in executing change order for FM200 issues; the required increase in the room size for Communications Closet C7.

Milestone 5 (44th Street Vent Building) June 4, 2017 – This milestone has been extended to December 29, 2017, in large part because installation of the fans by the CS179 contractor is taking longer than anticipated and sidewalk in front of the vent building must be replaced.

Milestone 5A (Completion of 48th Street Entrance) November 25, 2016 – This was delayed to April 3, 2018.

Structural Steel continues to be the primary critical path. The Biltmore Room construction continues to be the secondary critical path. Through November 28, 2017, MTACC reported that structural steel erection was 21% complete by piece count and 25% complete by tonnage.

Construction Progress: Concourse (Madison Yard): Stantec repairs continue throughout and near completion. Third-party inspections continue for concrete, shotcrete, rebar, masonry, bolting, welding and firestops. Structural steel deliveries are ongoing and steel erection continues from south to north. Installations of communication racks, air handling units, fan coil units, and other mechanical installations continued throughout the concourse.

Shaft 4: Installation of Stair 23 continues and installation of fire stand pipe nears completion.

Biltmore Connection and El 22: Lead abatement in the area has begun along with demolition. Placement of shaft walls to the sub-cellar level continues.

Wellways: In wellways 1 and 2, splicing of sections and fit-out of the units and machine room work continues. In wellway 3, ceiling grid installation continues and curtain wall installation continues. In wellway 4, ceiling grid/panel and curtain wall installation continues.

Elevator T-01: Installation of Elevator 14 continues.

44th Street Vent Building: Installation of barrel ladders in the shaft is complete.

45th Street Cross Passageway: Elevator 21 is ready for the start of testing. In-contract maintenance will begin when testing is complete.

47th Street Cross Passage: All work is on hold per Stop Work Order due to a pending design change of the area.

East 48th Street Entrance: Continued installing 6-inch and 10-inch piping at the express level. Placement of support pads/deck beams and north counter fort walls nears completion.

East 50th Street Vent Building: Continued installing conduit from the shaft to concourse level, pull boxes, light conduit and light fixtures and conduit for electrical distribution room B126.

VM014 – Vertical Circulation Elements (Escalators and Elevators): The ESA 3Q2017 Progress Report shows that the forecast EAC remains at \$45,528,323. Forecast Substantial Completion remains April 24, 2020. There is no progress curve included in the report for this contract, but the PMOC is aware that Phase II, Fabrication, and Phase III, Installation, continues to progress. MTACC reports that, the contractor has completed 54.9% of the work. The Phase III (installation) portion of the contract is solely dependent on access availability provided by CM007, CM014B, and upcoming CM015. The contractor continues to report that the access dates that they receive from the CM014B contractor continue to be extended and the PMOC projects that this contract substantial completion date will be extended.

Construction Progress: MTACC reports that, through September 2017, 13 of the 22 escalators and 11 of the 14 elevators have been fabricated for CM014B.

Biltmore Room Connection: The VM014 contractor has been previously advised by the CM014B contractor that they will not make any provisions to allow VM014 to rig the Biltmore Room escalators into place. The contractor further advised that the CM014B contractor still hasn't answered their RFIs on the rigging. It will take 2-3 weeks to have any rigging plan approved. The Biltmore Room work is on the secondary Critical Path.

Systems Contracts

CS084 – Tunnel Systems Package 4 – Traction Power Systems. The information for CS084 is supplemented by discussions at a mid-November 2017 Progress Meeting that reviewed contract progress up to November 8, 2017. The ESA 3Q2017 Progress Report shows that the budget and forecast for CS084 remained at \$79,717,772 as previously reported. MTACC reported 3.3% progress as compared to planned progress of 4.1%; and, cumulative progress of 15.6% versus 71.3% as planned. While these numbers are based on actual versus projected costs, not physical construction efforts, the actual versus planned progress numbers indicate that this contract continues to be significantly behind schedule; and, falling further behind schedule on a month-to-month basis. MTACC indicates that the SC date for this contract, previously reported as September 2020, is now August 2020, with no explanation as to how a contract that continues to not meet monthly planned progress metrics is able to recover one month's worth of schedule. The contractor

continues to contend that the variance in the actual versus planned progress is because: 1) funds have not been expended as originally projected due to delays in approving the substation designs and equipment; 2) fabrication of the substations and procurement of equipment is behind schedule because designs were not approved as forecast; and, 3) the lack of access to substation rooms contributed has precluded the contractor from performing construction activities. The contractor continues to indicate that all of the contract milestones are delayed as a result of delays associated with the approval of substation designs and the resolution of Supervisory Control and Data Acquisition (SCADA) requirements. The timely development and issuance of necessary contract modifications continues to be an issue requiring improvement.

Design Progress: The contractor continues to assert that previous delays in receiving comments from MTACC for C08 facility switchgear, SCADA requirements, PLC information, and general C08 substation design impacted its ability to meet its own original design, procurement, fabrication, and installation schedules. Despite continued interaction by MTACC senior management with LIRR senior management, the LIRR's submittal/comment review process is still in need of improvement and an item of concern. The design of the C08 Substation continues to be the primary critical path for the contract; and, the continuing delay in approving the designs for this location are, per the contractor, causing a day-to-day delay in the overall contract schedule. The main issue continues to be the previously noted re-design of the C08 communications and storage rooms. The contractor continued to advise MTACC that it needs information about the communications equipment and requirements to re-design the C08 rooms and ensure that all structural requirements for the pre-fabricated building are adequate. Design issues and a previously noted potential issue regarding cable size requirements for the C06/C07 substations remain unresolved. The PMOC continues to have concerns about the length of time it is taking to address the various design approval issues.

Construction Progress: MTACC's plan to complete the extra L3 Electrical Service work in August 2017 did not occur and a new date remains under discussion. The contractor continues to cite coordination issues, design approval delays, and differing site conditions as its reasons why work at the various locations cannot progress. MTACC issued Stop Work Orders (SWO) at various locations to have time to address some of the differing site conditions and to issue contract modifications, where appropriate. Dates for lifting the SWOs were not established. The contractor continues to develop a list of what it contends are deficiencies that preclude beginning construction activities in, or completing designs for, the specific facilities. Every one of the eight substations has noted deficiencies precluding the start of construction by the contractor. MTACC is reviewing the list for validity and indicates that it will take any required appropriate action. However, both MTACC and the contractor continue to review the possibility of re-sequencing the work in the substations to progress as much work as soon as possible. The previously noted issue regarding the installation of traction power feeder cables from the C08 substation to the tracks (i.e. the absence of MTA ductwork and manholes from the substation to the track) remains as a significant risk to the timely completion of this contract. The PMOC previously raised concerns with MTACC that surveys of the remaining substation have not been completed to investigate the conduit/manhole system. To date, no additional surveys have been conducted and this concern and a recommendation on addressing the concern are noted in report Section 7.0.

CS179 – Systems Package 1 – Facilities Systems: The ESA 3Q2017 Progress Report shows that the CS179 forecast EAC of \$605,370,356 is within the \$606,938,540 budget. MTACC shows a progress curve for CS179 reports progress at 61.7% versus a planned 62.2%. While these numbers imply that the contract is essentially on schedule, it is noted that these progress percentages are

based on actual versus projected costs, not physical construction efforts. Further, the planned progress is based on the original contract scope and planning, which does not take into account any approved or anticipated scope changes. MTACC reports that the SC date for this contract remains at November 29, 2020. The contractor continues to show an SC date on-target for July 1, 2020. However, MTACC questions the validity of the contractor's schedule because of numerous disagreements over logic ties, activity durations, out of sequence activities, and the contractor's ability to complete over 5,000 activities by September 1, 2018 to begin Integrated Systems Testing (IST). The PMOC agrees that the contractor's schedule appears to be unrealistic, especially considering that the contractor acknowledges that its schedule: 1) is based on the premise that all submitted designs are final; 2) considers that all field work is ready-to-go as currently understood; [REDACTED] 4) does not take into consideration any impact from the open NOC it submitted; and 5) does not address any impacts to the contract work from SWOs that remain in effect past the data date of the schedule. MTACC's goal to develop a realistic schedule by the end of November 2017 was not met and a new date for completion of that effort is undetermined. The three previously reported Buy/Ship America issues – HVAC units, public address system speakers, and video monitor display panels – pose schedule risks to the successful and timely completion of this contract remain unresolved. There are also 54 NOCs, 41 of which MTACC agreed to issue Contractor Proposal Requests (CPR), that are contributing to the contractor's inability to finalize the system designs.

Design Progress: The approval of all 10 control system FDs, a critical activity, is now 21 months late. Despite having only 4 of the 10 Control System FDs approved by the LIRR, MTACC directed the contractor to move forward with the development of test plans and equipment fabrication. The contractor is also responsible to design, install, and test 19 Non-Control systems; several of which have FD progress falling behind schedule. The contractor is moving forward with the fabrication of equipment racks based on its interpretation of the FDs it submitted, even if the FD is unapproved. Moving forward without approved designs is, as previously noted, a risk to the timely completion of this contract.

Construction Progress: In November 2017, the CS179 contractor continued progressing a substantial amount of various elements of work (installation of conduit, cable, fire stopping, fire standpipe, lighting, etc.) in the tunnels and at the various substation facilities where access was available and conditions warranted. Coordination issues with other contractors, unexpected field conditions, unresolved design issues, water infiltration remediation efforts, open NOCs/CPRs, and numerous Stop Work Orders continue to impact further progress.

VS086, Systems Package 3, Signal Equipment Procurement: The information for VS086 is supplemented by discussions at a mid-November 2017 progress meeting that reviewed progress up to November 16, 2017. The ESA 3Q2017 Progress Report shows that the VS086 a budget of \$21,835,022; with a higher forecast EAC of \$22,064,475 due to potential modifications to add Positive Train Control (PTC) and design of the Plaza Interlocking to accommodate a LIRR-requested change. MTACC continues to show an October 14, 2019, SC date. In July 2017, MTACC issued a contract modification to adjust the interim milestones for this contract. However, in October 2017, both MTACC and the contractor agreed that the contract milestones need to be re-baselined again to address open design, fabrication, and testing issues noted in previous PMOC reports and under Design Progress, below. It remains unclear when this schedule refinement will take place; or, if it will impact the contract substantial completion date.

Design Progress: The contractor continues to raise concerns over the timeliness of responses from the MTA on design submittals and inquiries and asserts that this lack of timely responses caused,

and continues to cause, day-to-day delays in the progression of the work. There are five major unresolved design issues cited by the contractor that continue to impact progress towards design completion. The five issues are: 1) Light emitting diodes (LED) for tunnel signal units; 2) TRU-III track circuit equipment; 3) PTC design; 4) ATT-20 track circuit equipment; and, 5) Low-Smoke-Zero-Halogen (LSZH) signal case wiring. The timely development and issuance of contract modifications continues to be an issue impacting progress. MTACC further notes that any impact on overall design completion, equipment procurement, and schedule can only be determined when design issues are resolved and contract modifications, if any, are approved.

Queens Contracts

CQ032 – Plaza Substation and Queens Structures: The ESA 3Q2017 Progress Report shows that the CQ032 forecast EAC increased to \$263,693,779. The MTACC forecast for SC slipped to November 30, 2017 from October 11, 2017. Construction progress was 0.1% versus 0.0% planned, and, cumulative progress was 98.8% versus 100.0% planned.

Construction Progress: During November 2017, the CM006 contractor continued to complete remaining base contract work elements, punch list work items, and completion of NCR work necessary for SC. SC was not achieved in November 2017.

CQ033 – Mid-Day Storage Yard Facility: The ESA 3Q2017 Progress Report shows that the forecast EAC for CQ033 remained unchanged at \$308,045,850. The MTACC SC forecast remained unchanged at August 10, 2020. A progress curve for CQ033 has not been established yet, so no monthly or cumulative progress is available.

Construction Progress: During November 2017, the CQ033 contractor continued yard lighting pole drilled pier foundation installation and continued pole installation, continued traction power duct bank work continued detention pipe installation, continued clearing and grubbing/yard excavation to subgrade, and continued demolition of the Montauk Cutoff Bridge.

Harold Interlocking Contracts

CH057A – Part 3 Westbound Bypass: The ESA 3Q2017 Progress Report shows that the forecast CH057A EAC decreased to \$158,958,642. The MTACC forecast for SC was extended by 18 days to November 17, 2017, on which it was declared. Construction progress was 0.4% versus 2.6% planned; and, cumulative progress was 56.2% versus 94.6% planned. The PMOC notes that this contract provides Regional Investment work scope in Harold Interlocking and is considered having independent utility that is not specifically required to provide the connection for LIRR service to GCT that is part of the FFGA work scope. CH057A does, however, impact the FFGA efforts because it places additional demands on scarce Amtrak and LIRR force account resources.

Construction Progress: During November 2017, the CH057A contractor completed its demobilization efforts and vacated the ESA Program on the SC date, November 17, 2017.

CH061A – Track A Cut and Cover Structure: The ESA 3Q2017 Progress Report shows that the CH061A forecast EAC decreased to \$37,906,740, although MTACC offered no explanation for the decrease. The MTACC SC forecast remained at May 28, 2018. Cumulative construction progress was 25.0% versus 58.0% planned.

Construction Progress: During November 2017, the CH061A contractor continued to excavate and demolish the mud slab adjacent to the Tunnel A portal, completed installation of utilities, placed re-bar and concrete for the invert slab at the mechanical rooms, and continued to excavate at the east end connection to the Tunnel A trough previously constructed by the CH053 contractor.

Railroad Force Account Contracts

FHA01 – Harold Stage 1 Amtrak: The ESA 3Q2017 Progress Report shows that the forecast EAC remained at \$18,824,861. The MTACC SC forecast remained at July 7, 2018. Construction progress for September 2017 was 0.0% versus 0.0% planned; and, cumulative progress was 98.9% versus 100.0% planned.

Construction Progress: Amtrak performed no significant construction during November 2017.

FHA02 – Harold Stage 2 Amtrak: The ESA 3Q2017 Progress Report shows that the forecast EAC remained at \$66,440,848. The MTACC SC forecast remained at July 7, 2018. Construction progress was 0.2% versus 6.6% planned; and, cumulative progress was 89.7% versus 93.4% planned.

Construction Progress: During November 2017, Amtrak Electric Traction personnel began catenary modifications in the Northeast Quadrant of Harold in preparation for the installation of track turnouts in 2018 and continued miscellaneous catenary modifications in support of ESA 3rd Party contractors. Amtrak C&S personnel resumed installation of signal cables between H1 CIL and the 44.1 signal case on the New Haven Tracks east of Harold Interlocking.

FQA65 – Loop Interlocking Amtrak: The ESA 3Q2017 Progress Report shows that the forecast EAC remained at \$33,287,863. The MTACC SC forecast remained at July 29, 2023. Construction progress was 0.0% versus 1.3% planned; and, cumulative progress was 19.1% versus 86.9% planned. The PMOC notes that this package provides Regional Investment work scope in Harold Interlocking and is considered having independent utility that is not specifically required to provide the connection for LIRR service to GCT that is part of the FFGA scope of work. The FQA65 work package, however, does impact FFGA efforts because it places additional demands on scarce Amtrak force account resources.

Construction Progress: Amtrak performed no significant construction during November 2017.

FHL01 – Harold Stage 1 LIRR: The ESA 3Q2017 Progress Report shows that the forecast EAC remained at \$24,379,364. The MTACC SC forecast remained at April 18, 2018. Cumulative construction progress was 100.0% versus 100.0% planned.

Construction Progress: During November 2017, LIRR 3rd Rail personnel continued to install 3rd rail cables from main line tracks and manholes to the new G02 Substation.

FHL02 – Harold Stage 2 LIRR: The ESA 3Q2017 Progress Report shows that the forecast EAC remained at \$96,564,345. The MTACC SC forecast was extended by approximately 2 months to August 26, 2020. Construction progress was 2.5% versus 0.0% planned; and, cumulative progress was 91.8% versus 100.0% planned.

Construction Progress: LIRR Signal personnel continued to perform FRA pre-tests at the new H1, H2, H5, H6, and Location 30 CILs and continued to make 904 signal revisions (GEC designation) at the Location 30 CIL. Additionally, LIRR Signal personnel successfully completed the 6 weekend cutover pre-tests at the noted CILs as scheduled in 2017.

d. Quality Assurance and Quality Control

MTACC did not report any significant issues regarding Quality Assurance or Quality Control in the ESA 3Q2017 Progress Report.

The PMOC is consolidating its reporting in this area and will only include monitoring details in the PMOC Comprehensive Monthly Reports prepared for the months of each calendar quarter.

FOIA EXEMPTION 5 U.S.C. SECTION 552(b)(4)

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]		[REDACTED]	
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Program Critical Path – Harold Interlocking

ESA reported in its October 1, 2017 IPS that the Program critical path remains running through work in Harold Interlocking, as previously shown in the September 1, 2017 IPS. It is noted that CH058A is expected to be let early next year and at which time the contract milestones will be reviewed to determine potential impacts to the Program.

Table 2.2 shows the current IPS critical path of work through Harold contracts and depicts progress made through the update period and major changes made to the IPS.

Table 2.2: Critical Path – October 1, 2017 IPS

Contract / Activity Scope	Duration (CDs)	Start	Finish
FHL02: CIL cutovers pre-testing and cutovers	231	1-Oct-17	20-May-18
CH057D/FHA03/FHL03/FHL04: NE quadrant prep work, outage, and B/C approach prep work, switch work	160	21-May-18	28-Oct-18
FHL02: Harold CIL decommissioning	28	29-Oct-18	26-Nov-18
CH058A: Track B/C approach work & catenary structures	665	26-Nov-18	21-Sep-20
FHL04: testing & cutover of 4C	84	23-Sep-20	16-Dec-20
Train contract staffs LIRR prior to 3 months period	31	17-Dec-20	17-Jan-21
LIRR 3 month period	89	18-Jan-21	17-Apr-21
Target Revenue Service Date			17-Apr-21
Late Revenue Service Date			13-Dec-22

Discussion of Progress along the Critical Path

The October 1, 2017 IPS shows that there were no changes to the longest paths – Harold, Manhattan/Systems, and Queens.

The IPS shows that predecessor activity FHL02-CSR1230 on the critical path was completed and successor critical path activities FHL02-CSR1240 and FHL02-CSR1270 began in July 2017 and are in progress. The October 1, 2017 IPS shows that over the update period, controlling critical path activities FHL02-CSR1240 and FHL02-CSR1270 started early before the update period and are being progressed in parallel.

90-Day Look-Ahead of Program Critical Activities / Milestones

Table 2.3 shows the Program critical dates in the IPS forecast to occur within the next 90 days, as reported in the October 1, 2017 IPS.

Table 2.3: Program Critical Dates 90 Day Look-Ahead – October 1, 2017 IPS

Activity ID	Activity Name	Start	Finish	Total Float
FHL02-CSR1240	H5/H6/30 South Pre-cutover Testing	3-Jul-17 A	3-Nov-17	-8
FHL02-CSR1270	H1/H2/30 North Pre-cutover Testing	7-Jul-17 A	31-Jan-18	-8

Sub Program Longest Path – Manhattan/Systems

The October 1, 2017 IPS Report shows that the Manhattan/Systems longest path remained the unchanged during the update period. The longest path is still controlled by CM007 electrical submittal activities and West Cavern electrical work, leading to CS179 work.

Sub Program Longest Path – Queens

The October 1, 2017 IPS Report shows that the Queens longest path remained the unchanged during the update period. The IPS schedule has been updated to reflect the approved contractor

baseline schedule for CQ033. The update also includes the start of catenary work scope transfer from CH057A to CQ033. [REDACTED]

Upcoming Contract Procurements

Table 2.4 shows the status of current and upcoming contract procurements, as reported in the October 1, 2017 IPS.

Table 2.4: Future Procurement Schedule

Contract Description	Advertise Date	Bid Date	NTP	Project Period	Substantial Completion
CM015: 48 th Street Entrance**	TBD	TBD	12/21/17*	30 mos.*	9/16/20*
CS086: Systems Package 2 Signal Installation	8/10/17 A	10/31/17	1/2/18	35 mos.	9/30/20
CH058A: B/C Tunnel	1/16/18	4/17/18	6/18/18	27 mos.	9/25/20
CH057D: Harold Trackwork	11/8/17	1/29/18	2/28/18	15 mos.	6/2/19

Notes: * The October 1, 2017 IPS Report notes: TBD. The dates were taken from the IPS schedule file itself.

** MTACC reported that design work on this contract was suspended in June 2017.

The procurement process for CM015, 48th Street Entrance, remains on hold. The IPS Report notes ongoing discussions with Rudin regarding zoning changes. The forecast NTP and substantial completion dates shown in the October 1, 2017 IPS reflect a day-for-day delay from prior reports. Dates will be provided when the negotiations are complete.

The procurement process for CS086, Systems Package 2 Signal Installation, slipped slightly this reporting period with the date that bids/proposals are due moving from October 20, 2017 to October 31. Despite this change the date of NTP remains forecast for January 2, 2018 and the SC forecast improved by two months from November 30, 2020 to September 30, 2020.

The forecast contract dates for CH057D, Harold Trackwork, all remained relatively the same over the IPS update period; however, the advertisement date slipped from October 20, 2017 to November 8, 2017.

The forecast advertisement date for CH058A, B/C Tunnel, slipped from January 4, 2018 to January 16, 2018 for this IPS update; but the remaining procurement and contract dates remained the same.

PMOC Concerns

The following summarizes the PMOC's concerns about the IPS:

1. The PMOC is concerned about the transparency of the rationale behind the revisions made to the Program's critical path.
2. The PMOC is concerned where there are discrepancies between dates shown in the IPS and other contemporaneous MTACC documents for critical path activities.
3. The PMOC is concerned about the effect of the delays in the procurement process.
4. The PMOC remains concerned with the lack of progress on CS084. [REDACTED]

3.0 COST DATA

Funding

The ESA PMT is investigating ways to utilize existing funds until they can be supplemented in the 2020–2024 Capital Plan to provide for several anticipated cost increases. [REDACTED]

[REDACTED]

A thorough review will be performed when PMT provides an updated cost plan.

Budget / Cost

The ESA 3Q2017 Progress Report shows that the total project progress was 73.2% compared with planned progress of 77.4% of the \$10.178 billion Current Baseline Budget (CBB). The report also shows that construction progress reached 73.3% of the CBB compared with planned progress of 78.5%, based on invoiced construction costs. (Details of the project budget and expenditures are shown in report Appendix B, Tables 2 through 6.)

As related to the previously reported cost increases, an ESA study in 2016 by the PMT indicated that \$111.4 million in additional Amtrak and LIRR Force Account (F/A) costs would be needed to complete the ESA FFGA scope (Revenue Service), while \$245 million in additional F/A costs will be needed to complete the full Harold 14-4M alignment, including the Regional Investment scope. It was also previously reported that an additional \$191 million would be needed to fund the OCIP insurance program through February 2022.

[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Change Orders / Budget Adjustments

The ESA 3Q2017 Progress Report shows that the eight construction Change Orders were executed during September 2017 with magnitudes greater than \$100,000.

CH057	Credit for Small Parts Steel Installation (mod. 17)	(\$222,746)
CM007	PAC Finish Credit (mod. 22)	(\$196,780)
CM014B	MNR Reframe Existing Escalators ES-01, ES-02 (mod. 62)	\$385,000
CM014B	BIM Duct Clashes with Existing Elements (mod. 85)	\$884,000
CQ033	Material Relocation (mod. 2)	\$103,500
CS179	GCT6 PA and 2-Way Radio System Equipment & Conduit (mod. 55)	\$125,000
CS179	Differing Site Conditions - 55th Street Equipment Pads (mod. 59)	\$101,203
GEC	CH057D Repackaging (mod. 127)	\$2,004,800

PMOC Concerns

1. ESA PMT has not included the costs of the items noted above (i.e. force account; OCIP; CM014B; professional services) in the project forecasts. The MTACC is working to update the Project forecast and anticipates completing the effort in the first quarter of 2018.
2. The PMOC believes that additional funding may be required for the ESA project as a result of the forecast update. [REDACTED]
[REDACTED] The MTA has deferred action on addressing anticipated shortfalls in project funding until development of the 2020–2024 Capital Plan. This funding constraint is a major risk.
3. Ongoing and possible future delays, may result in cost increases on the following contracts:
 - CS179 – the late completion of final design and resulting schedule compression needed to hold start of Integrated Systems Testing.
 - CS084 – the late completion of final design has delayed fabrication of some traction power equipment.
 - VS086 and CS086 – incorporation of Positive Train Control into the ESA signal system; and, technology issues.
4. Construction expenditures (i.e. invoiced costs, preliminary/pencil-copy DCBs) continue to lag significantly behind the planned/scheduled expenditures. This may be a negative indication about the ESA project’s ability to achieve the target date for revenue operations.

4.0 RISK MANAGEMENT

The PMOC focuses here on discussion of the most critical risks.

Harold Interlocking Risk Review

During 2Q2017, the ESA Risk Manager, working with the consultant risk assessment facilitator, conducted a comprehensive risk review of the remaining work in the Harold Interlocking required to be completed to provide LIRR service into the new LIRR rail station at Grand Central Terminal. The risk workshop to evaluate the risks and quantify the probability of occurrence and cost and schedule impacts was held over a three-day period and included the primary stakeholders. MTACC is currently finalizing the summary of the risk review results.

Harold Interlocking – ESA Risk

Harold Re-Sequencing Plan (“ESA First”)

The “ESA First” Harold Re-Sequencing Plan (2014/15) was adjusted in early 2016 to account for and reduce the impact of Amtrak’s force account resource constraints. As a result, the impacts caused by the insufficient Amtrak support have been reduced but not yet eliminated and this situation continues to be a challenge for MTACC.

Amtrak Preparation for Extended East River Tunnel Outages

The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to harden East River Tunnel (ERT) Lines 3 and 4 in preparation for extended outages for ERT Lines 1 and 2 to complete Hurricane Sandy damage-related reconstruction work, originally planned for 2019. Earlier this year, MTACC advised the PMOC that Amtrak hardening work on Line 3 was complete and the PMOC noted at the time that the Line 3 work had minimal impact on ESA construction. There is also concern that track outages required for the remaining hardening work in ERT Lines 1 and 4 may conflict with ESA needs to support completion of the planned Harold work through 2017 and 2018. However, through November 2017, no noticeable impacts to availability of Amtrak force account resources. During November 2017, Amtrak rescheduled the start of ERT Line 1 and 2 reconstruction from 2019 to 2025. Amtrak has provided no details regarding how this change might affect the predecessor hardening work for ERT Lines 1 and 4.

Amtrak 2017 Accelerated New York Penn Station Track Work

A new risk emerged during 2Q2017 involving Amtrak’s ability to provide sufficient force account resources to support the planned ESA work in the Harold Interlocking based on Amtrak plans to advance and accelerate the Penn Station Track Work Program. Despite the noticeable drop in availability of Amtrak force account resources for the ESA work in Harold, the overall impact through September 2017 was only moderate. The primary impact was the delay of the 2017 priority weekend track outages from July-August-September 2017 to October-November 2017. The weekend track outages rescheduled for October and November 2017 did take place and all of the planned work was completed. The risk is now resolved with minimal impact to the ESA work in Harold.

Positive Train Control Risk

A potential risk that maybe realized in the near future is the impact that LIRR installation of Positive Train Control (PTC) in Harold Interlocking may have on the Harold Critical Path, especially the CIL cutovers scheduled for May 2018. It could take many months for LIRR to make

the necessary signal revisions to comply with the FRA mandated date of December 31, 2018, to have PTC installed. Although LIRR submitted a waiver request to the FRA in early October 2017 to have this deadline extended, the possibility exists that the FRA might not grant the waiver, in which case PTC installation may take precedence over the ESA work in Harold after completion of the CIL cutovers in May 2018.

Capital Funding Risk

During 2Q2017, a major new risk developed based on the decision that there will be no stand-alone ESA amendment to the 2015-2019 Capital Plan. This presents a new risk of funding constraint that may significantly impact the project. The PMOC is concerned about the potentially significant impacts to the program budget and schedule as well as the target Revenue Service Date. The specific cost, budget, and schedule impacts will not be known until ESA re-evaluates the current budget and schedule. The PMT is preparing a project update for release in the first quarter of 2018.

ESA Vehicle Risk

The PMOC remains concerned about the schedule slippage of the LIRR vehicle procurement program because it has the potential to significantly impact delivery of the vehicles, and, hence, the MTACC's Revenue Service Date. The PMOC notes, however, that if MTA can resolve the vehicle procurement delays before the end of 2017, it is expected that it will still be able to meet the vehicle requirements for the amended FFGA Revenue Operations Date of December 2023.

Manhattan/Systems Performance Risk

The PMOC's concerns about the Manhattan/Systems schedule path involving CM007, CM014B, CS179, CS084 and future CS086 are discussed in report Section 2.0. [REDACTED]

[REDACTED] The PMOC believes that it is likely that Manhattan/Systems schedule path will become critical in the near future.

5.0 ELPEP COMPLIANCE SUMMARY

The current status of each of the remaining main Enterprise Level Project Execution Plan (ELPEP) components is summarized as follows:

- **Technical Capacity and Capability:** MTACC has recently indicated that it will review the Technical Capacity and Capability (TCC) Plan and propose revisions, if required, to reflect the current status of the Program. MTACC submitted an updated TCC Plan in September 2017 and the PMOC continues its review of the plan.
- **Continuing ELPEP Compliance:** The ESA project should continue to make additional improvements in the following areas: Management Decision; Design Development; Change Control Committee (CCC) Process and Results; Stakeholder Management; Procurement; and Risk-Informed Decision Making. The PMOC has noted progress in two previously identified areas – Issues Management and Timely Decision Making, particularly when responding to new issues arising with the railroads' Force Account resource availability, track outages, and other issues regarding the remaining work in the Harold Interlocking.

- **Project Management Plan:** MTACC is using the current version of the PMP, Rev. 10, that the PMOC reviewed and the FTA accepted earlier this year.
- [REDACTED]
[REDACTED]
[REDACTED] agency status, use, and trending are discussed in, respectively, report Sections 2.0 and 3.0.

The PMOC notes that with completion of the most recent Schedule Management Plan and Cost Management Plan updates as well as the FFGA amendment, the ESA project is better able to generally remain compliant with ELPEP.

- **Schedule Management Plan:** The ESA project should continue to make additional improvements to the Schedule Management Plan (SMP) in the following areas: Integrated Project Schedule (IPS) Updating, Forecasting, [REDACTED] against a current baseline schedule. MTACC is using the current version of the SMP, Rev. 2, dated September 2016, which the PMOC reviewed and the FTA accepted.
- **Cost Management Plan:** The ESA project should continue to make additional improvements to the Cost Management Plan (CMP) in the following areas: Project Level EAC Forecasting, Project Level EAC Forecast Validation, [REDACTED] and Secondary Mitigation. MTACC is using the current version of the CMP, Rev. 2, dated October 2016, which the PMOC reviewed and the FTA accepted.

Revisions to the ELPEP Document: [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] MTACC submitted an updated ELPEP with suggested revisions in September 2017 and the PMOC continues its review of the proposed revisions.

6.0 SAFETY AND SECURITY

The PMOC calculated and ESA reported Injury Ratios for 2017 through September 30, 2017 were 0.19 for Lost Time Injuries and 0.66 for Recordable Injuries. Both were below Bureau of Labor Statistics (BLS) Safety Guidelines and indicated ESA's continued safety improvement. Additionally, the ESA PMT did not report any significant security issues during November 2017.

7.0 ISSUES AND RECOMMENDATIONS

Design: The PMT design management team needs to focus on the timely achievement of intermediate milestones and working closely with the GEC to facilitate finalization of the scopes of work for remaining procurement and construction packages. Shifting scope between packages has made finalizing design documents and drawings very challenging and time consuming.

Also, the PMOC has observed the following:

- Approvals from the railroads, both LIRR and Amtrak, and other outside stakeholders are requiring considerably more time than planned; and,

- LIRR is making changes that alter the design basis and result in time-consuming and costly re-design work by the GEC.

The ESA PMT needs to continue to monitor and better coordinate the interface of design reviews and equipment approvals between the GEC and LIRR for the CS084, CS179 and VS086 contracts. These shortcomings point to insufficient technical capacity and capability in the particular design support areas. The PMOC acknowledges the efforts by senior management to resolve these issues and recognizes that some short-term improvements were achieved, but notes that more sustained effort is needed.

Procurement: The lack of stability in the contracting strategy and Contract Packaging Plan (CPP) remains a concern. Scope shifting among different packages delays completion and finalization of the required design packages and caused significant delays to the procurement schedules during 2016 and 2017. The PMOC continues to recommend that the ESA PMT make an effort to adhere to the current version of the CPP, rev. 11.0, and minimize shifting scope for the remainder of the project.

Water Infiltration Concerns Regarding CS179, CS084 and CQ032: The PMOC remains concerned about the numerous water infiltration issues in the electrical and electronic equipment rooms either constructed by, or provided for, these contracts. The PMOC notes that, to date, none of the water remediation efforts that have been employed have been totally successful and this has caused delays to follow-on construction.

CS179: The PMOC recommends that the ESA PMT continue making improvements regarding the PMOC's following concerns for CS179:

- Timely delivery and discussion about the contractors' monthly schedule submissions;
- Timely preparation and submission of documentation for two potential Buy/Ship America issues;
- ESA PMT responses to contractor NOCs and issuance of CPRs; and,
- Timely design review and approvals to contractor's design submittals.

Additional information concerning CS179 can be found in report Section 1.0-c.

CS084: The PMOC is encouraged that MTACC's senior management continues to work with LIRR's senior management to ensure the timely completion of design reviews and approvals to prevent potential delays to the completion of the contract work. MTACC should prioritize the delivery of requested design information, the approval of substation designs, and the execution of contract modifications to preclude any further impact to substation design and fabrication. Additionally, the PMOC remains concerned about the live load (dynamic) testing of the C08 Substation and the integrated testing of all CS084 substations. Also, no additional surveys have been conducted to verify availability of required conduit/manhole system for each TPSS.

VS086: The PMOC remains concerned that there is no accurate and comprehensive schedule in place that would allow MTACC to effectively manage this contract and encourages MTACC to quickly complete discussions regarding the development of such a schedule that addresses all the issues currently identified on this contract. The PMOC is concerned that design decisions that have the potential to negatively impact the contract schedule are not being made in a timely manner. The PMOC encourages the MTACC management team on this contract to work with the LIRR and the GEC to provide timely answers and comments to design questions and submittals.

Project Funding: The project is at risk since there are certain additional anticipated costs that are noted elsewhere in this report but are not yet in the project forecast and considerations of funding

have been deferred to the 2020–2024 Capital Planning cycle. The PMOC is concerned about potential impacts to the program budget and schedule, as well as the target Revenue Service Date. The specific cost, budget, and schedule impacts will not be known until ESA completes its re-evaluation of the current budget and schedule. The MTACC is working to update the Project forecast and anticipates completing the effort in the first quarter of 2018.

Project Budget: [REDACTED]

Project Schedule: The PMOC remains concerned about the ability of the program to make planned progress along the critical path through Harold CIL cutover pre-testing. Delays to this work could consequently impact LIRR’s ability to make key cutover dates in May 2018. It is also expected that delays, should they occur, to the planned May 2018 cutover for the critical Harold CILs could have a magnified impact on the program schedule, as the track outages needed for this work require sufficient notice. The PMOC also continues to be concerned with continuing delays in contract procurement, as well as processing change orders.

Risk Management: The segmentation of construction packages has created multiple inter-contract interfaces and milestones. In the PMOC’s opinion, managing inter-contract handoffs and interfaces will continue to be very challenging and represents significant MTACC-retained risks. The PMOC does recognize the PMT’s efforts to mitigate some of the potential cost exposure by negotiating adjustments to schedule constraints across the four ESA contracts currently held by the same contractor (CM006, CM007, CS179, and CQ032). However, the PMOC believes that any meaningful schedule recovery, especially for CM007, CS179 and CS084, will be difficult at best.

The PMOC considers the major remaining risks for the East Side Access Program to be:

1. Program Funding – 2015–2019 Capital Plan issue resolved in May 2016; current forecast cost growth funding had been expected to rely on Capital Plan amendment and other sources; now major risk of funding constraint due to 2Q2017 decision that there will be no stand-alone ESA amendment to the 2015–2019 Capital Plan;
2. Recovery of lost time due to significant schedule delays on CM014B, and CS084;
3. Successful execution of multiple hand-off interfaces across several contracts;
4. Contractor access and work area coordination in Manhattan;
5. Duration of integrated systems testing;
6. Continued availability of adequate Amtrak and LIRR force account resources for both railroad direct construction and third-party contractor support in Harold Interlocking (increasing risk trend noted in 4Q2015 through July 2017);
7. Continued availability of required track outages in Harold Interlocking;
8. Maintaining adequate schedule performance of the remaining work in Harold Interlocking – the ESA program critical path – which is dependent on a very high level of planning and coordination between third-party contractors and the LIRR and Amtrak force account management for both access and protection and direct labor work (increasing risk trend noted in 3Q2016 holding through November 2017).

The comprehensive Harold risk review conducted in April 2017 identified a number of potentially significant risks that could delay completion of the critical work in Harold Interlocking planned

for 2017-18 that could cause a significant delay to the Revenue Service Date. These risks include the following:

A. Major Risks included in the Risk Assessment

1. Positive Train Control: Implementation of Positive Train Control in Harold Interlocking to the degree necessary to achieve the December 31, 2018, FRA deadline. Risk is not well defined because scope and schedule details have not been finalized. Possible mitigation: LIRR had planned, in August 2017, to request a waiver from FRA to alleviate requirements for PTC in Harold Interlocking, since it is and will remain an active construction area beyond December 31. LIRR submitted the formal waiver request to the FRA in early October 2017.
2. LIRR Force Account Performance: Ability of LIRR force account resources to provide both a very high level of support for third-party contractor access and protection and adequate productivity for significantly increased direct labor work involving track, 3rd rail, and signals, in accordance with the current ESA schedule.
3. Northeast Quadrant Rail Work: Ability of MTACC-ESA, Amtrak, and LIRR to fully complete the planned work in the Northeast Quadrant in Harold Interlocking as per the current ESA schedule, on a very tight schedule involving major Amtrak and LIRR track outages.
4. LIRR CIL Cutovers: Ability of LIRR to complete the pre-testing and final cutovers of CILs H1/H2/H5/H6/Loc 30 in accordance with the current ESA schedule plan.
5. CH058A Preparation Work: Ability of Amtrak and LIRR force account resources to complete, in accordance with the current ESA schedule plan, all track, catenary, and third-rail work required prior to NTP for CH058A.

B. Potential Risks with Major Schedule Impacts – Not Included in Risk Assessment

1. ESA Project funding constraints (now realized in 2Q2017);
2. Ongoing and future Regional Projects requiring extensive support from Amtrak including: Moynihan Station; Gateway; MNR to NYPS;
3. Amtrak program to reconstruct existing ERT Lines 1 and 2, starting with Line 2 in 2019. Risk is not well defined because Amtrak scope and schedule details have not been finalized and presented to MTA-LIRR. Impact of delayed start until 2025 on predecessor ERT Lines 1 and 4 hardening not clear at this point.

The PMOC notes that, although MTACC has actively engaged Amtrak to develop some specific mitigations for certain risks and continues to work on strategies for mitigating many of the other identified risks, continued shortcomings in provision of adequate force account resources have adversely impacted the current Harold schedule and have, over time, caused the remaining Harold work to become the ESA program schedule critical path. The PMOC recognizes that MTACC and ESA have been proactive in dealing with these issues as they arise and also recognizes ESA's efforts to re-baseline the remaining work in Harold Interlocking to reflect more realistic expectations of Amtrak support. However, the situation still requires improvement and the PMOC recommends that the PMT actively engage executive management in MTACC and MTA to assist with resolution of outstanding issues with Amtrak and LIRR.

Through November 2017, the Moynihan Station project remained as Amtrak's top priority for assignment of the local division force account resources. The PMOC's position has been that this situation needs to change in order for Amtrak to be able to provide the required force account

resources and track outages required to support ESA's schedule for completion of the remaining critical work in the Harold Interlocking scheduled through 2018.

A new risk emerged during 3Q2017 involving Amtrak's ability to provide sufficient force account resources to support the planned ESA work in the Harold Interlocking based on Amtrak plans to advance and accelerate the Penn Station Track Work Program. Despite the noticeable drop in availability of Amtrak force account resources for the ESA work in Harold, the overall impact through November 2017 was only moderate. The primary impact was the delay of the 2017 priority weekend track outages from July-August-September 2017 to October-November 2017. The weekend track outages rescheduled for October and November 2017 did take place and all of the planned work was completed. The risk is now resolved with minimal impact to the ESA work in Harold.

APPENDIX A – ACRONYMS

AFI	Allowance for Indeterminates	IST	Integrated System Test
ARRA	American Recovery and Reinvestment Act	LIRR	Long Island Rail Road
AWO	Additional Work Order	MNR	Metro-North Railroad
BIM	Building Information Model	MOD	Contract Modification
BLS	Bureau of Labor Statistics	MPR	Monthly Progress Report
BSA	Buy/Ship America	MTA	Metropolitan Transportation Authority
C&S	Communication and Signals	MTACC	Metropolitan Transportation Authority Capital Construction
CBB	Current Baseline Budget	N/A	Not Applicable
CCC	Change Control Committee	NCR	Nonconformance Report
CCM	Consultant Construction Manager	NOC	Notice of Change
CCTV	Closed Circuit Television	NTP	Notice to Proceed
CD	Calendar Day	NYCT	New York City Transit
CIL	Central Instrument Location	OCIP	Owner Controlled Insurance Program
CIR	Central Instrument Room	PAC	Pneumatically Applied Concrete
CM	ESA Construction Manager assigned to each contract	PCO	Proposed Change Order
CMP	Cost Management Plan	PLC	Program Logic Control
CMU	Concrete Masonry Unit	PMOC	Project Management Oversight Contractor (Urban Engineers)
ConEd	Consolidate Edison Company	PMP	Project Management Plan
CPOC	Capital Program Oversight Committee	PMT	ESA Project Management Team
CPP	Contract Packaging Plan	QA	Quality Assurance
CPR	Contractor Proposal Request	QPR	Quarterly Progress Report
DC	Direct Current	RFI	Request for Information
DCB	Detail Cost Breakdown	RFP	Request for Proposal
DFF	Direct Fixation Fastener	RMC	Rudin Management Corporation
EAC	Estimate at Completion	RMP	Risk Management Plan
ELPEP	Enterprise Level Project Execution Plan	ROD	Revenue Operations Date
ERT	East River Tunnel	ROW	Right of Way
ESA	East Side Access	RPR	Relocated Primary Route
ET	Electric Traction	RSD	Revenue Service Date
F/A	Force Account	RTB	Resilient Tie Block
FAT	Factory Acceptance Testing	SC	Substantial Completion
FD	Final Design	SCADA	Supervisory Control and Data Acquisition
FFGA	Full Funding Grant Agreement	SDR	Second Design Review
FIAT	Factory Integrated Acceptance Testing	SMP	Schedule Management Plan
FRA	Federal Railroad Administration	SMS	Security Management System
FTA	Federal Transit Administration	SWO	Stop Work Order
GCT	Grand Central Terminal	TCC	Technical Capacity and Capability
GEC	General Engineering Consultant	TPSS	Traction Power Substation
HVAC	Heat, Ventilation and Air Conditioning	TSR	Track and Signal Route
IPS	Integrated Project Schedule	WBY	Westbound Bypass Tunnel
		YSB	Yard Services Building

APPENDIX B – TABLES

Table 1: Summary of Critical Dates

Program Milestone	FFGA	Forecast (F) Completion, Actual (A) Start		Amended FFGA Dates
		Project Sponsor*	PMOC**	
Begin Construction	September 2001	September 2001(A)	September 2001(A)	September 2001
Construction Complete	December 2013	December 2022 (F)	September 2023(F)**	December 2023
Revenue Service	December 2013	December 2022 (F)	September 2023 (F)	December 2023

Notes: * Project Sponsor forecast Revenue Operations Date per presentation the MTA CPOC in June 2014.
 ** Source –Based on PMOC 2014 schedule trending analysis representing a medium degree of mitigation.

Table 2: Project Budget / Cost Table
 (Cost shown in millions)

	FFGA			MTA Current Baseline Budget (CBB)			Expenditures October 1, 2017	
	Original FFGA	Amended FFGA	Pct. of FFGA	Obligated	CBB	Pct. of Total CBB	Expenditures	Pct. of CBB
Grand Total	7,386.0	12,038.0	100.00%	4,724.0	11,214.0	100.00%	7,890.4	70.36%
Financing Cost	1,036.0		14.03%	617.0	1,036.0	9.24%	617.6	59.61%
		1,116.0	9.27%					
Total Project Cost	6,350.0		85.97%	4,107.0	10,178.0	90.76%	7,272.8	71.46%
		10,922.0	90.73%					
Federal Share	2,683.0		36.33%	1,148.0	2,699.0	24.07%	2,525.6	93.58%
		2,683.0	22.29%					
5309 New Starts share	2,632.0		35.63%	1,098.0	2,437.0	21.73%	2,263.5	92.88%
		2,632.0	21.86%					
Non New Starts share	51.0		0.69%	50.0	67.0	0.60%	66.7	99.55%
		51.0	0.42%					
ARRA	0.0	0.0	0.00%	0.0	195.0	1.74%	195.4	100.21%
Local Share	3,667.0		49.65%	2,959.0	7,479.0	66.69%	4,747.2	63.47%
		8,239.0	68.44%					

Table 3: Project Budget and Invoices
 (Cost shown in millions)

Elements	Baseline Budget June 2014	October 1, 2017			
		Current Budget	Actual Awards	Invoiced to Date	Inv. Pct. of Budget
Construction Subtotal	7,379.3	7,543.6	6,960.8	5,352.3	70.95%
Soft Costs Subtotal	2,798.5	2,634.2	2,016.8	1,920.6	72.91%
Engineering	720.6	735.9	734.2	712.7	96.84%
OCIP	282.6	307.6	300.8	300.4	97.64%
Project Mgmt.	972.2	972.2	862.7	790.2	81.28%
Real Estate	182.1	178.0	119.2	117.3	65.90%
Rolling Stock	202.0	202.0	0.0	--	0.00%

Note: ESA carries the Rolling Stock Reserve as an off-line cost, not in the Budget

Table 4: Comparison of Standard Cost Categories: FFGA vs. CBB
(Cost shown in millions)

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	Mar 2017 CBB	June 2017 CBB	Sept 2017 CBB	CBB / FFGA Variance	CBB / Amended FFGA Variance
10 - Guideway & Track Elements	1,988.7	3,405.5	3,353.4	3,486.1	3,504.3	3,509.5	76.47%	4.65%
20 - Stations, Stops, Terminals, Intermodal	1,168.7	2,238.2	2,326.8	2,328.1	2,326.5	2,328.2	99.22%	0.06%
30 - Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	472.4	506.1	513.0	43.98%	13.80%
40 - Site Work and Special Conditions	205.1	610.6	562.5	588.1	567.8	560.9	173.48%	-0.27%
50 - Systems	619.3	605.6	627.7	579.9	577.5	586.7	-5.26%	-6.52%
60 - ROW, Land, Existing Improvements	165.3	219.4	192.2	215.4	215.4	215.4	30.31%	12.04%
70 - Vehicles	494.0	209.9	879.5	209.9	209.9	209.9	-57.50%	-76.13%
80 - Professional Services	1,184.0	1,975.4	1,809.0	2,003.3	2,012.5	2,015.7	70.25%	11.43%
100 - Financing Cost	1,036.1	1,036.1	1,116.5	1,036.1	1,036.1	1,036.1	0.00%	-7.20%

Table 5: Summary by FTA Standard Cost Categories
(Costs shown in millions)

Standard Cost Category	FFGA	June 2014		October 1, 2017		
		Project Budget	Amended FFGA	Current Budget	Awarded Value	Paid to Date
10 - Guideway & Track Elements	1,989	3,405	3,353	3,509.5	3,283.0	2,794.0
20 - Stations, Stops, Terminals, Intermodal	1,169	2,238	2,327	2,328.2	2,183.0	1,461.4
30 - Support Facilities (Yards, Shops, Admin)	356	474	451	513.0	493.5	218.4
40 - Site Work and Special Conditions	205	611	562	560.9	485.4	481.8
50 - Systems	619	606	628	586.7	470.8	353.8
60 - ROW, Land, Existing Improvements	165	219	192	215.4	156.5	154.7
70 - Vehicles	494	210	880	209.9	7.8	5.5
80 - Professional Services	1,184	1,975	1,809	2,015.7	1,897.7	1,803.2
100 - Financing Cost	1,036	1,036	1,116	1,036.1		

Table 6: Quarterly Actual and Planned Cash Flow – June 2014 Plan
(Cost shown in millions)

Year – Quarter	Construc- tion	Engineer- ing	OCIP	Project Management	Real Estate	Rolling Stock
Prior Payments >	3,660.2	646.4	155.6	580.0	112.6	--
Remaining >	3,719.1	74.2	127.0	392.1	69.4	202.0
2014 3Q	209.3	(-3.3)	4.8	16.7	--	--
4Q	168.3	(-3.3)	4.8	16.7	0.1	--
2015 1Q	134.6	(-3.2)	4.6	16.1	4.5	--
2Q	147.4	(-3.3)	4.8	16.7	4.7	--
3Q	169.7	(-3.3)	4.8	16.7	4.7	--
4Q	201.2	(-3.3)	4.8	16.7	4.7	--
2016 1Q	193.3	(-3.2)	4.7	16.3	4.6	--
2Q	180.9	(-3.3)	4.8	16.7	4.7	8.7
3Q	182.0	(-2.0)	4.8	16.7	4.7	13.1
4Q	214.2	6.7	4.8	16.0	4.7	13.1
2017 1Q	210.6	6.5	4.6	15.5	4.5	12.6
2Q	199.7	6.7	4.8	16.0	4.7	13.1
3Q	189.4	6.7	4.8	16.0	4.7	13.1
Remaining Plan	1,318.7	75.7	65.3	179.7	18.5	141.5
Remaining Actual*	2,017.0	23.2	7.3	174.7	60.7	202.0
4Q	182.1	6.7	4.8	16.0	4.7	13.1
2018 1Q	174.2	6.5	4.6	15.5	4.5	12.6
2Q	170.5	6.7	4.8	16.0	4.7	13.1
3Q	168.5	6.7	4.8	16.0	4.7	14.0
4Q	155.2	6.7	4.8	16.0	0.1	14.0
2019 1Q	148.4	6.5	4.6	15.5	--	13.6
2Q	110.9	6.7	4.8	16.0	--	14.0
3Q	93.6	6.7	4.8	16.0	--	14.0
4Q	71.6	6.7	4.8	16.0	--	14.0
2020 1Q	20.7	6.6	4.7	15.6	--	5.0
2Q	11.7	6.7	4.8	16.0	--	0.9
3Q	7.6	2.3	4.9	5.4	--	--
4Q	2.8	--	5.0	--	--	--
2021 1Q	0.9	--	3.3	--	--	--
2Q	--	--	--	--	--	--
3Q	--	--	--	--	--	--
4Q	--	--	--	--	--	--

Note: * Remaining Actual cost is calculated by PMOC as: current budget (CBB) less amount invoiced.

Table 7: ESA Core Accountability Items

Project Status		Original at FFGA	Amended FFGA	Current*	ELPEP **
Cost	Cost Estimate	\$7.386 B	\$10.922 B	\$10.178 B	\$8.119 B
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Schedule	RSD	Dec. 31, 2013	Dec. 31, 2023	Dec. 2022	April 30, 2018
Total Project Percent Complete		Based on Invoiced Amount	73.2% actual vs. 77.4% planned (ESA calc.)		
Project Performance Rate Since 2014 ESA Re-Plan		Based on Earned Value	77.8% (PMOC calculation of construction spending at 3Q 2017 planned vs. actual since re-baselining)		
Contracts	Total contracts awarded to date		\$8.978 B	88.2% of total awards	
	Total construction contracts awarded to date		\$6.961 B	92.2% of construction awards	
Major Issue	Status		Comments		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
Project Cost	MTACC has identified significant forecast cost overruns: <ul style="list-style-type: none"> ▪ OCIP - \$190 million ▪ Railroad Force Account - \$110 million ▪ OICs for Contract CM014B - \$65 million ▪ PM/CM, CCM, GEC Services – (TBD) Schedule delays due to funding constraints (see above) may result in additional escalation costs. Review of forecast cost overruns based on new funding constraint continued during November 2017.		ESA PMT is continuing their evaluation the cost of PM/CM, CCM, and GEC Services to the target RSD. The current PMT funding strategy (see above) may delay the completion of current contracts, the award of remaining contracts, and the completion of railroad force account work. The resulting added cost escalation could be significant.		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
[REDACTED]	[REDACTED]		[REDACTED]		
Harold Schedule	The schedule for the remaining ESA work in the Harold Interlocking has been revised several times since the June 2014 Program Schedule re-baseline; Dec. 2014 (<i>ESA First</i>); 2015 (<i>Harold Re-Sequencing</i>); and, 1Q2016 schedule adjustment resulting in the Program critical path passing through the Harold work. Primary cause for all the revisions is inadequate railroad force account support due to other higher priority Amtrak projects in the region.		MTACC PMT made progress in coordinating a regional inter-agency schedule for work to minimize conflicting demands on force account resources, resulting in better on-time completion of planned work. All work on Harold CILs on weekend track outages in November 2017 have been completed.		

FOIA EXEMPTION 5 U.S.C. SECTION 552(b)(4)

- Notes: * Current Budget was approved by MTA CPOC in June 2014.
** 2010 ELPEP reflecting medium level of risk mitigation, excluding financing cost of \$1,116 million. This is currently being re-evaluated.