

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

Report Period July 1 – July 31, 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	THIRD PARTY DISCLAIMER.....	1
REPORT FORMAT AND FOCUS.....		1
MONITORING REPORT		1
1.0 PROJECT STATUS		1
a. Engineering Design and Construction Phase Services		1
b. Procurement		5
c. Construction.....		5
d. Quarterly Quality Oversight (QO).....		17
2.0 SCHEDULE DATA		19
3.0 COST DATA		27
4.0 RISK MANAGEMENT.....		30
5.0 ELPEP COMPLIANCE SUMMARY		32
6.0 SAFETY AND SECURITY		34
7.0 ISSUES AND RECOMMENDATIONS		35

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 as of May 31, 2017

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

Table 5 – Quarterly ESA Planned Cash Flow - Actuals to Date and Actuals Remaining

Table 6 – MTA ESA Project Summary By FTA Standardized Cost Categories 2014 Re-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 (FFGAs) 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.

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.

All Project Sponsor cost and schedule data included in this report is based on the status date of June 1, 2017.

MONITORING REPORT

1.0 PROJECT STATUS

a. Engineering Design and Construction Phase Services

In the ESA May 2017 Monthly Progress Report, MTACC reported that the overall Engineering effort is 98.9% complete vs. 100% planned. MTACC's May 2017 Total Cost Report shows 96.1% of the overall EIS and Engineering budget has been invoiced and 96.2% of the Design budget has been invoiced.

Status of Construction Packages Advertised:

There are currently no major construction contracts in procurement.

Status of Construction Packages Not Awarded:

On Contract CM015 (48th St. Entrance), the MTA Board had previously approved the design agreement with the building owner, Rudin Management Corporation (RMC). RMC agreed to provide the designs for the relocation of the existing interior utilities and to complete some limited structural design. MTA had been meeting with the building owner, RMC, to advance and finalize the Work and Easement Agreements, but discussions have been temporarily suspended pending RMC's evaluation of the impacts that the new Midtown Manhattan zoning changes may have on RMC's 415 Madison Avenue Building. The parties were reportedly near final agreement, however, RMC has again requested that significant additional work be included in the design scope. In June 2017, the ESA-PMT advised that all design work on this package has been suspended. Final disposition will be based on future MTA/MTACC management level decisions. There was no change in status during July 2017.

Contract CH058A will include construction of the Tunnel B/C Approach Structure. The 90% design submission was made on June 17, 2016, and the ESA Project Management Team (PMT)/GEC team has received comments from the ESA Construction Manager and LIRR. The 90% package was sent to Amtrak on October 28, 2016. MTACC received Amtrak comments on the CH058A package during February 2017. The updated FHA03 design package that was submitted to Amtrak in mid-February 2017 to reflect changes made in support of CH058A regarding required catenary and track alterations, has been approved. The GEC finalized the design package and issued the signed and sealed drawings in April 2017. At the May 16, 2017, meeting with ESA, NYCDOT approved the alternate support of excavation plan that involves maintenance and support of the piers for the 39th Street Bridge. The GEC is incorporating the alternate support of excavation plan into the contract plans and specifications and will provide the 100% package two weeks after formal NYCDOT approval. PCO 219 was intended to transfer CH057 trackwork option scope to CH058A, but this was later cancelled. Catenary work scope for Amtrak Force Account FHA04A has been finalized for PCO 222, which is expected to be issued soon after completion of legal review.

Contract CH058B will include construction of the East Bound Re-route. The GEC has been developing the scope of work for finalizing the tunnel design based on a cut-and-cover construction method. LIRR agreed to the track outages required to support the cut-and-cover construction, but requested additional rail traffic simulations from their consultant. The simulation proposal was submitted in November 2016 and the simulations are now in progress. The rail traffic simulation outcomes will not impact the design for Contract CH058B. MTACC had previously directed ESA to proceed with design finalization of CH058B based on using the cut-and-cover tunnel construction method and without the Temporary Eastbound LIRR Passenger (TELP) Track. In July 2017, the ESA-PMT advised that this package has been temporarily put on hold.

Contract CH057D, Harold Track Work, is a new package that includes completion of all the remaining track work in the Harold Interlocking. The package scope of work has been finalized by the PMT and the CM. MTACC has received preliminary labor clearance from LIRR for track work only, and is also requesting labor clearance for third-rail work. The 90% design completion is expected in early August 2017. The 100% design milestone is scheduled for September 29, 2017.

Contract CS086, Systems Package 2 - Tunnel Systems, is a stand-alone package. MTACC reports that PCO C184 to finalize the package was approved and the GEC has completed the work. The

100% design submission was forwarded to LIRR on October 21, 2016, for review and comments were returned. The scope of this change order includes a refresh of the package and changes control of Plaza Interlocking from Penn Station Control Center to the GCT Train Operations Center. The scope of work of PCO C184 does not include Positive Train Control (PTC) design, which will be provided by LIRR. Based on when LIRR completes the PTC design, the PTC scope will be added to the CS086 contract either by addendum before bidding or by contract modification after award. The balance of the design for this package is complete. Bid advertisement was most recently forecast for May 12, 2017, but this did not occur. ESA has not provided a new forecast bid advertisement date. Bid advertisement delays through 2016 and into 2017 will now be at least nine months. ESA sought to negotiate an acceptable contract modification with the CS179 contractor for construction of the scope of work for package CS086. The CS179 contractor's final cost proposal was submitted on June 16, 2017, and ESA determined that the price was not reasonable. As a result, ESA-PMT has decided to pursue a negotiated procurement, or RFP process, for the CS086 contract. See the Procurement section below for more details.

FQA33A, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for yard access to Amtrak via Sub 4 to Line 2. ESA met with Amtrak during 1Q2017 and there was one outstanding issue to which the GEC needed to respond. Amtrak requested that ESA develop the full scope of exiting routes from the Mid-Day Storage Yard for review of the required associated changes to Penn Station Control Center. ESA met with LIRR in June 2017 to discuss Option C, an alternative at MDSY exit route. The GEC is also evaluating another MDSY exit route alternative, Option D. Upon completion of the reviews and acceptance by LIRR, ESA will meet with Amtrak to review the exiting schemes from the Mid-Day Storage Yard to Penn Station.

FQA33B, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for a second yard access to Amtrak via Sub 3 to Line 4. Amtrak, LIRR, and ESA have met to discuss the diamond crossover proposed in the design package. An earlier study about this proposed track alignment was completed. The GEC developed an alternative track alignment that does not include the diamond crossover. The GEC is now reviewing an additional exiting scheme, Option D. Upon completion of ESA review and evaluation of the exiting options, LIRR will review and evaluate the options to select the desired option. ESA and LIRR will then meet with Amtrak. The 100% design package is temporarily on hold awaiting a final decision based on the exiting option study.

Positive Train Control

The PMT has advised that the MOU between MTACC and LIRR for Positive Train Control (PTC) on ESA has been modified to move the technical portions into a separate “Technical Concurrence Document” and to leave only the agency administrative and legal agreements in the MOU itself. The MOU has been executed, and the “Technical Concurrence Document” review is nearing completion. LIRR has issued the WAR (Willingness to Accept Risk) Certificate for the PTC design work only. This will permit ESA and the GEC to start modifying the scope of work on ESA contract packages CS179, VS086, and CS086 to provide for overlay of the LIRR designed PTC onto the ESA systems. The associated GEC PCO has been negotiated and is awaiting MTACC's final approval.

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

On Contract CS179, Systems Facilities Package No.1, the backlog of submittal and RFI reviews noted in earlier reports continues to be an area of primary focus for the Contract CS179 project

team. The contractor continues to assert that overdue responses on design submittals and Requests for Information (RFIs) are impacting its ability to complete design work, causing delays to the contract schedule. The contractor continues to note that 51 of the 64 open Notices of Change (NOCs) are Contractor Proposal Requests (CPRs) that it has responded to remain in an open status. The lack of closure on many of these CPRs is causing serious delays on contract work, particularly finalization of designs. MTACC acknowledges that the response time on many submittals and RFIs exceeded the 30-day turn-around time period stipulated in the contract; and indicates that responses to submittals and RFIs, and the closure of open CPRs, will receive increased attention with the addition of GEC design review staff. In its May 2017 MPR, MTACC asserts that all ten of the Control System final designs are approved. The PMOC questions the validity of this assertion, as in the recent CS179 Monthly Progress meeting that discussed work through the end of July 2017, both the contractor and MTACC acknowledged that the final design review meeting for the CCTV and SMS Control System had yet to occur because the final design is incomplete. Further, the contractor indicates that the final designs for several other Control Systems are incomplete, awaiting responses from the MTA on design questions. In the PMOC's opinion, the completion of the last of the 10 Control System final designs has yet to be achieved; and, as of the end of July 2017, is 16 months late. Additionally, the PMOC continues to note that MTACC has yet to receive any "formal acceptance" or "final approval" of any of the 10 Control Systems final designs from the LIRR. The contractor is also responsible for the design, installation, and testing of 19 "Non-Control" systems. In its previous Monthly Progress Reports (MPRs), MTACC noted that the contractor's progress on several of these non-control system designs was falling behind schedule and would cause delays to the fabrication of equipment racks. MTACC makes no mention of the status of these 19 Non-Control Systems in its May 2017 MPR; and, because no updated schedule showing the status of these systems' designs was available at the most recent Monthly Progress meeting for discussion or comparison to a baseline schedule, it is unclear as to what impact, if any, there might be on the continued fabrication of equipment racks. Also, two long-standing Buy/Ship America issues remain unresolved; both of which could impact designs already in progress. Research continues on a suitable replacement for a piece of equipment that is a third potential Buy/Ship America issue. Additional information regarding specific System designs for the CS179 contract is provided later in Section 1.0c., under CS179.

On Contract CS084, Traction Power Systems Package 4, the contractor continues to perform site surveys and submit design documentation. Issues related to the tunnel SCADA system design remain unresolved, allowing the contractor to continue to contend that the lack of clarity on SCADA details has caused delays to its contract schedule. In its May 2017 MPR, MTACC indicates that the previously reported August 2020 Substantial Completion (SC) date is now June 2020. It is unclear if this revised SC date is a date that takes into account previously identified coordination issues with other ESA contractors or the contractor's assertions of MTA caused delays resulting from the LIRR's continuing inability to provide timely comments on design submittals. Six of the seven interim contract Milestones are already delayed and will, according to the contractor, continue to be delayed on a day-to-day basis until the designs are approved and the clarifications are provided. Additional information regarding specific System designs for the CS084 contract is provided later in Section 1.0c., under CS084.

On Contract 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; asserting that the lack of timely responses is causing day-to-day delays in the

progression of the work. The contractor contends that coordination efforts with other ESA contractors pose potential delays to the timely completion of its work. MTACC needs to make key design decisions that have the potential to impact designs already in progress. Additionally, LIRR needs to support MTACC with regard to the LED signal unit issue and testing of the proposed TRU-III track circuit. Additional information regarding specific System designs for the VS086 contract is provided later in Section 1.0c., under VS086.

b. Procurement

MTACC's Total Cost Report for May 2017 shows that total procurement for the project was 88.1% complete, with \$8.962 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 – In June 2017, the ESA-PMT advised that all design work on this package was suspended. Total bid advertisement delay through 2016 and into 2017 is eleven months. There was no change in status during July 2017.
- CS086, Systems Package 2-Tunnel Systems – Advertisement expected August 2017; Bids due (TBD). Total bid advertisement delay through 2016 and into 2017 is fourteen months.

For Contract CS086, the PMT noted previously that alternate procurement strategies were being considered to minimize coordination issues that would develop due to adding another third-party contractor requiring access to guideway and control area spaces. These alternatives included:

- Add CS086 scope of work to existing contract via contract modification.
- Use a negotiated procurement (RFP process) for CS086 to allow for pre-award establishment and agreement on contractor coordination processes.

ESA sought to negotiate an acceptable contract modification with the CS179 contractor for construction of the scope of work for package CS086. The CS179 contractor's final cost proposal was submitted on June 16, 2017, and ESA determined that the price was not reasonable. As a result, ESA-PMT has decided to pursue a negotiated procurement, or RFP process, for the CS086 contract. Authorization to allow the negotiated procurement was granted by MTA at the June 2017 MTA Board Meeting.

c. Construction

In the ESA May 2017 Monthly Progress Report, MTACC reported that total construction progress reached 70.3% complete vs. 75.8% planned.

CM006 – Manhattan North Structures: As of June 1, 2017, MTACC decreased its Forecast at Completion for CM006 to \$356,019,269. The MTACC forecast for Substantial Completion (SC) remained June 22, 2017. Actual construction progress for May 2017 was 0.7% versus 0.6% planned. Cumulative progress through June 1, 2017, was 97.8% actual versus 99.0% planned.

Construction Progress: During July 2017, the CM006 contractor continued to complete remaining base contract work elements at the North back of House. The contractor continued punch list work items and completion of NCR work throughout the project.

CM007 - GCT Station Caverns and Track: As of June 1, 2017, the MTACC Forecast at Completion for CM007 remained at \$712,311,733. The MTACC forecast for Substantial Completion remained April 6, 2020, later than the contractual date of January 28, 2020, due to continued impact from the resilient tie block (RTB) approvals. Actual construction progress for May 2017 was 2.3% versus 4.2% planned. Cumulative progress through June 1, 2017, was 15.3% actual versus 26.7% planned.

Construction Progress: During July 2017, the CM007 contractor continued upper level slab concrete construction at the South Back of House in the East and West Caverns. The contractor continued mechanical piping, electrical conduit, and CMU installation at the North Back of House in the East and West Caverns. The CM007 contractor also continued the following construction in the East and West Caverns: temporary shoring, waterproofing, exterior concrete wall construction (pneumatically applied concrete - PAC), closure wall construction (cast-in-place concrete - CIP), mezzanine and upper level precast beam and panel installation, grouting, and post-tensioning of beams. The precast subcontractor continued production casting of beams and panels at their upstate NY facility. From July 12, 2017, through July 23, 2017, there was no work activity performed due to a continuing project wide power outage. Through July 23, 2017, 25.5% of the precast had been set and completed (which includes a combination of 661 pieces out of an approximate 2,774, rebar installed, post-tensioning/grouting, and concrete pours). This progress has caught back up to the baseline schedule late finish percentage of 25.9%.

Laboratory Qualification Testing of the High and Low Attenuation Resilient Tie Blocks (RTB) has been completed. There were no apparent issues noted in the preliminary results, but the final report remains to be submitted for LIRR review and approval. Qualification Testing for the Direct Fixation Fasteners (DFF) is scheduled to begin July 28, 2017, and Qualification Testing of the Special Trackwork RTBs is scheduled for August 2017. The twelfth monthly Construction Progress Meeting was held on July 13, 2017. Contact rail materials are being fabricated.

CM014A – Concourse and Facilities Fit-Out Early Work: MTACC reports in its May 2017 report that the forecast cost at completion for CM014A remains \$58,175,904. MTACC continues to report that Substantial Completion will be retroactively declared for, November 1, 2015 from the previous November 15, 2015. The MTACC Project Office has advised the PMOC that this retroactive date is the result of negotiations with the contractor and their bonding company, which have not yet been concluded. Final Completion is now reported as July 24, 2017, from the previous May 24, 2017, although the ESA PMT has not explained how it can accomplish Final Completion without achieving 100% of construction. Cumulative construction progress remained at 94.4% versus 100.0% planned with 0% monthly progress. This has generally remained the same through 2Q2017 and into July 2017.

Construction Progress: The B30 Substation for this project still has not been turned over to the follow-on CM014B contractor. However, as reported in the June 2017 PMOC Monthly Report all tests and repairs have been completed. The contractor submitted the test reports on July 17, 2017 and the reports have been transmitted to ConEd for their review and approval. ConEd is tentatively scheduled to return to the site to “rack in” the repaired breaker in September 2017. This should resolve all final work required to turn the B30 Substation over to the CM014B contractor.

CM014B – Concourse and Facilities Fit-Out: Through June 1, 2017, MTACC reports in its May 2017 report that the forecast cost at completion increased to \$486,178,233 from the previous \$481,818,608. The forecast Substantial Completion date remained June 17, 2019. The contract

continues to be impacted by earlier delays, including late critical structural steel submittals, fabrication, and delivery; late removal of existing unforeseen obstructions by MNR; and issues with the availability of subcontractors to perform finish work in the four (4) Wellways.

The MTACC CCM advised that the contractor is revising the remainder of the recovery schedule, making changes to the most recent logic. The forecast date for substantial completion continues to be extended to June 17, 2019. This date, however, is likely to be further extended. This revised schedule was submitted by the contractor July 21, 2017, and is under review.

Due to the ongoing trackwork at New York Penn Station, Amtrak began running some trains out of the Loop Tracks on the MNR Express Track level in Grand Central Terminal (GCT) on July 10, 2017. This has impacted construction in the Biltmore Room, other entrance work schedules, and previously agreed upon outages on tracks #139 - #142. Amtrak is scheduled to suspend use of GCT and resume this service at New York Penn Station in September 2018.

Actual construction progress for May 2017, was 1.4% versus 1.9% planned. Cumulative progress, as of May 1, 2017, was 36.2% actual versus 70.0% planned.

Construction Progress: Through June 1, 2017, surveying in the concourse continued and will be on-going throughout this contract.

TA Force Account Work – Flagging is ongoing at Tracks #115, #123, and #125 for unloading of work trains.

Milestone #4 (Comm. Closets CC-C3, CC-7, and Room B3265) March 5, 2017; now August 25, 2017 – This milestone was further extended due to FM200 issues and for an increase in the room size for Communications Closet CC-C7. There is a stop work order issued, and a change order is being negotiated. The milestone date could be further extended due to the long MTACC change order process.

Milestone #5 (Completion of 44th St. Ventilation Building), June 4, 2017, now December 13, 2017. The CM014B contractor GCT continues to perform corrective work related to the previous contracts CM004 and CM014A. Installation of the ground floor storefront began. Installation of the fans by the CS179 contractor is scheduled to begin in September 2017. MTACC has decided to allow the storefront installation to proceed and require CS179 to disassemble it later for access.

Milestone #5A (Completion of 48th St. Entrance) November 25, 2016, now October 2, 2017- MTACC is considering transferring some of the scope of this milestone to the upcoming CM015 contract.

Concourse (Madison Yard): Safety walkthroughs take place weekly and housekeeping, dust control, and safety items are addressed on an ongoing daily basis. Tracks #115, #123, and #125 are used for material/equipment/services into and out of the site. Stantec repairs continue throughout and near completion. 3rd 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 with a focus on the East Corridor. Electricians are near completion of Unit Substations #7, #8, #9, and #10 and overhead conduit. Piping continues in the Chiller Plant connect pumps and chillers. Painting of block walls and columns continues throughout Zones #1-#4. Placement of the final concrete slab invert remains approximately 85% complete throughout the Concourse.

Shaft #2: Installation of lighting nears completion.

Shaft #3 (Elevators #1, #2 and Stair 22): Installation of Stair #22 handrails nears completion.

Shaft #4: Installation of hoist beam for stair installation nears completion. The contractor began placement of the slab east of the shaft, installation of CMU at the Access Tunnel and installation of lighting.

Biltmore Connection: Excavation of rock is ongoing at Elevator #22 at the Concourse Level. Conduit/relocations are on hold during the Amtrak presence on the Express Tracks.

Wellways: All 5 of the lower sections of escalators in Wellway #1 have been set. Installations of 2 of the upper “head” sections have been set and are continuing. These sections of the escalator(s) cover the machine room. Wellway #2 structural steel rigging structure and sled tracks installation around the wellway and in the escalator incline is underway. Installation of the glass tile finishes is complete in Wellway #3 and is underway in Wellway #4. Wellway #3 ceiling grid installation is beginning.

Dining Concourse Connection: The overall fit-out is ongoing for the escalator finishes. Installation of the machinery controls is ongoing. Installation of conduit racks continues in the Machine Room.

Elevator T-01: The contractor completed removal of spray fireproofing and application of intumescent paint. Installation of the concrete roof deck in the shaft was completed. Installation of Elevator #14 began.

44th Street Vent Building: Installation of conduit and pulling wire continues at the Roof Level. Pulling branch wire in the 2nd Basement continues. Utility work on the south side of E. 44th St. is complete. Installation of Elevator #12 continues. Completion of the stone façade and storefront closure is underway.

45th Street Cross Passageway (CPW): Installation of Elevator #21 continues. Installation of conduits/racks is ongoing in the Machine Room.

47th Street Cross Passage: At Elevator #13, a Stop Work Order has been directed because the contractor has uncovered unforeseen conditions. The elevator shaft does not extend as far down as expected and is needed to take the elevator down to the Concourse. The contractor is shoring up the existing shaft walls and extending the shaft and the shaft walls.

East 48th St. Entrance: Excavation of rock from the Express Level to the Concourse is ongoing along with cross-bracing. Waterproofing of the walls is complete. Placement of the Plenum slab is complete.

East 50th St. Vent Building: The Vent Building is in full fit-out mode. Work includes installation of outlet wires, pull boxes, light fixtures, fans and ducts.

VM014 –Vertical Circulation Elements (Escalators & Elevators)

Status: Through June 1, 2017, MTACC reports in its May 2017 report that the forecast cost at completion remains \$45,589,023. 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. However, MTACC continues to report that, through May 2017, the contractor has completed 38.8% of the work. The Phase III (installation) portion of the contract is solely dependent on access availability provided by the CM007, CM014B, and upcoming CM015 contracts.

Construction Progress: There are 47 total escalators and 21 total elevators currently in the contract.

New 45th St. Node Entrance: The new conceptual plan for the escalator and elevators has been sent to the contractor for information only. The ESA CCM advised that MTACC is now treating this entrance as a private entrance. The property developer will procure and install the respective escalators and elevators. The VM014 contractor will provide the final design footprint for the units.

Biltmore Room Connection: The contractor's layout drawings have been approved and the ESA CCM has directed that the dimensions on the contract drawings are to be used in fabrication.

Wellways: The last of the escalator sections for Wellway #2 have been delivered to the yard. The only remaining sections are the escalator heads (top sections).

Elevator #10: The issues surrounding installation and maintenance of Elevator #10 remain unresolved. MTACC must provide direction on: a) when the contractor will have access to install the elevator, b) how maintenance of the elevator is to be performed, and c) how the elevator is going to be protected during operations by CM007.

Systems Contracts:

CS084 - Tunnel Systems Package 4 – Traction Power Systems - The information presented for this CS084 contract comes from discussions at a mid-July 2017 Progress Meeting that reviewed contract progress up to July 12, 2017, and from the MTACC's May 2017 ESA Monthly Progress Report (MPR).

Status: In its May 2017 ESA Progress Report (MPR), MTACC reports that the Budget and Forecast for the CS084 contract remained at the \$79,717,772 level previously reported. The Substantial Completion (SC) date for this contract, which had continued to slip during each reporting period, is now June 2020, two months earlier than previously reported. No explanation is given as to what actions were taken to make this adjustment. However, it is unclear to the PMOC if this new June 2020 date takes into account the CS084 contractor's assertions of MTA caused delays resulting from a lack of timely responses to, and approvals of, design submittals. The "Design" section below provides more details regarding these designs. In its May 2017 MPR, MTACC indicates that the 0.2% work progress during May 2017 was significantly below the planned 1.1% amount; and, MTACC reports an actual cumulative progress at 12.0% versus a planned 72.5%. While these numbers are based on actual versus projected costs, not physical construction efforts, the actual versus planned progress numbers indicate that this contract is significantly behind schedule; and, falling further behind schedule on a month-to-month basis. 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 cannot progress until designs are approved; and, 3) the lack of access to substation rooms precludes the contractor from performing construction activities. The contractor continues to indicate that six of seven interim 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. Without an in-depth analysis of the status of the scheduled work activities, it is not possible to determine the status of the progress of physical work on this contract. The PMOC continues to recommend that, in order to make tracking of actual versus planned

progress more useful as a management tool, MTACC and the contractor should consider modifying the MTACC's Progress Curve to reflect the current and projected progression of the contract.

Design Progress: The contractor continued with the transmission of contractual submittals and its design development of the substations. The contractor continues to assert that previous delays in receiving comments back from MTACC on the 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. However, at the July 2017 progress meeting, it was noted that the submittal/comment review period is improving as a result of continued focus by MTACC. 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. MTACC provided revised designs for several previously noted design issues for the Vernon facility (i.e., DC cable routing, floor penetrations to track level, and room beam height issues); however, the contractor indicates that it has several issues with the design modifications that need to be resolved before it can develop estimates to perform the work. The PMOC continues to have concerns about the length of time it is taking to address the various design approval issues.

Construction Progress: The PMOC previously reported that, while the extra L3 electrical service was completed and turned over to the MTA, the MTA had yet to energize two of the LIRR signal huts because there was additional work required. The modification for the completion of the extra L3 Electrical Service work was issued and the contractor is making preparations to start the work. The work will require an electrical service outage of approximately two days to those new signal huts/cases that are already being fed by the original L3 electrical service; and, coordination with LIRR to schedule that outage will be required. Both MTACC and the contractor want to perform the work in August 2017. Other than the contractor performing site surveys and meeting with other contractors on coordination issues, there is no active on-site construction work taking place at this time on the CS084 contract. As previously reported, CS084 work in the Vernon (C05) facility could not begin until water infiltration issues at the facility were resolved by the CS179 contractor; and access to the Traction Power Substation (TPSS) room in this facility has been significantly delayed as a result of the water infiltration issue. In June 2017, the contractor advised that, at the request of MTACC, it performed a turnover inspection of the Traction Power Substation (TPSS) room at the Vernon C05 substation facility. The contractor indicated that, in addition to water infiltration still evident from the hatch area in the C05 TPSS room, there are numerous other significant issues with the TPSS room that precluded it from accepting a turnover of the room. The contractor will be submitting a "Nature of Deficiency" document, describing in detail the identified problems/issues that must be corrected before it accepts responsibility and begins contract work in the C05 TPSS room. One other significant deficiency with the C05 TPSS room was noted last month by the contractor. The floor of the C05 TPSS room is supposed to have a 3/8 inch depression in it to accommodate the installation of di-electric padding under the traction power equipment. The floor was installed by another ESA contractor, and accepted by MTACC, without this 3/8 inch depression. The CS084 contractor advised MTACC that if MTACC wanted the CS084 contractor to provide that depression, it would be "extra" work requiring a contract modification. Previously, MTACC indicated that a transfer of construction work scope from this contract to either the CH058A or the CS179 contract was being considered to address the installation of positive and negative DC traction power cabling for the C08 substation. The CS084

contract calls for this cabling, which is necessary to perform the testing of the C08 substation and the integrated and dynamic testing of all the CS084 substations, to be installed in MTA-provided ductwork between the C08 substation and the track. The contractor's survey of the area revealed that this ductwork is not installed. Further, because procurement efforts on other ESA contracts were delayed, the CS084 contract schedule shows the testing to be performed, and the CS084 contract's Substantial Completion to occur, before the track is installed under any other contract; thus, the consideration to transfer the cable installation and substation testing to another contract that will still be active once the ductwork and track are installed. The PMOC notes that should the "live load" (dynamic) testing of the C08 substation and, consequently, the contractually required integrated live load testing of all the CS084 substations be transferred to another contract, work performance accountability issues could arise if test results are other than satisfactory. As of the mid-July 2017 monthly progress meeting on the CS084 contract, there is no further information on the direction that MTACC will take to resolve this issue. This concern and a recommendation on addressing the concern are noted in Section No. 7 of this report.

CS179 – Systems Package 1 – Facilities Systems: In its May 2017 Monthly Progress Report (MPR), the MTACC notes that the contract Forecast exceeds the current contract Budget, with the Forecast at \$611,367,609, versus a \$606,938,540 Budget. MTACC indicates that this \$4.4M variance is mainly driven by the potential contract modifications for water infiltration mitigation, as well as trough cover procurement and installation efforts. In its May 2017 MPR, MTACC shows a progress curve for the CS179 contract that presents actual contract progress as 50.1% versus a planned 72.0%; numbers that are based on actual versus projected costs, not physical construction efforts. These progress numbers continue to imply that the contract is significantly behind schedule. In its April 2017 MPR, MTACC indicated that the Integrated System Test Plan (ISTP) schedule was approved and included in the contractor's monthly schedule update. However, in the July 2017, monthly progress meeting, no contract schedule was available for review and it was unclear if that ISTP schedule is incorporated yet. Despite the continuing, now 16-month, slippage in the completion of all of the ten Control System designs, the MTA's reported Substantial Completion (SC) date for this contract remains at July 1, 2020; an approximate seven-month delay from the original November 19, 2019, SC date. There is no discussion of any potential delay to the established July 2020 SC date at any of the monthly progress meetings attended by the PMOC. MTACC continues to report that the two remaining required Contract Options (Option Nos. 4 and 5) will be exercised, as scheduled, in 2017. The two previously reported Buy/Ship America issues that pose schedule risks to the successful and timely completion of this contract (HVAC units and video monitor display panels) remain as unresolved items and one additional potential Buy/Ship America issue (public address system speakers) remains under investigation. In May 2017, the FTA requested some cost information related to these HVAC units; and, the MTA provided that information in June 2017. The waiver request letter for the video monitor display panels continues to remain under review by MTA Legal staff with no forecasted completion date for when the MTA Legal staff will complete its review. The other potential Buy/Ship America issue concerns Public Address (PA) system speakers that are no longer manufactured in the United States. An investigation into PA speakers that meet all the specification requirements has not, to this date, found a suitable speaker that will fit in the pre-fabricated mounting fixture being provided by another contractor. The contractor continues to note that 51 of the 64 open Notices of Change (NOCs) are Contractor Proposal Requests (CPRs) that it has responded to remain in an open status. The lack of closure on many of these CPRs is causing serious delays on contract work, particularly finalization of designs. MTACC

acknowledges that the response time on many submittals and RFIs exceeded the 30-day turn-around time period stipulated in the contract; and, indicates that responses to submittals and RFIs, and the closure of open CPRs will receive increased attention with the addition of GEC design review staff.

Design Progress: In its May 2017 MPR, MTACC asserts that all ten of the Control System final designs are approved. The PMOC questions the validity of this assertion, as in the recent CS179 Monthly Progress meeting that discussed work through the end of July 2017, both the contractor and MTACC acknowledged that the final design review meeting for the CCTV and SMS Control System had yet to occur because the final design is incomplete. Further, the contractor indicates that the final designs for several other Control Systems are incomplete, awaiting responses from the MTA on design questions. It is the PMOC's opinion that completion of the 10 Control System final designs has yet to be achieved; and is, as of the end of July 2017, 16 months late. In June 2017, MTACC advised that it sent forms for the SMM and AMS Control Systems to the LIRR that, once signed by the LIRR, would formally acknowledge the LIRR's approval of the final designs of these two systems. As of the end of July 2017, the execution and return of these approval forms remains as an open item. Further, the PMOC continues to note that, as of the end of July 2017, the LIRR has not provided any "formal" notification to MTACC that any of the Control System final designs are "accepted" or "approved". The risk here continues to be that if the LIRR, for whatever reason, does not approve any specific Control System's final design, any equipment already procured for that particular Control System might need to be replaced to meet the LIRR requirements. The PMOC remains concerned about the LIRR's approval of the designs, and it will continue to follow this important aspect of the design process. The contractor is also responsible for the design, installation, and testing of 19 "Non-Control" systems. In its previous Monthly Progress Reports (MPRs), MTACC noted that the contractor's progress on several of these non-control system designs was falling behind schedule and would cause delays to the fabrication of equipment racks. MTACC makes no mention of the status of these 19 Non-Control Systems in its May 2017 MPR; and, because no updated schedule showing the status of these systems' designs was available at the most recent Monthly Progress meeting for discussion or comparison to a baseline schedule, it is unclear as to what impact, if any, there might be on the continued fabrication of equipment racks.

Construction Progress: During July 2017, the CS179 contractor continued various elements of work (installation of conduit, cable, fire stopping, fire standpipe, lighting, etc.) in the tunnels and at the various substation facilities. As noted in previous PMOC reports, numerous water infiltration issues at various facilities have severely impacted the progression of work on this and another Systems' contract. Water infiltration remediation work was performed at the Vernon, 23rd St., and 29th St. facilities. MTACC reported that, as of the end of May 2017, the water infiltration related to the floor of the TPSS room at the Vernon facility was successfully mitigated. This TPSS room still had water infiltration issues from a leaky access hatch; but, the mitigation of the water infiltration through the floor slab should, per MTACC, have enabled the CS084 contractor to begin some of its contract work in the room. The CS084 contractor inspected the room and found numerous deficiencies, including continuing water infiltration, that it contends preclude it from entering the room to perform CS084 contract work. Initially, the remediation work for the 23rd and 29th Street facilities appeared to be effective. However, new water infiltration areas in the 23rd Street and 29th Street facilities are apparent. As previously reported, the subcontractor responsible for system designs and equipment fabrication, assembly, and testing advised that it continues to

move forward on the procurement of Control Systems equipment based on the Control System final designs presented at the various Final Design Review (FDR) meetings. As a result, assembly of equipment racks in the subcontractor's off-site facility continues. Currently, there are a number of Stop Work Orders (SWOs) on this contract; and, the PMOC has requested a listing of those SWOs, along with a status of when the SWOs will be rescinded.

Contract VS086, Systems Package 3, Signal Equipment Procurement: The information presented below for the VS086 contract comes from discussions at a mid-July 2017 progress meeting that reviewed contract progress up to July 20, 2017, and from the MTACC's May 2017 ESA Monthly Progress Report (MPR). In its May 2017 MPR, MTACC indicates a Forecast cost of \$22,035,060 and Budget of \$21,835,022 for this contract. MTACC is now showing an October 14, 2019, SC date, one month earlier than the November 2019 shown in its previous MPR. The contractor's latest schedule update shows the five interim contract milestones delayed anywhere from 398 to 557 days. The MTACC advised that a contract modification changing the interim milestones is ready for signature by the contractor. Once executed, this contract modification will establish the re-baselined interim contract milestones. However, as it did in previous reports, the PMOC notes that there are several other significant issues, ones that could potentially impact the contract completion date, that are not included in the modified contract milestones. While the re-baselined schedule can be theoretically used by MTACC to more effectively manage the contract, the absence of activities that have the potential to further impact the contract schedule results in an incomplete schedule and a diminished ability for effective managerial control by MTACC.

Design Progress: As has been observed on other ESA Systems contracts being managed by MTACC, 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. During 2Q2017, the contractor shifted some of its design personnel to other non-ESA projects. The contractor contends that this was done as a direct result of not receiving timely responses on design issues from the MTA. While this action purportedly kept the contractor's design personnel gainfully employed, it resulted in additional delays in the completion of designs on the VS086 contract. The contractor continues to indicate that the design of the Plaza Interlocking Central Instrument Room (CIR) is a critical design that needs to be completed without delay and that there are several other design issues that required a resolution or direction from the MTA. As previously reported, the LIRR requested that the contractor replace the incandescent lights in the tunnel signal units with Light Emitting Diodes (LEDs); a change to designs already underway. To begin addressing this request, MTACC developed a discussion paper identifying several issues related to this replacement and sent it to the LIRR for review in May 2017. The contractor has based its design on the use of standard incandescent bulbs in the tunnel signal lighting units and a decision requiring the use of LED lighting for the tunnel signal lighting will require re-design efforts. The LIRR has yet to issue a corporate decision regarding which type of lighting will be required. The PMOC previously reported that another different type of track circuit equipment was proposed to conform to FRA standards. This type of track circuit equipment, designated as TRU-III, has not been used before on the LIRR and the LIRR indicated that, before it could approve the use of this type of track circuit equipment, it needed to ensure that it worked properly and seamlessly on its right of way (ROW). To accommodate these approval requirements, the contractor provided the LIRR with some of the TRU-III equipment. The LIRR was to use that equipment to perform a bench test and then field test the equipment by installing the equipment on its ROW for some undetermined

amount of time before deciding on its acceptability for LIRR use. At the June 2017 progress meeting, the LIRR advised that field testing of this equipment was underway and would last for a minimum of six months. Once the results of the field testing are analyzed, the LIRR will make a decision regarding the use of this type of track circuit equipment on this contract. A date for reaching a decision about the use of this type circuit remains undetermined; and, even though it could pose a significant risk to the timely completion of the VS086 contract, this entire activity is not incorporated into any VS086 contract schedule. Further, there are several other design issues that require a timely resolution or direction from the MTA, the most significant being the inclusion of a Positive Train Control (PTC) design in the overall Signal design. While a Memorandum of Understanding (MOU) between the LIRR and MTACC has been established to address administrative elements of the incorporation and implementation of this work, the technical requirements that need to be incorporated into various ESA Systems are included in the “Technical Concurrence Document” that is currently in review and needs to be agreed upon by all parties. In its April 2017 ESA Progress Report, MTACC indicated that, if the current direction (not specified) was changed per the MOU, it would impact the design, equipment, and schedule of the VS086 contract. The contractor also notes that there are many of open change orders that could impact the contract schedule. While MTACC expressed the opinion that the upcoming contract milestone re-adjustment modification should address most of the issues identified in the open change orders, the contractor contends that there are still numerous decisions related to the change orders that must still be addressed.

Queens Contracts:

CQ032 – Plaza Substation and Queens Structures: As of June 1, 2017, MTACC reported that the Forecast at Completion for CQ032 decreased slightly to \$263,176,200. MTACC reports the Forecast for Substantial Completion (SC) remained June 16, 2017. ESA reported SC was not achieved, and now forecasts this to occur in September 2017. Actual construction progress for May 2017 remained 0.0% versus 0.0% planned. Cumulative progress through June 1, 2017, remained 99.0% actual versus 100.0% planned.

Construction Progress: During July 2017, the CQ032 contractor continued punch list work and commissioning activity in the Yard Services Building (YSB), and the preparation of close-out deliverables. ESA reported that SC remains dependent on these items: O&M Manuals, training, NCR resolution, etc. ESA also reported that another remediation effort is being planned to deal with the ongoing water infiltration at the previously designated Early Access Chamber (EAC) and TBM Launch Block areas. ESA continued negotiation/contract modifications for work items to be deleted and/or transferred to contracts CS179 and CQ033.

CQ033 – Mid-Day Storage Yard Facility: MTACC’s Forecast at Completion for CQ033 remained at \$291,503,430 during July 2017. The MTACC Forecast for Substantial Completion remained at August 10, 2020. MTACC has not established a progress curve for CQ033 yet, so no monthly or cumulative progress is available.

Construction Progress: During July 2017, the CQ033 contractor began installation of caissons for Midday Storage Yard (MDSY) lighting, began excavation of a six foot deep perimeter trench to locate underground utilities, and continued to mobilize and prepare submittals and permit applications.

Harold Interlocking Contracts:

CH057 – Harold Structures Part III: MTACC’s Forecast at Completion for the CH057 contract decreased again during May 2017 to \$87,214,332 due to continued scope deletions. ESA declared Substantial Completion for the CH057 contract on June 30, 2017, and the contractor continues with punchlist repairs. Actual construction progress for May 2017 was 3.2% versus 1.9% planned. Cumulative progress through May 31, 2017, was 86.9% actual versus 90.6% (based on cost incurred rather than construction progress).

Construction Progress: During July 2017, the CH057 contractor completed surfacing and lining the new LIRR ML4 Track between approximately 46th St. and the #4178 crossover in Harold Interlocking (although it will be several months before the final cuts and throws will be made to put ML4 Track in service), continued punchlist activities including Tunnel D headhouse door and railing installation, hand rail installations at the 39-S6 and 48-S2 retaining walls, and miscellaneous electrical work throughout the contract jobsites.

CH057A – Part 3 Westbound Bypass: MTACC’s Forecast at Completion for the CH057A contract increased slightly during May 2017 to \$162,887,186 due to execution of contract modifications. The MTACC forecast for Substantial Completion was extended by one month to September 24, 2018. Actual construction progress for May 2017 was 0.9% versus 4.8% planned. Cumulative construction progress through May 31, 2017, was 52.8% actual versus 78.2% planned (base on cost incurred rather than actual construction).

Construction Progress: During July 2017, the CH057A contractor continued construction of the walkway in the West Approach Structure of the Westbound Bypass and continued installation of lagging in the East Approach Structure.

The PMOC notes that the ESA-PMT issued a letter to the contractor on July 18, 2017, advising that ESA completed its analysis of the contractor’s contentions concerning the “summer slab” (track slab constructed in 2013) and differing site conditions and found that the slab is “fit for purpose” and the site is as stated in the contract geotechnical report. As such, the PMT ordered the contractor to resume Westbound Bypass Tunnel mining within 10 days (July 28, 2017). As of July 31, 2017, however, ESA extended this deadline until at least August 11, 2017, to provide senior management from both ESA and the contractor additional time to discuss options for resumption of mining.

CH061A – Track A Cut and Cover Structure: MTACC’s Forecast at Completion for the CH061A contract remained at \$41,981,972 during May 2017. The MTACC forecast for Substantial Completion remained at May 28, 2018. MTACC has not developed the progress curve for CH061A yet, so no monthly reporting of cumulative construction progress data has been developed.

Construction Progress: During July 2017, the CH061A contractor continued to excavate the west end of the Tunnel A Approach Structure (and uncovered the Tunnel A portal in the process), completed underpinning the 39th St. bridge, continued excavation, lagging, and support of excavation (SOE) immediately west of the 39th St. overhead bridge, and began to install secant piles under 39th St. bridge.

Railroad Force Account Contracts:

FHA01 – Harold Stage 1 Amtrak: MTACC’s Forecast at Completion for FHA01 remained at \$18,824,861 during May 2017. The MTACC forecast for Substantial Completion was extended by almost 10 months to June 9, 2018. Actual construction for May 2017 was 0.0% versus 0.0% planned. Cumulative progress through May 31, 2017, was 98.8% versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: Amtrak did not perform any significant FHA01 construction during July 2017.

FHA02 – Harold Stage 2 Amtrak: MTACC’s Forecast at Completion for FHA02 remained at \$66,440,848 during May 2017. The MTACC forecast for Substantial Completion was extended by 5 weeks to June 24, 2018. Actual construction progress for May 2017 was 0.7% versus 0.0% planned. Cumulative progress through May 31, 2017, was 87.9% actual versus 81.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During July 2017, Amtrak Electric Traction personnel completed catenary construction over the #825 crossover in “F” Interlocking and began catenary reconfiguration to support the CQ033 contractor’s demolition of the Montauk Cutoff Bridge.

FQA65 – Loop Interlocking Amtrak: MTACC’s Forecast at Completion for FQA65 remained at \$33,287,863 during May 2017. The MTACC forecast for Substantial Completion remained at July 15, 2023. Actual construction progress for May 2017 was 0.0% versus 1.5% planned. Cumulative Progress through May 31, 2017, was 19.1% actual versus 85.6% planned (based on cost incurred rather than actual construction). The PMOC is not concerned about this large discrepancy due the current forecast Substantial Completion date.

Construction Progress: During July 2017, Amtrak did not perform any significant FQA65 construction.

FHL01 – Harold Stage 1 LIRR: MTACC’s Forecast at Completion for FHL01 remained at \$24,379,364 during May 2017. The MTACC forecast for Substantial Completion was extended by 5 months to March 19, 2018. Actual construction progress for May 2017 was 1.9% versus 0.0% planned. Cumulative progress through May 31, 2017, was 97.7% actual versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During July 2017, LIRR Third Rail personnel completed installation of 3rd Rail on the newly realigned ML2 Track and the #6167/#6176 diamond crossovers at 48th St. in Harold Interlocking.

FHL02 – Harold Stage 2 LIRR: MTACC’s Forecast at Completion for FHL02 remained at \$84,417,099 during May 2017. The MTACC forecast for Substantial Completion remained at July 1, 2020. Actual construction progress for May 2017 was 3.9% versus 0.0% planned. Cumulative progress through May 31, 2017, was 98.7% versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During July 2017, LIRR Signal personnel continued TSR (Train and Signal Route) testing at the new “H1”, “H2”, “H5”, and “H6” CILs and between Harold Tower and new Location 30, continued to make 904 (GEC designation) signal revisions at Location 30, and continued to install signal cable at “H2” CIL. LIRR Third Rail personnel continued intermittent installation of 3rd rail conduits under the main line tracks and which connect to the new G02 Substation. LIRR Track personnel completed the cuts and throws of the new ML2 Track

into the existing ML2 Track at 48th St. in Harold Interlocking and placed the newly re-aligned ML2 Track in service.

d. Quarterly Quality Oversights (QOQs)

The 1Q2017 QOQs were performed in April and May 2017. All of the resulting reports have been issued, and the contractors were advised of their respective audit results and findings prior to formal issuance of the reports. The Reports follow the new Quality Audit format, which combines the QOQ's element-based approach with a task and process-based approach. The PMOC reviewed an earlier Report using the new format in 1Q2017 and believes that the new format adequately assesses contractor quality implementation. Table 1-1 provides a summary of the Quality Audit results.

Table 1-1 – 1Q2017 Quality Audit Results

Contract	Score
CH057	92%
CH057A	93.6%
CH061A	(Not scored – Mobilization Audit)
CM006	91.3%
CM007	97.1%
CM014B	91%
CQ032	(Not scored – Close-Out Audit)
CS179	88%

Nonconformance Reports (NCRs): Table 1-2, below, provides a summary of NCR status on the major active contracts for ESA, as per the latest available contractor NCR logs. It lists total NCRs for each contract, broken down into closed NCRs, NCRs open for less than 90 days, and NCRs open for over 90 days. The table includes data for most active construction contracts over the past four quarters.

Table 1-2– NCR Aging Summary

Contract	Period	3Q2016	4Q2016	1Q2017	2Q2017
CM007	< 90 days Open	N/A	2	7	17
	> 90 days Open	N/A	N/A	1	2
	Total Open	N/A	2	8	19
	Total Closed	N/A	0	2	3
	Total NCRs	N/A	2	10	22
CM014B	< 90 days Open	0	0	0	3
	> 90 days Open	2	7	8	5
	Total Open	2	7	8	8
	Total Closed	15	19	18	22
	Total NCRs	17	26	26	30
CQ032	< 90 days Open	3	5	3	0
	> 90 days Open	1	1	5	15
	Total Open	4	6	8	15
	Total Closed	92	94	95	96
	Total NCRs	96	100	103	110
CH053	< 90 days Open	0	0	0	0
	> 90 days Open	1	0	0	0
	Total Open	1	0	0	0
	Total Closed	90	91	91	94
	Total NCRs	91	91	91	94
CH057	< 90 days Open	7	5	6	0
	> 90 days Open	4	0	1	6
	Total Open	11	5	7	6
	Total Closed	0	11	15	18
	Total NCRs	11	16	22	24
CH057A	< 90 days Open	7	1	1	1
	> 90 days Open	3	3	3	2
	Total Open	4	4	4	3
	Total Closed	10	13	13	16
	Total NCRs	14	17	17	19
CS179	< 90 days Open	9	4	0	3
	> 90 days Open	7	13	15	12
	Total Open	16	17	15	15
	Total Closed	15	18	20	24
	Total NCRs	31	35	35	39
CS084	< 90 days Open	0	0	0	0
	> 90 days Open	0	0	0	0
	Total Open	0	0	0	0
	Total Closed	0	0	0	0
	Total NCRs	0	0	0	0

During the balance of 3Q2017, the PMOC plans to review the open NCRs and follow up with ESA Quality Management staff on remaining issues and resolution status.

2.0 SCHEDULE DATA

Status and Schedule Contingency:

This report is based on the submitted ESA Integrated Project Schedule (IPS) file entitled “BR09-UPDT92-04-2017-FINAL” with a data date of June 1, 2017 (June 1, 2017 IPS), and its associated IPS Progress Report. The June 1, 2017 IPS reported no change to the Target and Late Revenue Service Dates (RSDs), which are forecasted to occur on February 11, 2021, and December 13, 2022, respectively.



Program Critical Path-Harold Interlocking:

ESA reported in its June 1, 2017 IPS that the Program critical path remains running through work in Harold Interlocking to reach the Target RSD of February 11, 2021.

Over the

update period, the controlling critical work reported at Harold was the H1/H2/H5/H6/30 TSR Pre-cutover testing, part of the CIL pre-cutover process. Table 2.2, below, shows the current IPS critical path of work through Harold contracts and has not changed significantly since the previous update. The progress made through the update period and any major changes made to the IPS are described in further detail below the table:

Table 2-2: June 1, 2017 IPS Critical Path

Contract & General Activities	Duration (CDs)	Start	Finish
FHL02: CIL Cutovers Pre-Testing and Cutovers	353	1-Jun-17	20-May-18
CH057D/FHL03/FHL04: NE Quadrant Preparatory Work, Outage, and B/C Approach Preparatory Work, Switch Work	160	21-May-18	28-Oct-18
FHL02: Retire Harold CIL	28	29-Oct-18	26-Nov-18
CH058A: Track B/C Approach Work & Catenary Structures	634	26-Nov-18	21-Aug-20
FHL04: Testing & Cutover of 4C	49	24-Aug-20	12-Oct-20
Train Contract Staffs LIRR Prior to 3 Months Period	29	15-Oct-20	13-Nov-20
LIRR 3 Month Period	89	14-Nov-20	11-Feb-21
Target Revenue Service Date			11-Feb-21
Late Revenue Service Date			13-Dec-22

Discussion of Progress along the Critical Path:

The June 1, 2017 IPS update reported that the FHL02-CSR1230: H1/H2/H5/H6/30 TSR Pre-cutover testing is the first activity on the Harold critical path. FHL02-CSR1230 was reported to have begun on April 29, 2017, and as of June 1, 2017, was expected to be complete on July 28, 2017. When FHL02-CSR1230 began on April 29, 2017, it was expected to be complete on May 19, 2017. Based on this, FHL02-CSR1230, and the ESA Program's critical path, has experienced a 70 calendar-day delay. It should also be noted that the description for this activity changed over the update period, with H1/H2 being added, and the original duration was changed from 14 to 40. This critical delay has been absorbed by schedule revisions to the remaining activities in the CIL pre-cutover testing sequence, as described below.

Discussion of Changes to the Critical Path:

The critical path leading to the H1/H2/H5/H6/30 CIL cutovers at Harold planned in May 2018, consisting of pre-testing activities [REDACTED] changed slightly over the update period. In the May 1, 2017, IPS update, the work was planned as follows:

Activity ID	Activity Name	Current Duration	Start	Finish	Total Float
FHL02-CSR1230	H5/H6/30 TSR Pre-cutover testing	14	29-Apr-17	19-May-17	-10
CH054A-2620	CH054A Install 700KW Emergency Generator - H4 (#9)	1	01-May-17	01-May-17	-10
FHL02-CSR1240	H5/H6/30 South Pre-Cutover Testing	50	22-May-17	31-Jul-17	-10
FHL02-CSR1250	H1/H2/H5/H6 TSR Testing	10	01-Aug-17	14-Aug-17	-10
FHL02-CSR1260	H1/H2/30 TSR Testing	40	15-Aug-17	10-Oct-17	-10
FHL02-CSR1270	H1/H2/30 North Pre-Cutover Testing	80	11-Oct-17	02-Feb-18	-10
FHL02-CSR1280	Days Lost/Weekend Work	50	05-Feb-18	13-Apr-18	-10
FHL02-CSR1290	Pretesting/Cutover Float	15	16-Apr-18	04-May-18	-10
FHL0266330	Cutover (2GHI): H5 / H6 / Loc 30 CIL + 6156, 6176, 6167 + ML4 Cut &	2	05-May-18	06-May-18	-4
FHL02-CSR1170	Pre-testing for H1/H2 2J	10	07-May-18	18-May-18	-10
FHL0207260	Cutover 2J: H1/ H2 / Loc 30 CIL	2	19-May-18	20-May-18	-2

In the current update, the June 1, 2017 IPS, the work is planned as follows:

Activity ID	Activity Name	Current Duration	Start	Finish	Total Float
FHL02-CSR1230	H1/H2/H5/H6/30 TSR Pre-cutover testing	40	29-Apr-17	28-Jul-17	-9
CH054A-2620	CH054A Install 700KW Emergency Generator - H4 (#9)	1	01-Jun-17	01-Jun-17	-9
FHL02-CSR1240	H5/H6/30 South Pre-Cutover Testing	50	31-Jul-17	09-Oct-17	-9
FHL02-CSR1270	H1/H2/30 North Pre-Cutover Testing	80	10-Oct-17	01-Feb-18	-9
FHL02-CSR1280	Days Lost/Weekend Work	50	02-Feb-18	12-Apr-18	-9
FHL02-CSR1290	Pretesting/Cutover Float	15	13-Apr-18	03-May-18	-9
FHL0266330	Cutover (2GHI): H5 / H6 / Loc 30 CIL + 6156, 6176, 6167 + ML4 Cut &	2	05-May-18	06-May-18	-4
FHL02-CSR1170	Pre-testing for H1/H2 2J	10	07-May-18	18-May-18	-10
FHL0207260	Cutover 2J: H1/ H2 / Loc 30 CIL	2	19-May-18	20-May-18	-2

As shown above:

- The Activity Name was revised for controlling critical activity FHL02-CSR1230: H1/H2/H5/H6/30 TSR Pre-cutover testing, with it previously being H5/H6/30 TSR Pre-cutover testing.
- The Duration was revised for controlling critical activity FHL02-CSR1230: H1/H2/H5/H6/30 TSR Pre-cutover testing from 14 to 40 days.
- The forecasted Finish date for this activity changed from May 19, 2017 to July 29, 2017.
- Activities FHL02-CSR1250: H1/H2/H5/H6 TSR Testing and FHL02-CSR1260: H1/H2/30 TSR Testing, with durations of 10 and 40 days, respectively, are no longer on the critical path.
- Based on the above, the net result of these changes kept the forecasted completion of testing work unchanged at February 1, 2018.
- There was no change to the durations of FHL02-CSR1280: Days Lost/Weekend Work (50 days), FHL02-CSR1290: Pretesting/Cutover Float (15 days), or any of the remaining activities along the path.

The narrative report for the June 1, 2017 IPS makes the following comment on the changes:

- Furthermore, the Track and Signal Route (TSR) Testing for H1/H2 CILs (FHL02-CSR1230) and H5/H6/30Loc CILs (FHL02-CSR1260) were combined, putting the start of TSR Testing for H1/H2 CILs ahead of H5/H6/30Loc Pre-testing (FHL02-CSR1240). This change does not impact the CIL Cutover dates in May 2018.

ESA also noted the following regarding the planned weekend outages for 2017:

- The pre-cutover priority weekends, which were scheduled to begin in July 2017 and are not critical or near-critical, were re-scheduled to begin in September 2017, due to unavailability of track outages during the New York Penn Station trackwork replacement by Amtrak. While this increases the risk to the CIL Cutover in May 2018, it does not yet delay the activity.

90-Day Look-Ahead of Program Critical Milestones:

Table 2-3, below, shows the Program-critical dates in the IPS forecasted to occur within the next 90 days, as reported in the June 1, 2017 IPS. All activities within the critical Harold H1/H2/H5/H6/Loc30 CIL Cutover sequence, as defined in the IPS, are being monitored for progress.

Table 2-3: Program Critical Dates 90 Day Look-Ahead (from ESA June 1, 2017 IPS)

Activity ID	Activity Name	Start	Finish	Total Float
FHL02: Harold Amtrak and LIRR Force Account				
FHL02-CSR1230	H1/H2/H5/H6/30 TSR Pre-cutover testing	29-Apr-17 A	28-Jul-17	-9
FHL02-CSR1240	H5/H6/30 South Pre-cutover Testing	31-Jul-17	9-Oct-17	-9

Sub Program Longest Path – Queens:

ESA reported no change in the amount of float this path of work has relative to the Target RSD over the update period. The Queens path of work runs through CQ033: Mid-Day Storage Yard Facility (MDSY). The Notice of Award and the Notice to Proceed for CQ033 Midday Storage Yard was granted on April 11, 2017, with a contractual Substantial Completion date of August 9, 2020. The longest path for the CQ033 contract continues to run through VQ033 CIL procurement, to fabrication, FAT (Factory Acceptance Testing), delivery, and installation of the 8 MDSY CILs, to CQ033 local and integrated testing, to substantial completion, forecasted to occur on August 9, 2020.

Sub Program Longest Path – Manhattan/Systems:

The June 1, 2017 IPS Report notes that logic between CM007 and CS084 was changed to soften the restraint that all track work in CM007 had to be complete in order for CS084 to begin installation of its third rail systems to the track. The Report states that this was done to mitigate delays related to the Resilient Tie Block (RTB) approval. It should be noted that the revisions are stated to allow CM007 Milestone 4: Track and Third Rail Work Complete to be achieved while there is still another month of planned CM007 work in the tunnels. ESA notes that this represents

a “more realistic approach to the CS084 third rail connection work and increased the program float on this path from 70 to 113 calendar days.”

As a result of these changes, the longest path of Manhattan/Systems changed over the update period; however, the float this work has relative to the Target RSD remained unchanged at 105 calendar days. The longest path for Manhattan/Systems ran through CM007 and CS084 in the previous update, and currently runs through CM014B and CS179.

ESA also noted that the approved CS179 Integrated Systems Testing (IST) schedule was added into the June 1, 2017 IPS. The summary level activity for IST that was previously carried in the IPS was replaced with 20 activities.

Upcoming Contract Procurements:

Table 2-4, below, shows the status of current and upcoming Contract procurements, as reported in the June 1, 2017 IPS Progress Report, with a discussion of any changes below the table.

Table 2-4: Future Procurement Schedule

Contract Description	Advertise Date	Bid Date	NTP	Project Period	Substantial Completion
CM015 48th Street Entrance**	TBD	TBD	8/22/2017*	TBD	5/22/2020*
CS086 Systems Package 2: Signal Installation	TBD	TBD	9/14/2017*	TBD	7/01/2020
CH058A: B/C Tunnel	12/6/2017	4/17/2018	6/12/2018	26 Months	8/21/2020
CH057D: Harold Trackwork	10/25/2017	1/25/2018	2/26/2018	15 Months	6/2/2019

*The table in the June 1, 2017 IPS Report shows these values as “TBD.” The dates above were taken from the IPS schedule file itself.

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

The procurement process for CM015: 48th Street Entrance continue to be on hold. The June 1, 2017 IPS Report notes ongoing discussions with Rudin regarding zoning changes. The forecasted NTP date of August 22, 2017, for CM015 has not changed over the update period. The forecasted procurement period duration, however, was decreased from 55 days to 32 days, absorbing the forecasted delay to the start of this process.

Compounding these issues, the PMT notified that as of June 2017, the design work

for CM015 has been suspended, pending MTACC management decisions regarding the additional scope requested by the building owner.

The procurement process for CS086: Systems Package 2: Signal Installation also continues to be delayed. As of the date of this report, the PMOC was informed that the current procurement schedule has been finalized and includes advertisement of bid in August 2017. It is unclear at this time what impact the delay will have on the overall CS086 schedule, but once known, the PMOC will report on any changes and resulting impacts. The IPS shows NTP expected on September 14, 2017, one month later than shown in the previous month's IPS update. The IPS continues to show Substantial Completion for CS086 for July 1, 2020.

The forecasted procurement dates for CH058A: B/C Tunnel and CH057D: Harold Trackwork, all remained unchanged over the IPS update period.

PMOC Concerns:

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

1. The PMOC is concerned about the tightened interface between the forecasted Substantial Completion date of CQ033 and CS179's critical Integrated Systems Testing (IST). Currently, CQ033's Substantial Completion is forecasted for August 8, 2020 (delayed from July 23, 2020 in the last IPS update), while the completion of CS179 IST is scheduled for April 9, 2020, with the completion of Automatic Temperature Control IST [REDACTED]. [REDACTED] ESA has stated that once the CQ033 baseline schedule is developed and approved, and the CS179 IST schedule is finalized and approved, it will have more information regarding the interface between what needs to be completed on CQ033 in order to not delay CS179 IST and impact the Program (continuing concern). The June 1, 2017 IPS notes that a baseline schedule was submitted on June 12, 2017, but was rejected as incomplete. A revised schedule is planned to be submitted by the end of June 2017. While new details in the IPS for the IST sequence were provided, it is not clear yet how IST relates to CQ033 interfaces and whether or not those interfaces are realistic. Previously, there was a three week delay between the completion of IST and the substantial completion of CQ033 (July 1 to July 23, 2020). Currently, there is a four-month delay between the same milestones, not including the IST schedule contingency (April 9 to August 8, 2020). The PMOC is concerned that the gap between these important milestones is growing and not decreasing.
2. The June 1, 2017 IPS Report notes a delay to the planned 2017 priority weekend track outages needed at Harold in preparation of May 2018 CIL cutovers. Previously, eight outages were planned to occur over July, August, and September 2017, while currently six outages are planned to occur over September and October 2017. ESA noted that this is a risk, but has not yet impacted the critical May 2018 cutover date. The PMOC is concerned about anything on this sequence of work being delayed, as it currently controls the ESA Program's Target RSD. ESA has indicated that it believes these outages will occur as planned and not impact the May 2018 cutover date, and the PMOC will continue to track this critical work.
3. The PMOC is also concerned about the revision to the critical pre-cutover testing sequence at Harold for H1/H2/H5/H6/30 CILs. The change absorbed approximately

60 days of duration within the IPS, with little comment made in the IPS Report narrative. Three activities were combined into one, which is currently in progress and has been since April 27, 2017. The PMOC's concern continues to be that revisions to Program-critical work, especially work that is currently in progress, is important to understand. Without proper explanation of the changes, the basis of the changes, and the reasoning behind the changes, it is difficult to track the progress and evaluate any impact on the Program and whether the IPS is an accurate representation of the work.

4. The PMOC continues to be concerned over the delays to CM007 related to the RTB issue. This has pushed forecasted track installation under CM007 out later than previously planned and is impacting follow-on CS084 work and may continue to deplete the float the Manhattan/Systems path has within the ESA program. This has caused ESA and the CM007 contractor to investigate a revised track installation sequence in order to attempt to mitigate these delays in the schedule. However, the PMOC notes that separate issues can arise from planning for concurrent work such as CM007 and CS084 in tight spaces such as the tunnels. Reduced productivity due to stacked contractors and trades have the potential to cause further delays to the work. [REDACTED]
5. Complicating and potentially causing an increase to the impact from the forecasted delays to CM007 track work, are the ongoing delays internal to CS084 itself. The June 1, 2017 IPS reports that CS084 is currently at 12% complete compared to a plan of 72% complete. Very little progress was made over the previous few IPS updates and ESA has stated that it hopes to achieve an improved fabrication schedule once all equipment is approved. This may take a long time, as the May 1, 2017 IPS projects the last piece of major equipment submittal to be approved on April 30, 2018 (CO3: 55th Street – various equipment submittals). The PMOC recommends ESA work with CS084 to detail a fabrication schedule for equipment as soon as possible with the intent to improve the fabrication and delivery dates to act as a schedule contingency for the installation work. However, the PMOC is concerned that the CM084 contractor will not be able to achieve any substantial schedule recovery. The resulting delay to the forecast Substantial Completion may now be controlling the Manhattan/Systems schedule path. [REDACTED]
6. The procurement process for CM015: 48th Street Entrance continues to be on hold, pending negotiations with Rudin about the impact of zoning changes at 415 Madison. [REDACTED]

[REDACTED]

As of June 2017, the design work for CM015 was also suspended, adding further delay to this contract. Once decisions are made by MTACC management, a better understanding of whether additional scope will impact the design, procurement, and construction schedule related to this contract can be determined.

7. The procurement process for CS086: Systems Package 2: Signal Installation also continues to be on hold. The forecasted NTP date has moved back one month over the IPS update period to show as September 14, 2017, in the June 1, 2017, IPS.
- [REDACTED]

3.0 COST DATA

Funding: In prior months, MTACC had indicated that it would request further amendments to the MTA Capital Plans (both 2010–2014 and 2015–2019) to fund forecast cost overruns for Owner Controlled Insurance Program (OCIP) and Force Account support as well as additional costs for project scope additions. As of July 2017, the MTACC set aside that plan and is investigating ways to utilize existing funds until the 2020–2024 Capital Plan is in place. [REDACTED]

[REDACTED] The PMOC is concerned that a funding delay could potentially create a funding gap that could impact the program. The PMOC will review the MTACC's plans as soon as they are made available.

Budget/Cost: MTACC reported in its May 2017 Monthly Progress Report that the actual total project progress was 70.8% versus 74.8% planned against the Current Baseline Budget (CBB) of \$10.178 billion. Total actual construction progress was 70.3% complete versus 75.8% planned based on the total invoiced amount of construction. Details of the project budget and expenditures are shown in Appendix B, Tables 2 and 3. Through May 2017, the actual cumulative construction amount invoiced since the project start is 70.3% of the 2014 re-baselined cost plan. As shown in Table 3-1, the divergence between plan and actual spending is increasing, suggesting a worsening trend. The PMOC is concerned that the continued inability to achieve the construction spending plan may impact ESA's ability to achieve its Target Revenue Service Date in the first quarter of 2021. This spending trend and future projections are shown in Tables 3-1 and 3-2.

Table 3-1: Planned vs Actual Construction Cash Flow

The "planned" cost curve shows the construction cash flow as planned by ESA at the time of the 2014 re-baselining to achieve the first quarter 2021 Target Revenue Service Date. The "actual" cost curve shows construction spending as reported by ESA, through the second quarter of 2017. The vertical axis is shown in millions, starting at zero at the time of the re-baselining. The horizontal axis begins at that time of re-baselining and extends to the Target Revenue Service Date.

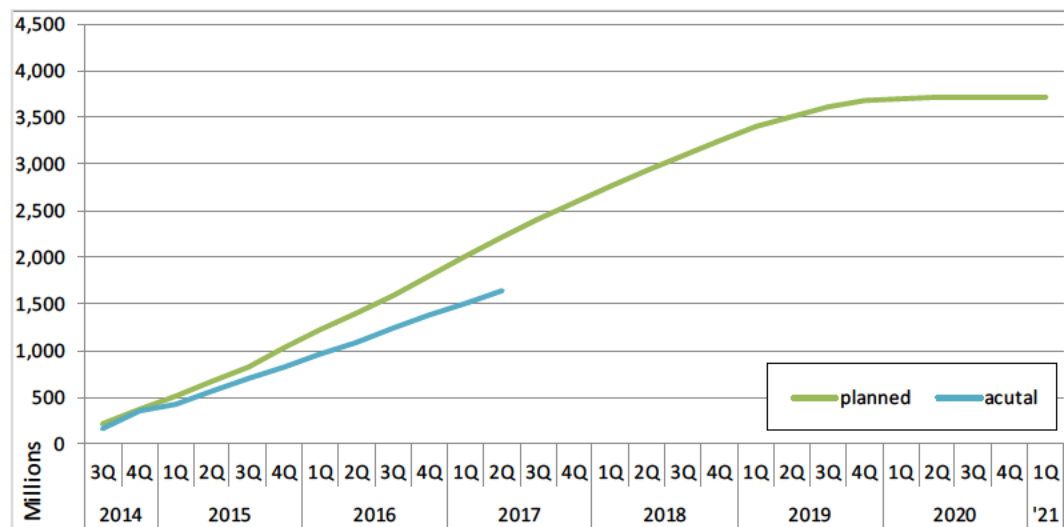
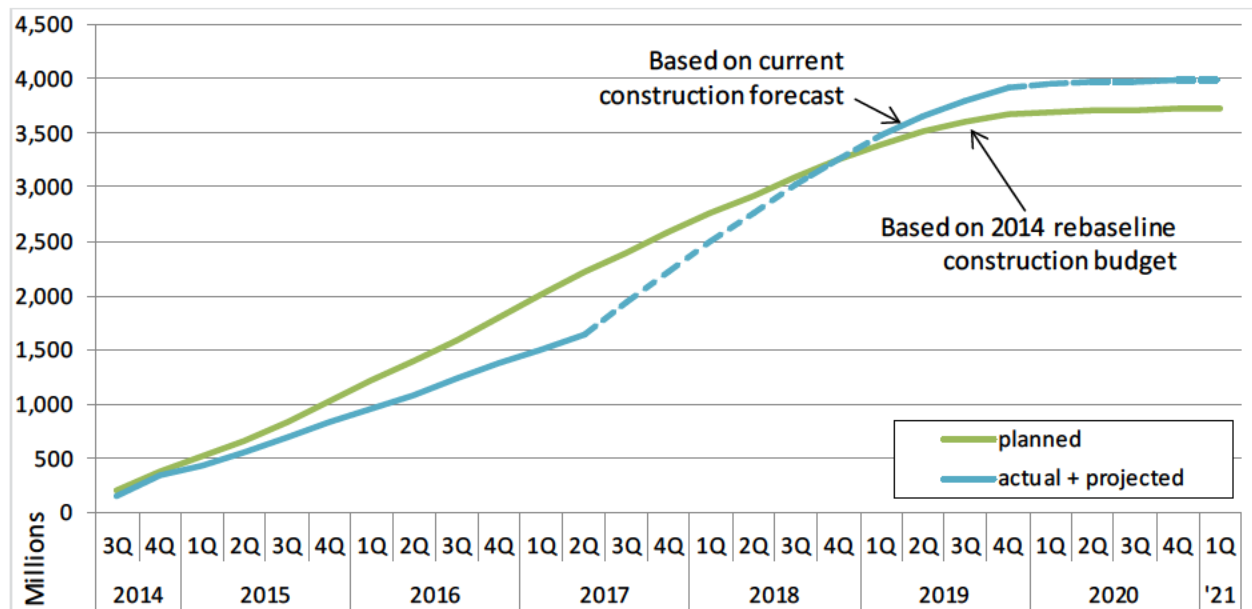


Table 3-2: Planned, Actual & Projected Construction Cash Flows to Target RSD

The "planned" cost curve shows the construction cash flow as planned by ESA at the time of the 2014 rebaselining to achieve the first quarter 2021 Target Revenue Service Date. The rebaselined total construction budget was \$7.38 billion. The "actual" cost curve shows construction spending as reported by ESA, through the second quarter of 2017. The "projected" portion of that curve, from 2Q2017 through 1Q2021, shows the PMOC's projected construction spending rate to reach the current \$7.56 billion construction budget.

The vertical axis is shown in millions, starting at zero at the time of the re-baselining. The horizontal axis begins at that time of rebaselining and extends to the Target Revenue Service Date.



The ESA Force Account Cost study completed in 3Q2016 resulted in an additional total cost projection of \$246 million inclusive of the estimated \$111 million for the FFGA work scope. This study did not, however, consider any additional 3rd party costs for extended overhead and indirect costs resulting from Force Account induced delays. The forecast also does not include the projected OCIP cost overrun, nor the expected additional costs in the GCT Passenger Concourse related to water leaks, OICs for Wi-Fi and cellular service, and digital advertising.

In prior months, MTACC indicated that it would request further amendments to the MTA Capital Plans (both 2010–2014 and 2015–2019) to fund forecast cost overruns. As of July 2017, the MTACC set aside that plan and is investigating ways to utilize existing funds until the 2020–2024 Capital Plan is in place.

The PMOC is concerned that a funding delay could potentially create a funding gap that could impact the program. The PMOC will review the MTACC's plans as soon as they are available.

Through July 2017, MTA continued to work with both the FTA and the FRA to monitor and resolve FRA grant funding drawdown issues. It is anticipated that the full value of the FRA grant will be utilized by ESA for Regional Investment work scope in the Harold Interlocking and is considered having independent utility that is not specifically required to provide the connection for LIRR service to GCT.

Several cost/budget items were discussed at recent Monthly Cost and Schedule Review meetings:

- During July 2017, ESA stated that cost forecasts for the project in support of construction and in coordination with recent significant funding changes are under development. Results and recommendations are not expected until September 2017.

[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]

PMOC Concerns:

The following summarizes the PMOC's concerns regarding cost and budget issues:

1. Forecast cost increases for continued railroad force account support, OCIP, and other identified areas will continue to deplete the remaining ESA program cost contingency. This has become a critical issue now that MTA has decided that there will be no stand-alone ESA Amendment to the current 2015-19 Capital Plan, but that ESA will have to wait until the 2020-2024 Capital Plan for any additional funding. This funding constraint is a major risk.
2. Current contract delays, and potential future delays, may result in cost increases on the following contracts:
 - CS179 – Late completion of final design and resulting schedule compression to hold start of Integrated Systems Testing.
 - CS084 – 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; technology issues.

3. ESA has not yet incorporated the additional amounts for either FA construction or OCIP in their budget forecasts, indicating that MTACC approval for the forecast change has yet to occur. The PMOC believes that these are known costs that will be incurred and, therefore, should be included in the budget forecasts.
4. The divergence between planned and actual construction spending continues to grow, which may impact ESA's ability to achieve the Target Revenue Service Date.
5. It now appears that there will be additional cost overruns for the PM/CM, CCM, and GEC budgets to provide continued technical support under these agreements through the Target RSD in February 2021. [REDACTED]

Change Orders/Budget Adjustments: The PMT reported that, during May 2017, eight construction Change Orders greater than \$100,000 were executed. These were:

▪ CH053 – Harold Structures Part 1 – Mod. 145	\$116,858
▪ CH053 – Harold Structures Part 1 – Mod. 166	(\$447,446)
▪ CH054A – Harold Structures Part 2A – Mod. 54	(\$391,942)
▪ CH057 – Harold Structures Part 3 – Mod. 26	\$240,000
▪ CH057A – Harold Structures Part 3 WBBP – Mod. 11	\$3,500,000
▪ CM007 – GCT Caverns – Mod. 8	\$118,059
▪ CQ032 – Plaza Substation & Queens Structures – Mod. 81	\$575,000
▪ CQ032 – Plaza Substation & Queens Structures – Mod. 84	\$240,706

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. Work includes all third-party construction contractor work as well as all Amtrak and LIRR direct force account construction work. Also considered was Amtrak and LIRR force account provision of required access and protection in support of all of the remaining contract construction work. The preparation meeting to review the cost and schedule risk models was held on April 7, 2017. 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, April 19, 20, and 21, 2017. Participants included ESA staff associated with the Harold work, the ESA Project Management Team (select members), the GEC, MTA-OCO, the PMOC, ESA-CM, ESA-IEC, Amtrak, and LIRR. The risk assessment facilitator's draft Risk Report is expected to be available in August 2017.

Harold Interlocking – ESA Risk

With regard to the "ESA First" Harold Re-sequencing Plan developed in December 2014 and implemented in 2015, the PMOC has noted that, during 2015 and into 2016, the PMT had been reporting that Amtrak has not been able to provide even the reduced level of force account resources that had been planned in support of the ESA schedule. The Harold Schedule Plan was re-evaluated and further adjusted in early 2016 to account for the recent experience of the project, making work package changes to accommodate the railroad force account resource constraints.

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.

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, now planned for 2019. There is concern, shared by both the PMOC and MTACC, that significant Amtrak Force Account resources will be needed to support the hardening work, which could further reduce the Amtrak resources available to support the ESA Harold Re-Sequencing Plan. During July 2016, Amtrak advised MTACC that it had planned to start work on the total track replacement in ERT Lines 3 and 4 during 4Q2016. During March 2017, MTACC advised the PMOC that Amtrak hardening work on Line 3 was complete. The PMOC notes that the Line 3 work had minimal impact on East Side Access construction during the period that it was underway. 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 required for LIRR service into GCT by 2021. However, no noticeable impacts to availability of Amtrak force account resources through July 2017 were observed attributable to any known work in the ERT Lines 1 and 4.

A new risk emerged during April 2017 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 a project for extensive reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels. This new risk has been realized based on ESA reporting that the Amtrak force account resource availability for the ESA Harold Interlocking work dropped noticeably during May 2017 and continued through July 2017. The PMOC is not certain how Amtrak plans to balance this new need with the standing commitment to the Moynihan Station project. Although the impacts to date have been moderate, future impacts could be significant. The PMOC is quite concerned that this new development could jeopardize MTACC-ESA efforts to complete the critical remaining work in the Harold Interlocking.

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. Details are not expected until August 2017 at the earliest.

ESA Vehicle Risk

The PMOC is concerned about the continued schedule slippage of the LIRR vehicle procurement program because it has the potential to severely impact delivery of the vehicles, and, hence, RSD. Based on the latest LIRR vehicle procurement summary provided to the PMOC, the only way ESA will have its planned fleet of 160 new M-9A vehicles available by the December 2022 RSD is to award the competitive procurement to the present M-9 (vehicles presently being procured for use by MNR) carbuilder. If that carbuilder is not selected, however, the schedule indicates that only 72 new M-9A vehicles will be delivered by the December 2022 RSD. Consequently, LIRR may not be able to achieve full revenue service by that date.

5.0 ELPEP COMPLIANCE SUMMARY

The current status of each of the remaining main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** The FTA requested MTACC to update its TCC Plan in response to the FTA/PMOC comments that were generated in November 2013 as a result of significant changes in key ESA upper management level positions. MTACC submitted its revised Technical Capacity and Capability Plan (ESA and SAS) on April 13, 2015. The PMOC returned comments to the FTA on May 7, 2015. MTACC submitted a revised TCC Plan in response to FTA/PMOC comments on June 12, 2015. In August 2015, the PMOC provided the FTA with its evaluation of MTACC responses to the PMOC review comments and recommended a meeting with MTACC to resolve remaining issues. The FTA subsequently provided MTACC with the evaluation. MTACC responded with a reply on September 24, 2015. MTACC has indicated that it will review the TCC Plan and propose revisions reflecting the current status of the Program.
- **Continuing ELPEP Compliance:** The following ELPEP components continue to need improvement: 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. The ESA Risk Manager continues to work toward re-establishing risk management as one of the key inputs to the decision-making process. To assist MTACC with focusing efforts on improving ELPEP compliance in the remaining areas, the PMOC has started to re-evaluate the situation based on the current revisions of the PMP, CMP, SMP, and RMP, and is targeting completion of this effort during the 3Q2017 time frame.
- **Project Management Plan:** The PMOC completed its evaluation of the current version of the PMP, Rev. 10, concluded that it is acceptable, and provided the FTA with comment close-out details in early April 2017. The FTA subsequently notified MTACC in April 2017 that the FTA accepts Revision 10 of the ESA PMP.
- **Cost/Schedule Contingency:** MTACC has reached agreement with the FTA and the PMOC on the ELPEP minimum cost and schedule contingency hold points, levels, and drawdown. The PMOC notes that MTACC has now included formal reporting of the actual cost and contingency levels against the ELPEP minimums in its quarterly reports to the FTA. Schedule and Cost Contingency status, use, and trending are discussed in, respectively, Section 2.0 and Section 3.0, of this report.

The PMOC notes that, since June 2013, the ESA project has continued to be non-compliant with ELPEP and is not meeting some of the more important requirements of the Schedule Management Plan (SMP) and Cost Management Plan (CMP) sub-plans to the PMP, as noted above. The PMOC believes that this continues to be a deficiency and needs to be corrected. The PMOC does note, however, progress in certain areas. The PMOC’s major areas of concern include:

- **Schedule Management Plan (SMP):** The ESA project remains partially non-compliant with requirements for Integrated Project Schedule (IPS) Updating, Forecasting, and Schedule Contingency Management against a current baseline schedule. The PMOC completed its final evaluation of the current revision of the SMP, concluded that the SMP is acceptable, and provided the FTA with comment close-out details in March 2017. The FTA subsequently notified MTACC that the FTA has accepted the current revision of the SMP.
- **Cost Management Plan (CMP):** The ESA project remains partially non-compliant with requirements for Project Level EAC Forecasting, Project Level EAC Forecast Validation, and MTACC Cost Contingency Management and Secondary Mitigation. The PMOC has noted some improvement in a number of areas, but additional work is needed in other areas. The PMOC completed its final evaluation, concluded that the CMP is acceptable, and provided the FTA with the comment close-out details in November 2016. The FTA subsequently notified MTACC that the FTA has accepted the current revision of the CMP.

Revisions to the ELPEP Document: As part of the process of updating the ELPEP document, the PMOC completed, in 2015, an independent evaluation of the minimum required cost and schedule contingencies going forward. The PMOC's recommendations were presented at several meetings with the MTACC in 2015. During 1Q2016, MTACC and the ESA PMT accepted the FTA/PMOC recommended ELPEP cost and schedule contingency hold points, values, and curves for the remainder of the program. The PMOC continues work on a draft revision to the ELPEP document that reflects these agreements and will coordinate its work with MTACC's efforts to develop recommended revisions.

6.0 SAFETY AND SECURITY

Table 6-1, below, shows the PMOC calculated and ESA Reported Lost Time and Recordable injury ratios through June 30, 2017. The PMOC developed this table to demonstrate the effectiveness of ESA's most recent safety efforts rather than its cumulative safety record, which ESA uses to report in each of its monthly reports. The PMOC believes that this provides a more accurate measure of ESA's current safety performance than its cumulative record does.

Table 6-1: ESA 2017 Lost Time and Recordable Injury Ratios

	Lost Time Ratio	Recordable Ratio
2017 BLS Ratios (used by OSHA)	1.7	2.8
PMOC Calculated ESA June 2017 Ratios	0.0	0.0
PMOC Calculated ESA CY2017 Ratios	0.33	1.16
ESA Reported Ratio (Cumulative since beginning of project as of May 31, 2017)	1.79	ESA does not report cumulative Recordable Injury Rates

Additionally, the ESA PMT did not report any significant security issues during June 2017.

7.0 ISSUES AND RECOMMENDATIONS

Design: The PMT design management team needs to focus on achieving intermediate milestones in a timely fashion and working closely with the GEC to facilitate finalization of the scope of work for the remaining procurement and construction packages. The continued shifting of 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 expected; and,
- LIRR is making changes that alter the design basis and result in time-consuming and costly re-design work by the GEC.

The above factors have contributed to the continuing delays in completing the bid documents for the near term contract procurements and has already adversely impacted the program schedule as discussed below with regard to Contract CQ033. The PMOC recommends that the PMT engage the upper level management of stakeholders involved to assist in resolution of the more serious issues.

The PMOC notes that late completion of the design for Contract CQ033, Mid-Day Storage Yard Facility, significantly delayed procurement. This situation has caused Contract CQ033 to appear on the Queens construction near-critical path with only 66 CDs of schedule float and is driven by the delayed CQ033 forecast Substantial Completion date. This new near-critical path has the potential to impact the Integrated Systems Testing under Contract CS179, especially if the CQ033 contractors experiences any significant delay during construction.

The GEC continues to be challenged to meet the schedule requirements for review of design and equipment submittals from the CS084 and CS179 contractors. The PMT needs to continue to monitor this situation and to also better coordinate the associated LIRR reviews. 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 remains a concern. Scope shifting among different packages delays completion and finalization of the required design packages, caused significant delays to the procurement schedules during 2016 and into 2017, and makes it difficult to fully understand the impact of these changes to the overall ESA Program. The PMOC continues to recommend that the ESA PMT make an effort to adhere to the current version of the Contract Packaging Plan (CPP), Revision 11.0, and minimize shifting scope for the remainder of the project.

Water Infiltration Concerns Regarding Systems Contracts CS179 and CS084: The PMOC remains concerned about the numerous water infiltration issues in the equipment rooms and the remediation efforts that need to be (and are currently being) implemented to provide permanent water infiltration mitigation in rooms with electrical and electronic equipment. The GEC's proposed remediation methodologies for the various locations should, in theory, mitigate the water infiltration issues; however, as was already experienced, theoretical solutions do not always work under actual field conditions. The successful mitigation of the water infiltration problem can only

be validated after remediation work is complete. Further, if, after implementation, one of the water infiltration remediation methodologies is not entirely successful in preventing water infiltration, it may be necessary to develop another strategy; which could further impact the design and construction processes on the Systems contracts.

Additional Water Infiltration Concerns: On CQ032, ESA reported that a continued remediation effort is being planned under this contract to deal with the ongoing water infiltration in the former Early Access Chamber and Tunnel Boring Machine Launch Block areas. Also, ESA reported that a CM006 subcontractor continued to perform repair of water infiltration conditions over work installed by CM006 under the F Line subway at York Ave. The PMOC notes that lack of progress in remediating these types of water infiltration is delaying turnover of these affected spaces to the follow-on systems contractors.

Contract CS179: The PMOC remains concerned regarding the timely delivery and discussion of the contractor's monthly schedule updates. These schedule updates are currently not available for discussion at the monthly progress meetings. Additionally, the PMOC has significant concerns regarding the timely preparation and submission of any Buy/Ship America waiver requests for potentially non-compliant material or equipment on the CS179 contract. Extended delays in providing compliant material or equipment could have a significant impact on the timely completion of this work. The PMOC still has concerns about the water infiltration issues in the equipment rooms that are identified and whether proposed mitigation remedies will prove to be successful. The PMOC is also concerned about the recent comments from the contractor regarding the significant number of Notice of Change (NOC) submissions and CPRs that remain as open items impacting the timely progression of the contract work. The PMOC believes that MTACC needs to focus on addressing those CPRs and NOCs and quickly issue contract modifications where appropriate. Lastly, the PMOC continues to be concerned about late completion of systems' design reviews and approvals; but, acknowledges recent stepped-up efforts by MTACC's senior management to identify issues and implement corrective actions.

Additionally, the PMOC remains concerned that late completion of reviews of contractor design submittals by MTA has caused the design completion date for the last of the ten Control Systems to slip over 16 months, which could jeopardize the timely completion of this contract. The ESA-PMT, working with the GEC and LIRR, needs to effectively manage the design review process to obtain the requisite design approvals and prevent any further schedule slippage. The PMOC notes that the problems with the timely completion of design reviews and approvals have delayed completion of designs on both the 10 Control Systems and the 19 Non-Control Systems.

Contract 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 related to the PLCs, the approval of substation designs, and the execution of SCADA-related contract modifications so as to preclude any further impact to substation design and fabrication. In regard to the "live load" (dynamic) testing of C08 substation and the integrated testing of all the CS084 substations, the PMOC is concerned that, if any of the testing produces unsatisfactory results once the current CS084 contractor is no longer active on the ESA project, then the project is subject to a "finger-pointing" exercise to determine which contractor is at fault for the unsatisfactory results. The PMOC previously suggested to the ESA CS084 CM that the MTA might want to consider transferring the installation of the ductwork to another contractor, while leaving the requirement for the installation

and testing of the cable and substations under the CS084 contract. This could be accomplished by temporarily “de-mobilizing” the CS084 contract for a short period of time and then “re-mobilizing” the CS084 contractor to perform all the testing. That way, any issues or problems that might surface during the testing period are still the responsibility of the CS084 contractor; eliminating any “finger-pointing” between multiple contractors.

Contract 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: 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 to provide additional funding for forecast cost overruns for OCIP, railroad force account, CM014B OICs, and continuation of professional services under the PM/CM, CCM, and GEC contracts. 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 completes its re-evaluation of the current budget and schedule. Details are not expected until August 2017, at the earliest.



Project Schedule: The PMOC is concerned about the ability of the Program to make expected progress along the critical path through Harold CIL cutover pre-testing. This work has used much of the float built into the planned duration due to a late start and extended duration of the first part of the work – input/output processor testing. It is expected that this work may continue to fall behind schedule, which could consequently impact LIRR’s ability to make key cutover dates in May 2018. It is also expected that any delay to the planned May 2018 cutover for the critical Harold CILs may also have a magnified impact on the program schedule, as the track outages needed for this work must be obtained with sufficient notice. This is a continuing concern.

The PMOC is also concerned with continuing delays related to procurement of future contracts, including CM015 and CS086. For example, it was reported that CS086 has experienced delays to planned procurement dates. While these expected dates were impacted, the planned Substantial Completion date remained the same, at July 1, 2020. In order to achieve this, the planned project period was reduced to offset the impact of the delays. However, no information was provided to alleviate concerns about the basis for the project period reduction. This appears instead to be a high-level revision aimed at keeping the same Substantial Completion date, showing no impact to the program. The PMOC recommends that any reduction to the planned project period of future contracts be rooted in analysis and agreed upon by project and program stakeholders. Otherwise, the PMOC views changes like this as temporary adjustments that will inevitably affect the program and are likely to adversely impact the schedule. This is a continued concern. Additionally, design work on CM015 has been suspended, pending decisions by MTACC management regarding additional scope requested by the building owner. The suspension of design will most likely have a negative impact on the schedule, delaying the completion of design and procurement process. The addition of scope also carries schedule risk associated with the planned construction duration, which may have to be lengthened to account for more work.

Risk Management: The segmentation of construction packages has created multiple inter-contract interfaces and milestones. In the PMOC's opinion, the probability of successfully achieving all of them is low, and leads to the possibility of a ripple effect of delays and coordination difficulties between contracts. There is very limited opportunity, at best, for the contractors to make up any of the time lost to interface delays due to the worksite time and access constraints, as well as the characteristics of underground construction work that limit productivity improvements. The Program has already experienced significant delays across multiple contracts and the PMOC believes that any meaningful schedule recovery will be difficult, at best. The PMOC is particularly concerned about delays to the completion of final systems designs on Contracts CS179, CS084, and VS086, and the potential schedule and cost impacts as well as the construction delays on CM014B. Managing inter-contract handoffs and interfaces is very challenging and represents a significant MTACC-retained risk. The PMOC has recognized 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). These mitigations, however, are not necessarily effective in solving either the productivity challenges presented by the CM007 schedule that the PMOC considers very aggressive or the coordination challenges with the active CM014B and CS084 contracts held by other contractors and the future CS086 contract.

The PMOC remains concerned about the coordination risk retained by MTACC on the completion of the work in Manhattan, especially construction and testing interface management for the systems work. When combined with the extensive scope re-configuration changes associated with Harold Interlocking work, the PMOC believes that this may create significant changes to the overall project risk profile.

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

- Program Funding – 2015-19 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;

- Recovery of lost time due to significant schedule delays on Contracts CM014B, CS179, and CS084;
- Successful execution of multiple hand-off interfaces across several contracts;
- Contractor access and work area coordination in Manhattan;
- Duration of integrated systems testing;
- 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);
- Continued availability of required track outages in Harold Interlocking - Starting in September 2016, fewer priority weekend track outages have been available; now the eight scheduled weekend outages in 2017 are at risk due to Amtrak's accelerated project for extensive reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels;
- Maintaining adequate schedule performance of the remaining work in Harold Interlocking, now the ESA program critical path, that 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 through July 2017); and,

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 and 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: Installation, testing, and activation of Positive Train Control by LIRR in Harold Interlocking to meet the December 31, 2018, FRA mandated deadline. Risk is not well defined because scope and schedule details have not been finalized.
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 plan.
3. Northeast Quadrant Rail Work: Ability of MTACC-ESA, Amtrak, and LIRR to fully prepare for and execute the remaining work in the Northeast Quadrant in Harold Interlocking, in accordance with the current ESA schedule plan, on a very tight schedule involving major Amtrak and LIRR track outages. Preparation work includes obtaining all required track turnouts and necessary track materials for the planned work.
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. Contract 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: NYPS 2017-18 Track Rehabilitation (**Now realized in 2Q2017**); 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.

The PMOC recognizes MTACC’s efforts to actively engage Amtrak to develop some specific mitigations for certain risks and work on strategies for mitigating many of the other identified risks. The PMOC also notes that MTACC has successfully engaged a consultant to develop a resource loaded schedule of Amtrak’s force account resources’ commitments to regional Amtrak projects, including ESA, to assist with both short-term and long-term resource allocation decisions. However, continued shortcomings in provision of adequate force account resources continues to adversely impact the current Harold schedule and has caused the remaining Harold work to become the ESA program schedule critical path. Many external stakeholder issues with Amtrak and LIRR will remain beyond MTACC’s direct control, however, and are likely to complicate development and acceptance of the specific problem resolutions that are essential to completion of the ESA project. 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 has not improved and the PMOC recommends that the PMT continue to actively engage executive management in MTACC and MTA to assist with resolution of this problem.

Through April 2017, the Moynihan Station project was Amtrak’s top priority for assignment of the local division force account resources. The PMOC’s position had been that this situation needed to change as soon as possible 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 work in the Harold Interlocking. Amtrak’s support is especially important now through the end of 2018, a period that is critical to completing the planned Harold work in support of the MTACC target RSD of February 2021. However, this situation changed significantly during April 2017 as discussed in the following paragraph.

A new risk emerged during April 2017 involving Amtrak’s ability to provide sufficient force account resources to support the planned ESA work in Harold Interlocking based on Amtrak plans to advance and accelerate its project for reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels. This new risk has been realized based on ESA reporting that the Amtrak force account resource availability for the ESA Harold Interlocking work dropped noticeably in May 2017 and continuing through July 2017. PMOC is not certain how Amtrak plans to balance this new need with the standing commitment to the Moynihan Station project. Although the impact to date has been moderate, future impacts could be significant. The PMOC is concerned that this new development could jeopardize ESA efforts to complete the critical remaining work in Harold Interlocking.

In an effort to partially mitigate the risk of insufficient Amtrak force account resources for support of the ESA Harold work, MTACC has retained a consultant to develop an Amtrak resource schedule that includes the Amtrak force account needs for all of Amtrak's project commitments in the New York Metropolitan region, including ESA. MTACC expects to use this comprehensive schedule to provide guidance for the allocation of Amtrak force account resources that will allow better planning of the ESA work in Harold Interlocking. The Amtrak resource schedule was presented at the July 27, 2017 ESA Steering Committee meeting. ESA-PMT was satisfied that it met their expectations and would become a very useful tool for planning the Harold work schedule.

APPENDIX A - ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
BLS	Bureau of Labor Statistics
BSA	Buy/Ship America
C&S	Communication and Signals
CCC	Change Control Committee
CCTV	Closed Circuit Television
CD	Calendar Day
CIL	Central Instrument Location
CIR	Central Instrument Room
CM	ESA Construction Manager assigned to each contract
CMP	Cost Management Plan
CMU	Concrete Masonry Unit
ConEd	Consolidate Edison Company
CPOC	Capital Program Oversight Committee
CPP	Contract Packaging Plan
CPR	Contractor Proposal Request
DC	Direct Current
ELPEP	Enterprise Level Project Execution Plan
ESA	East Side Access
ET	Electric Traction
FA	Force Account
FAT	Factory Acceptance Testing
FDR	Final Design Review
FFGA	Full Funding Grant Agreement
FIAT	Factory Integrated Acceptance Testing
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCT	Grand Central Terminal
GEC	General Engineering Consultant
HVAC	Heat, Ventilation and Air Conditioning

IPS	Integrated Project Schedule
ISTP	Integrated System Test Plan
LIRR	Long Island Rail Road
MNR	Metro-North Railroad
MOD	Contract Modification
MPR	Monthly Progress Report
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority Capital Construction
N/A	Not Applicable
NCR	Nonconformance Report
NOC	Notice of Change
NTP	Notice to Proceed
NYCT	New York City Transit
OCIP	Owner Controlled Insurance Program
PAC	Pneumatically Applied Concrete
PCO	Proposed Change Order
PLC	Program Logic Control
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PMT	ESA Project Management Team
PR	Progress Report
QA	Quality Assurance
QPR	Quarterly Progress Report
RFI	Request for Information
RFP	Request for Proposal
RMC	Rudin Management Corporation
RMP	Risk Management Plan
ROD	Revenue Operations Date
ROW	Right of Way
RPR	Relocated Primary Route
RSD	Revenue Service Date
RTB	Resilient Tie Block

SC	Substantial Completion
SCADA	Supervisory Control and Data Acquisition
SDR	Second Design Review
SMP	Schedule Management Plan
SMS	Security Management System
SWO	Stop Work Order
TCC	Technical Capacity and Capability
TELP	Temporary Eastbound LIRR Passenger
TPSS	Traction Power Substation
TSR	Track and Signal Route
WBY	Westbound Bypass Tunnel
YSB	Yard Services Building

APPENDIX B – TABLES

Table 1: Summary of Critical Dates

	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

* Source – Project Sponsor forecast Revenue Operations Date per information presented to 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 (\$ in millions)

	FFGA				MTA's Current Baseline Budget (CBB)		Expenditures May 31, 2017	
	Original FFGA	Amended FFGA	Pct. of FFGA	Obligated	CBB	Pct. of Total CBB	Expenditures	Pct. of CBB
Grand Total Cost	\$ 7,386	\$ 12,038	100.00%	\$ 4,724	\$ 11,214	100.00%	\$7,642.70	68.15%
Financing Cost	\$ 1,036		14.03%	\$ 617	\$ 1,036	9.24%	\$617.60	59.61%
Financing Cost		\$ 1,116	9.27%					
Total Project Cost	\$ 6,350		85.97%	\$ 4,107	\$ 10,178	90.76%	\$7,025.10	69.02%
Total Project Cost		\$ 10,922	90.73%					
Federal Share	\$ 2,683		36.33%	\$ 1,148	\$ 2,699	24.07%	\$2,329.50	86.31%
Federal Share		\$ 2,683	22.29%					
5309 New Starts share	\$ 2,632		35.63%	\$ 1,098	\$ 2,437	21.73%	\$2,067.40	84.83%
5309 New Starts share		\$ 2,632	21.86%					
Non New Starts share	\$ 51		0.69%	\$ 50	\$ 67	0.60%	\$66.70	99.55%
Non New Starts share		\$ 51	0.42%					
ARRA	\$ -	\$ -	0.00%	\$ -	\$ 195	1.74%	\$195.40	100.21%
Local Share	\$ 3,667		49.65%	\$ 2,959	\$ 7,479	66.69%	\$4,695.60	62.78%
Local Share		\$ 8,239	68.44%					

Table 3: Project Budget and Invoices as of May 31, 2017

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (May 2017)	Actual Awards (May 2017)	Paid to Date (May 2017)	Actual % Budget Paid (May 2017)
Construction	\$7,379,296,706	\$7,542,563,955	\$6,939,848,008	\$5,125,868,369	67.96%
Soft Cost Subtotal	\$2,798,474,304	\$2,635,207,055	\$2,015,534,524	\$1,899,244,579	72.07%
Engineering	\$720,615,810	\$732,721,828	\$730,301,173	\$704,340,476	96.13%
OCIP	\$282,613,620	\$307,613,620	\$300,793,953	\$299,668,768	97.42%
Project Mgmt.	\$972,168,644	\$972,168,644	\$865,278,130	\$777,982,782	80.03%
Real Estate	\$182,076,230	\$178,049,776	\$119,161,268	\$117,252,553	65.85%
Rolling Stock	\$202,000,000	\$202,000,000	--	--	--
Project Subtotal w/o Financing	\$10,177,771,010	\$10,177,771,010	\$8,955,382,532	\$7,025,112,948	69.02%

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

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

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	Jun-16 Current Budget	Sep-16 Current Budget	Dec-16 Current Budget	Mar-17 Current Budget	CBB Variance from FFGA	CBB Variance from Amended FFGA
10 - Guideway & Track Elements	\$ 1,989	\$ 3,405	\$ 3,353	\$ 3,467	\$ 3,475	\$ 3,486	\$ 3,486	75.29%	3.96%
20 - Stations, Stops, Terminals, Intermodal	\$ 1,169	\$ 2,238	\$ 2,327	\$ 2,326	\$ 2,325	\$ 2,328	\$ 2,328	99.22%	0.06%
30 - Support Facilities (Yards, Shops, Admin)	\$ 356	\$ 474	\$ 451	\$ 473	\$ 472	\$ 472	\$ 472	32.60%	4.81%
40 - Site Work and Special Conditions	\$ 205	\$ 611	\$ 562	\$ 594	\$ 592	\$ 588	\$ 588	186.74%	4.56%
50 - Systems	\$ 619	\$ 606	\$ 628	\$ 568	\$ 582	\$ 580	\$ 580	-6.37%	-7.61%
60 - ROW, Land, Existing Improvements	\$ 165	\$ 219	\$ 192	\$ 215	\$ 215	\$ 215	\$ 215	30.31%	12.04%
70 - Vehicles	\$ 494	\$ 210	\$ 880	\$ 210	\$ 210	\$ 210	\$ 210	-57.50%	-76.13%
80 - Professional Services	\$ 1,184	\$ 1,975	\$ 1,809	\$ 1,978	\$ 1,978	\$ 2,003	\$ 2,003	69.20%	10.74%
Subtotal	\$ 6,350	\$ 10,178	\$ 10,922	\$ 10,178	\$ 10,178	\$ 10,178	\$ 10,178	60.28%	-6.81%
100 - Financing Cost	\$ 1,036	\$ 1,036	\$ 1,116	\$ 1,036	\$ 1,036	\$ 1,036	\$ 1,036	0.00%	-7.20%
Total	\$ 7,386	\$ 11,214	\$ 12,038	\$ 11,214	\$ 11,214	\$ 11,214	\$ 11,214	51.83%	-6.85%

Table 5: Quarterly ESA Planned Cash Flow- Actuals to Date and Actuals Remaining (as of 3Q2016)

Quarter/year	Construction \$(000)	Engineering \$(000)	OCIP \$(000)	Project Mgmt. \$(000)	Real Estate \$(000)	Rolling Stock \$(000)
Paid To Date	3,660,194,771	646,377,892	155,604,955	580,041,291	112,634,547	0
Remaining	3,719,144,273	74,237,918	127,008,665	392,127,353	69,441,683	202,000,000
3Q2014	209,340,620	-3,311,163	4,774,951	16,667,454	0	0
4Q2014	168,280,817	-3,290,689	4,774,951	16,667,454	75,948	0
1Q2015	134,568,200	-3,183,384	4,619,246	16,123,950	4,506,241	0
2Q2015	147,357,357	-3,290,689	4,774,951	16,667,454	4,658,137	0
3Q2015	169,688,509	-3,290,689	4,774,951	16,667,454	4,658,137	0
4Q2015	201,239,698	-3,290,689	4,774,951	16,667,454	4,658,137	0
1Q2016	193,275,933	-3,219,153	4,671,147	16,305,118	4,556,873	0
2Q2016	180,854,738	-3,290,689	4,774,951	16,667,454	4,658,137	8,666,545
3Q2016	181,988,455	-1,983,850	4,774,951	16,652,320	4,658,137	13,070,855
Remaining Planned	2,132,549,946	102,388,913	84,293,615	243,041,241	37,011,936	180,262,600
Remaining Actual	2,704,296,244	47,441,129	16,499,229	246,922,443	62,142,125	202,000,000
4Q2016	214,173,807	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2017	210,556,624	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2017	199,737,103	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2017	189,382,506	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
4Q2017	182,084,699	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2018	174,210,593	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2018	170,524,739	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2018	168,497,619	6,728,414	4,774,951	15,971,281	4,658,137	14,014,767
4Q2018	155,245,094	6,728,414	4,774,951	15,971,281	50,632	14,014,767
1Q2019	148,441,548	6,509,009	4,619,246	15,450,479	0	13,557,764
2Q2019	110,893,994	6,728,414	4,774,951	15,971,281	0	14,014,767
3Q2019	93,559,944	6,728,414	4,774,951	15,971,281	0	14,014,767
4Q2019	71,649,848	6,728,414	4,774,951	15,971,281	0	14,014,767
1Q2020	20,704,406	6,582,144	4,671,147	15,624,080	0	5,043,553
2Q2020	11,682,057	6,728,414	4,774,951	15,971,281	0	943,912
3Q2020	7,573,078	2,267,183	4,947,825	5,381,627	0	0
4Q2020	2,750,374	0	5,035,679	0	0	0
1Q2021	881,913	0	3,256,771	0	0	0
2Q2021	0	0	0	0	0	0

**Table 6: MTA ESA Project Summary by FTA Standardized Cost Categories
2014 Re-plan (\$ in Thousands)**

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	May 31, 2017		
				Current Budget	Awarded Value	Paid to Date
10 - Guideway & Track Elements	\$1,989	\$3,405	\$3,353	\$3,508	\$3,267	\$2,673
20 - Stations, Stops, Terminals, Intermodal	\$1,169	\$2,238	\$2,327	\$2,328	\$2,176	\$1,371
30 - Support Facilities (Yards, Shops, Admin)	\$356	\$474	\$451	\$506	\$490	\$214
40 - Site Work and Special Conditions	\$205	\$611	\$562	\$576	\$492	\$477
50 - Systems	\$619	\$606	\$628	\$579	\$470	\$349
60 - ROW, Land, Existing Improvements	\$165	\$219	\$192	\$215	\$156	\$155
70 - Vehicles	\$494	\$210	\$880	\$210	\$8	\$6
80 - Professional Services	\$1,184	\$1,975	\$1,809	\$2,013	\$1,896	\$1,782
██████████	████	████	████	████	█	█
Subtotal	\$6,350	\$10,178	\$10,922	\$10,178	\$8,955	\$7,025
Estimated Financing Cost	\$1,036	\$1,036	\$1,116	\$1,036		
Total	\$7,386	\$11,214	\$12,039	\$11,214		

Table 7: ESA Core Accountability Items

Project Status:		Original at FFGA	Amended FFGA	Current*	ELPEP **
Cost	Cost Estimate	\$7.386B	\$10.922B	\$10.178B	\$8.119B
Schedule	RSD	Dec. 31, 2013	Dec. 31, 2023	Dec. 2022	April 30, 2018
Total Project Percent Complete Project Performance Rate(Since 2014 ESA “Re-Plan”)		Based on Invoiced Amount		70.3% actual vs. 75.8% planned (ESA Calculation)	
		Based on Earned Value*** ±		74.8% (PMOC calculation of construction spending at June 1 planned vs. actual since re-baselining). Actual cumulative construction amount invoiced since project start is 100.0% of original plan.	
Major Issue	Status			Comments	
Project Funding and Budget	During 2Q2017, MTACC announced that there will be no ESA amendment to 2015-19 Capital Plan for additional required funding for forecast cost overruns.			▪ ESA-PMT is currently evaluating cost, budget and schedule impacts. Results not expected until August 2017, at the earliest. Evaluation continued through July 2017.	
Project Cost	MTACC has identified significant forecast cost overruns: <ul style="list-style-type: none">OCIP Railroad Force Account OICs for Contract CM014B PM/CM, CCM, GEC Services Schedule delays due to funding constraint (see above) will cause additional escalation costs. Review of forecast cost overruns based on new funding constraint continued during July 2017.			ESA-PMT is currently evaluating cost of continued PM/CM, CCM, and GEC Services to target RSD. Evaluation continued through July 2017. Recent funding issue (see above) will likely delay completion of current contracts, award of remaining contracts, and completion of railroad force account work. The resulting added cost escalation could be significant.	
Project Schedule	MTACC presented a revised baseline schedule to the MTA CPOC in June 2014, with a target RSD in February 2021 and a late (public) RSD in December 2022. Major critical and near-critical paths to target RSD include: <ul style="list-style-type: none">Harold Interlocking Midday Storage Yard (Queens)Manhattan/Systems Funding constraint (see above) will cause schedule delays. Review of forecast schedule delays based on new funding constraint continued during July 2017.			Additional delays are expected due to the funding constraint discussed above.	
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; December 2014 (“ESA First”); 2015 (“Harold Re-Sequencing”); 1Q2016 schedule adjustment resulting in the Program critical path passing through the Harold work. Primary cause for all the revisions is continuing inadequate railroad force account support due to other higher priority Amtrak projects in the region. This issue has continued to challenge ESA through 2Q2017. During 2Q2017, a new risk emerged due to Amtrak’s accelerated project to complete extensive reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels.			Primary impacts due to Amtrak’s NY Penn Station Project include: <ul style="list-style-type: none">Eight scheduled priority weekend track outages in 2017 for support of pre-testing of schedule critical Harold CIL cutovers in May 2018 are at risk; ESA trying to reschedule a minimum of six prior to end of 2017. Current Amtrak support to ongoing Harold work: impact through 2Q2017 into July 2017 is moderate; future impacts could be significant.	

*Current Budget was approved by MTA CPOC in June 2014.

** 2010 Enterprise Level Project Execution Plan (ELPEP) reflecting medium level of risk mitigation, excluding financing cost of \$1,116 million. This is currently being re-evaluated.

***In this case, Earned Value refers to the PMOC's calculation of actual Construction Cost (paid to date) versus ESA's planned Construction Cost based on planned payments established at the rebaselining of 2014.