

PMOC MONTHLY REPORT

East Side Access (MTACC-ESA) Project

Metropolitan Transportation Authority

New York, New York

Report Period July 1 – July 31, 2016



PMOC Contract No. DTFT6014D00017

Task Order No. 2, Project No. DC-27-5287, Work Order No. 3

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

TABLE OF CONTENTS

THIRD PARTY DISCLAIMER.....	3
REPORT FORMAT AND FOCUS.....	3
MONITORING REPORT	3
1.0 PROJECT STATUS	3
a. Engineering Design and Construction Phase Service.....	3
b. Procurement	6
c. Construction.....	6
d. Quality Assurance and Quality Control (QA/QC).....	14
2.0 SCHEDULE DATA	16
3.0 COST DATA	20
4.0 RISK MANAGEMENT.....	23
5.0 ELPEP COMPLIANCE SUMMARY.....	24
6.0 SAFETY AND SECURITY	26
7.0 ISSUES AND RECOMMENDATIONS	26

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, 2016

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

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For projects funded through 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. DTFT6014D00017, Task Order No. 003. Its purpose is to provide information and data to assist the FTA as it continually monitors the Grantee's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the Grantee 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 Grantee and financed by the FTA FFGA.

All Grantee cost and schedule data included in this report is based on the status date of June 1, 2016.

MONITORING REPORT

1.0 PROJECT STATUS

a. Engineering Design and Construction Phase Services

As of the end of May 2016 (June 1 data date), MTACC reported that the overall engineering effort was 99.0% complete, based on Earned Value for Design Deliverables, compared with a planned status of 100.0%. MTACC's Cost Report shows that 92.5% of the overall "EIS and Engineering" category has been invoiced and 92.5% of the "Design" category (including Design Settlement) has been invoiced.

Design work on the new, stand-alone CH061A package (completion of Queens Tunnel "A") was completed in 1Q2016. Contract advertisement had originally been scheduled for December 14, 2015, and then revised to March 1, 2016, but had been delayed pending final MTA approval and on NYS-Capital Program Review Board (CPRB) sign-off on the Intent to Advertise. This delay was resolved with the CPRB approval of the 2015-2019 Capital Plan and the ESA budget. The contract was advertised on May 23, 2016, with a bid due date of July 21, 2016. The pre-bid site

visit was held on June 14, 2016. The next Addendum was issued on July 26, 2016, to close items related to question responses and to extend the bid due date to August 2, 2016.

On Contract CM015 (48th St. Entrance), the MTA Board had previously approved the design agreement with the building owner. The building owner, Rudin Management Corporation (RMC), agreed to provide the designs for the relocation of the existing interior utilities and to complete some limited structural design. MTA is continuing discussions with RMC and is nearing completion of the required easements and construction agreements. MTA and RMC have signed the utility agreement and construction bids have been received, but the contract has not yet been awarded. The GEC completed the 100% design and submitted it on July 12, 2016. There remain coordination issues between MTA and RMC. The shear wall design is not completed and workshops are planned for resolution of remaining issues. Submittal will be made to the NYC Department of Buildings. Bid advertisement is expected in Fall 2016.

The work scope for Contract CH058 has been divided and repackaged into two separate contracts. CH058A will include construction of the Tunnel B/C Approach Structure, but the Loop Box structure (which had been in CH058A) was transferred to the future CH059 Contract. CH058B will include construction of the East Bound Re-route. The most recent forecast date for CH058A bid advertisement, July 17, 2016, was missed. The NTP date had already been delayed seven months. The 90% design submission was made on June 17, 2016, and the PMT/GEC team is awaiting comments from the ESA CM, LIRR, and Amtrak. Contract CH058B final design has been awaiting the completion of a rail traffic simulation study for Harold Interlocking. The first part of the study, operations without Temporary Eastbound LIRR Passenger (TELP) Track, has been completed, and the results indicate minimal impact to Harold Interlocking under peak load conditions. Based on this result and the fact that the TELP would have significant cost and schedule impacts to the planned CIL cutovers, the PMT has recommended to LIRR that the GEC complete the CH058B design without TELP. MTA is awaiting LIRR's response. In addition, the GEC and the PMT are still evaluating tunneling methods, with a recommendation anticipated by the end of August 2016.

Contract CQ033 continues progress toward package completion:

- Regarding the Arch Street Yard tie-in, resolution is still required between MTACC and LIRR for final determination on the scope of LIRR Force Account (FA) work;
- The GEC submitted the 90% design on July 6, 2016, for rail access to Amtrak Line 2 from Sub 4. This construction work will be by Amtrak;
- The GEC completed a study for the Sub 3 to Amtrak Line 4 connection and submitted it on June 9, 2016. This study supports the cost estimate for LIRR;
- MTACC continued working with Amtrak regarding coordination of catenary pole relocations and with both Amtrak and FDNY regarding the access road width. The access road provides joint use between LIRR and Amtrak for access to the High Speed Shop, Yard C, and the Penn Lead;
- ESA-PMT is working with LIRR on labor clearance for track and traction power work;
- Construction sequencing meetings are ongoing to coordinate CQ033 work scope with adjacent site/civil and force account packages. Access restraints and milestones are being finalized;
- The GEC submitted the cost estimate to ESA Project Controls on July 11, 2016;

- The GEC is preparing drawings for approval from NYCT on overhead clearance beneath the No. 7 Line elevated structure over the proposed LIRR tracks;
- The CQ033 package required design variance approvals regarding LIRR track standards and clearances in order to provide sufficient yard capacity to store twenty-four 12-car train-sets. Presentations to LIRR were made on: January 19, 2016; January 21, 2016; and February 16, 2016. Subsequent meetings were held through late May 2016 when all track standard and clearance issues between the GEC and LIRR were agreed upon, although a waiver is required from NYSDOT to resolve the track clearance issues. In early July 2016, LIRR submitted a waiver request to NYSDOT regarding the substandard clearances required by the design. The NYSDOT response is pending; and,
- The previously forecast bid advertise date of July 18, 2016, was missed and advertisement is now forecast for August 18, 2016.

Contract CS284 (GEC CS086), Tunnel Signal Installation, is a stand-alone package. The MOU with LIRR for inclusion of Positive Train Control (PTC) in this contract is being finalized. MTACC reports that the proposed Change Order to the GEC for the addition of PTC was being issued and that the GEC has been meeting with the LIRR to confirm the PTC-related scope. The bid advertisement date had been most recently forecast for September 6, 2016. This may be delayed due to a recently negotiated change order, now awaiting approval by MTA, whose scope includes a refresh of the package and changes control of Plaza Interlocking from Penn Station Control Center to the GCT Train Operations Center.

For Contract VS086, Systems Package 3 – Signal Equipment Procurement, the GEC design was completed but is now being revised to incorporate the requirements of Positive Train Control (PTC).

As noted in earlier reports, the backlog of submittal and RFI reviews was an area of focus for the CS179 project team. In July 2016, there were still 240 submittals out of a cumulative total of 5,996 submitted that required a response from MTACC. Of these 240 pending submittal responses, 102 (42.5%) were considered by the contractor as outstanding and overdue with the response time exceeding the 30-day turn-around time period stipulated in the contract. Despite an effort over the past several months to reduce the backlog of overdue design reviews and submittals, the percentage of overdue responses to design submittals has not been significantly reduced. This issue remains as a concern to the ESA CS179 CM and the PMOC. The MTACC indicated in the Executive Summary of its May 2016 Monthly Progress Report (MPR) that the completion of the Control System Designs will occur in September 2016. However, information presented at the most recent monthly progress meeting, and in the Systems Construction section of the May 2016 MTACC MPR, indicates that the contractor will not complete the Control Systems Designs until October 2016; a seven-month delay from the original March 2016 date. Additional information regarding specific System design for the CS179 contract is provided later in Section 1.0c. under CS179.

The ESA CS084 CM continues to raise a concern that it is taking far too long to obtain comments and responses to, contractor submittals and RFIs, and has assembled a listing of all outstanding responses that will be used to discuss the mitigation of this issue with senior LIRR management. Additionally, the approval of critical facility designs and the GEC's completion of re-designs to address design issues identified in various locations continue to be items the contractor cites as critical schedule issues. As noted in previous PMOC reports, the extended length of time taken to

approve substation layout and equipment designs, including clarification of SCADA requirements, enabled the contractor to assert that contract Milestone Nos. 1 and 2 were already delayed and would continue to be delayed on a day-to-day basis until the designs were approved and the clarifications were determined. At the mid-July 2016 monthly progress meeting, the contractor advised that contract Milestone Nos. 3, 4, and 6 are now also delayed as a result of the noted design delays. The ESA CS084 project controls group will need to perform a detailed analysis of the contractor's schedule to determine the validity of the contractor's assertions. On a positive note, in July 2016, the ESA CS084 CM advised that the LIRR and the MTACC reached an agreement on the required number of SCADA sensors and that the contractor would now be requested to submit a cost proposal to modify the SCADA design accordingly.

b. Procurement

As of the end of May 2016, the ESA Cost Report showed that total procurement activity for the project was 80.7% complete, with \$8.215 billion awarded out of the \$10.178 billion current projected budget.

The status of near-term procurements is summarized below:

- CM015, 48th Street Entrance – Advertise September 27, 2016; Bids due December 5, 2016.
- CQ033, Mid-Day Storage Yard Facility – Advertise August 18, 2016; Bids due October 11, 2016.
- CH061A, Tunnel A Approach – Advertised May 23, 2016; Bids due August 2, 2016.
- CS086, Systems Package 2-Tunnel Systems – Advertise October 11, 2016; Bids due December 5, 2016.

c. Construction

The PMT reported in its May 2016 Monthly Progress Report that total construction progress reached 63.3% complete versus 66.0% planned.

CM005 - Manhattan South Structures: The MTACC Forecast at Completion for CM005 increased slightly in May 2016 to \$243,320,343. The MTACC forecast for Substantial Completion (SC) changed by nearly three months from April 22, 2016, to July 11, 2016. Actual construction progress for May 2016 was 0.3% versus 0.8% planned. Cumulative progress through May 31, 2016, was 98.4% actual versus 100.0% planned.

Construction Progress: During July 2016, the contractor continued punchlist activity throughout the site. The contractor completed trolley lift beam installation in the fan chambers. The contractor will continue pressure resistant door installation in August 2016 on receipt of door hardware. The majority of work remaining is at the upper 37th St. facility and this is now forecast to continue into October 2016, pending issuance of a NYC DOB permit for work at the Union League.

CM006 – Manhattan North Structures: The MTACC Forecast at Completion for CM006 decreased to \$358,099,521 in May 2016. The MTACC forecast for Substantial Completion remained at June 1, 2017. Actual construction progress for May 2016 was 4.3% versus 2.0% planned. Cumulative progress through May 31, 2016, was 78.4% actual versus 90.2% planned. ESA executed the contract modification for the new schedule and reports that work progress is good.

Construction Progress: During July 2016, the CM006 contractor continued rehabilitation/remediation work at the 63rd St. Tunnels & Structures. The contractor continued arch construction

at GCT 3 East & West Wyes. The contractor completed arch construction at Tunnel EB4 and continued waterproofing & concrete construction at the overbreak area adjacent to the 55th Vent Facility. Waterproofing and arch concrete construction continued for Tunnel WB3. Ductbank construction was completed at WB1. The contractor continued end wall construction at the BOH (Back of House) West Cavern. The contractor continued wall construction at the 50th St. air tunnel. Now, with the contract modification process complete, a realistic schedule can be monitored to track construction progress.

CM007 - GCT Station Caverns and Track: The MTACC Forecast at Completion for CM007 remained at \$712,311,733 in May 2016. The MTACC forecast for Substantial Completion remained at January 28, 2020. Actual versus planned monthly progress and cumulative progress will be reported when available from MTACC.

Construction Progress: The first monthly Construction Progress Meeting was held on July 14, 2016. During July 2016, the contractor continued to mobilize, submit permit applications, prepare submittals, a preliminary schedule, and other documentation for this contract. The revised Preliminary Schedule was submitted on May 31, 2016. During July 2016, the GEC approved the color sample for the precast concrete sections for the station and began mobilization at the LIRR Amityville Yard at 43rd St. in Queens. This yard will be used to stage all the precast concrete sections into GCT. Through July 2016, the contractor did not complete the construction permit at the site, so mobilization there was somewhat restricted.

CM014A – Concourse and Facilities Fit-Out Early Work: MTACC reports that, through June 1, 2016, the project forecast cost at completion remains \$58,128,537. MTACC reports in their May 2016 Monthly Report that Substantial Completion will be November 1, 2015. The MTACC Project Office has advised the PMOC that this retroactive date is the result of negotiations with contractor and the bonding company. In the MTACC May 2016 Monthly Report, cumulative construction progress remained 97.0% versus 100.0% planned.

Construction Progress: Through July 31, 2016 progress at the site continued to be very slow with only 1 or 2 electricians present. There is an ongoing issue with the programming of some of the relays in the switchgear. These relay performance requirements come from ConEd and are in the specifications but the switchgear manufacturer, Siemens, has not been successful in solving the problem and has missed several dates for reprogramming the relays. This issue is impacting energization of the feed that runs from the B30 Substation down to the Caverns for CM007 and the feed that goes to a separate substation on 2nd Ave. (Not a part of SAS).

Remaining Work: Completion of remaining work includes: Completing the outstanding work items list. This list, originally totaling up to 300 items, is now down to approximately 50 items; SCADA testing, including the issue with the 51G Alarm on the 87 Relay, was completed.

CM014B – Concourse and Facilities Fit-Out: MTACC reports that, through June 1, 2016, the final cost at completion forecast increased to \$477,913,666 from the previous \$463,617,500. The May 2016 Financial Summary shows the current cost forecast at completion exceeds the contract budget by \$14,296,166. The Substantial Completion date has been extended to February 8, 2019, from the original August 18, 2018, primarily due to ongoing delays in critical structural steel submittals which has caused the monthly and cumulative discrepancies in the construction complete status. Actual construction progress through June 1, 2016, was 1.3% versus 2.6 % planned. Cumulative progress was 17.8% actual versus 22.1% planned.

Construction Progress: Through June 1, 2016, the Surveying in the Concourse is continuous and will be on-going throughout this contract.

Milestone #1 (Complete Terminal Management Center, Communication Room C-2 & Communication Closet C-5) – Punchlist work continued.

Milestone #2 (50th St Room CR102, Tunnel Fan Room, Electrical Room #126 & ICC Room), June 4, 2016 – The delay to this milestone continues to be tied to the Elevator #9 shaft corrective work, in which out of alignment block walls have to be torn out and reconstructed. These walls were constructed by the CM013 contractor. There still has not been a clear directive for this work.

Milestone #3 (8/4/16) – All work to complete the rooms is continuing, including masonry wall erection, setting steel beams in masonry, installation of metal deck, placement of concrete roof decks, spray fireproof all support steel, and painting of walls.

Milestone #5A (Completion of 48th St. Entrance) November 25, 2016 – This is being delayed until March 2017 due to delays in demolition of the MTA Building in the Concourse and transfer of personnel to the new 52nd St. Entrance.

Concourse (Madison Yard): Surveying is ongoing throughout. This will continue for the duration of the project. Structural steel repairs to private building columns continue throughout Madison Yard. Rough-in for door frames in masonry walls is underway. Electricians continue to chop columns and weld grounds. Grounding can only be made to GCT columns, and not to any private building columns. Placement of CLSM (Controlled Low Strength Material) backfill continues throughout in various areas. The contractor continues to set rebar and place final concrete slab in various areas. The electrical load transfer from MNR temporary power to the temporary construction power source at the B30 temporary has been completed.

3118 Chiller Plant, 3128 Heating Plant: Hangers, supports, 24”, 12” and 8” continuous weld pipe have been installed in the Chiller Plant. Secondary chilled water pump 1-3 was installed. Supports, hangers, 24” continuous weld pipe, 18” chilled water pipe, and 10” heavy wall pipe was installed in the Heating Plant.

Demolition (Hog Houses & MTA Building): Demolition of the Hog Houses is complete. Demolition of the MTA building remains delayed by MTACC. The issue with establishing an approved emergency egress from the area has been resolved. This work is being performed by the CM005 contractor. This delay is tied to Contract CM014B Milestone 5A noted above.

Biltmore Connection: The advancement of work continues to be on hold due to delays in structural steel shop drawings submittal while Construction Work Plans (CWP) and Safe Work Plans (SWP) are reviewed and approved.

Wellways: Unistruts and ceiling framing began delivery the week of July 24, 2016. Sprinkler head installation will follow finish ceiling installation, starting with Wellway #1.

Unistrut installation will begin in Wellway #2 the week of August 21, 2016. Wellway #3 scaffolding/platform installation is complete. Erection of scaffolding for the work platforms in Wellway #4 began the week of July 31, 2016.

Dining Concourse Connection: This work is also experiencing delays due to the slow progress with the contractor’s submittal of structural steel shop drawings. Work to complete the erection of temporary steel takes place at night. Erection of permanent steel was scheduled to begin the week of July 24, 2016.

Elevator T-01: Outages at Track 30 are ongoing. Demolition of the invert slab in the pit was completed with night work.

East 48th St. Entrance: Installation of rebar at the west lower level wall nears completion. Placement of concrete is scheduled for the week of August 7, 2016.

44th St. Vent Building: Cleaning of couplers, installation of formwork and rebar at the vent hatch continues. Installation of sprinkler piping is ongoing.

East 50th St. Vent Building: Installation of communication conduit continues in the 2nd Basement Level. The rigging plan is being reviewed for installation of the Variable Frequency Drives (VFD) and conduits at the 300 Park Building.

Systems Contracts:

CS084 – Traction Power Substations: In its May 2016 Monthly Progress Report, MTACC reports that the Budget and Forecast for the CS084 contract remained at the \$79,717,772 level previously reported. The MTACC's May 2016 Monthly Report continues to show a forecasted contract Substantial Completion (SC) date in December 2019. The contractor, in its Monthly Schedule Update No. 7 (data date July 1, 2016), also indicates a December 2019 SC date and notes that now five contract Milestones are already delayed and will continue to be delayed as a result of previously discussed delay in certain substation and equipment designs. As of the July 2016 monthly progress meeting, it was noted that some of the design issues remain unresolved and the impact that any additional delay in resolving these design issues will have on the contract SC date is yet to be determined.

In its May 2016 Monthly Progress Report, MTACC shows a progress curve for the CS084 contract that presents actual contract progress as 8.9% versus a planned 16.7%; numbers that are based on actual versus projected costs, not physical construction efforts. An analysis of the status of the work activities shown on the approved baseline schedule is necessary to determine the status of the progress of physical work on this contract. Accordingly, the PMOC has requested, and continues to wait for copies of the CS084 approved baseline schedule and a current monthly schedule update, in Primavera format.

Design Progress: The contractor continued with the transmission of contractual submittals and its design development of the substations. As noted in previous reports, the contractor continues to assert that previous delays in receiving comments back from the MTACC on the C05 facility switchgear, the number of SCADA point sensors, and the general C08 substation design impacted its ability to meet its own original design, procurement, fabrication, and installation schedules. The ESA CS084 CM previously acknowledged that these comments were taking too long to process and met with LIRR senior management and the General Engineering Consultant (GEC) to focus on the priority of these designs. While in May 2016, the ESA CS084 CM advised that the LIRR engaged additional resources to assist in the review of CS084 design submittals, it does not appear to the PMOC that these additional resources have improved the efficiency of the submittal review process. At the mid-July 2016 progress meeting, the ESA CS084 CM noted that there were 299 out of 345 pending submittal responses that were overdue and provided the PMOC with a listing of all outstanding responses that will be used to discuss the mitigation of this issue with senior LIRR management. Also at the July 2016 progress meeting, the ESA CS084 CM advised that the LIRR and the MTACC reached an agreement on the required number of SCADA sensors and that the contractor would now be requested to submit a cost proposal to modify the SCADA

design accordingly. The GEC continues to work on design changes to address the penetration to the track level and room beam height issues at the Vernon (C05) facility. Implementation of the design changes must be negotiated with the CS179 contractor and progressed before the CS084 contractor begins work in the C05 facility. While the ESA CS084 CM acknowledged that these design efforts were taking too long to complete and need to be accelerated to preclude schedule slippage, as of mid-July 2016, these design efforts remained as on-going. One other previously reported design issue that needs timely resolution is the routing of DC cables at the Vernon (C05) substation facility. The identification of this issue was made several months ago, but the GEC has still not produced a re-design to remedy the problems. Exacerbating this issue is the fact that once a revised design is approved by all parties, MTACC will need to determine who – the CS179 or the CS084 contractor – will implement the re-design effort so that the CS084 contractor can install the DC cables. The PMOC continues to have concerns about the various design issues being identified and the length of time it is taking to provide responses and designs to mitigate the various issues. The MTACC needs to prioritize with the GEC the process to provide timely submittal responses and designs so as to preclude any delays to the contract.

Construction Progress: At the mid-July 2016 monthly progress meeting, the contractor advised that the L3 electrical service work was complete and ready for energization from Consolidated Edison (ConEd). The ESA CS084 CM noted that ConEd found an alternate routing to provide the electrical service and it would now be able to provide the required electrical feed before the end of July 2016. The ESA CS084 CM noted that electrical service to several electrical transformers and a distribution panel in Harold Interlocking is required in early August 2016. This work involves the electrical grounding and testing of the transformers and panel, installed but erroneously not grounded or tested under one or more prior ESA contracts that must occur before they are energized. As noted in previous reports, the contractor continued to advise the CS084 ESA CM that the water infiltration issue at the Vernon facility needs to be permanently mitigated before any equipment is installed. The continuing water infiltration issue is, per the contractor, precluding the commencement of any physical work in the substation facilities. At the April, May, and June 2016 monthly progress meetings, the CS084 contractor advised the ESA CS084 CM that, per the CS084 contract schedule, it appeared that the testing of the C08 substation was scheduled to occur before the conduit from the C08 substation to the track 3rd rail was installed under another ESA contract. The CS084 contractor noted that if this was an accurate observation, then it would mean that this would impact its ability to provide the required testing of the C08 substation in accordance with the contract specifications. In response to an inquiry from the PMOC regarding this potential schedule conflict, the MTACC acknowledged at the mid-July progress meeting that there did seem to be a problem with the sequencing of the work between the two contracts. The MTACC is discussing a resolution to this potential issue with the LIRR.

CS179 – Systems Package 1: As of the end of May 2016, per its Monthly Progress Report (MPR), MTACC's Budget and Forecast for CS179 remained \$606,938,540 and \$608,313,473, respectively. Although the reported Forecast clearly exceeds the reported Budget, MTACC continues to state that the Forecast is within the Budget; a statement that is not supported by the numbers presented in the MPR. In its May 2016 MPR, MTACC shows a progress curve for the CS179 contract that presents actual contract progress as 22.9% versus a planned 52.6%; numbers that are based on actual versus projected costs, not physical construction efforts. As presented, these progress numbers imply that the contract significantly behind schedule. MTACC is looking to evaluate the latest monthly schedule update from the contractor, one that purportedly includes

major contract date changes instituted by contract Modification No. 18, to ascertain if any revisions to the planned work progress are necessary. As noted in previous PMOC reports, Modification No. 18 to this contract revised the original Milestone, access restraint, Option exercise, and Substantial Completion (SC) dates. The new SC date is July 1, 2020; an approximate seven-month delay from the original November 19, 2019 date. As noted previously, this SC date is dependent upon the work progress and schedule of Contract CM007; a contract awarded in April 2016. As the CS084 contract progress is dependent on the completion of Milestone No. 1 in the CS179 contract, a milestone whose completion date was revised as part of contract Modification No. 18, the assessment of any potentially corresponding delay to Contract CS084 must now be re-evaluated based on the issuance of contract Modification No. 18. As of the end of July 2016, all but two Contract Options (Option Nos. 4 and 5) have been exercised. The ESA CS179 CM indicates that these remaining two contract Options will be exercised as per the schedule identified in Contract Modification No. 18. There are still two potential Buy/Ship America issues that pose significant risks to the successful and timely completion of this contract. The ESA CS179 CM advised that Buy/Ship America waiver request letters for the HVAC equipment and video display panels were drafted and are under review by MTA Legal staff. Once the letters are finalized, they will be submitted to the FTA for consideration.

Design Progress: As of the end of July 2016, the contractor is reporting that 11 of the control System designs are approved and that 2 of the Final Design Reviews (FDRs) were conducted. Eight of the remaining nine FDR meetings are scheduled for completion by mid-October 2016. A date for the submission of the final design documentation for the eleventh Control System design, the Centralized Train Control (CTC) system, remains undetermined due to allegations by the contractor that the MTA has not responded to the contractor's questions on some design elements. The contractor continues to assert that the backlog of comments from the MTA on design submittals and Requests for Information (RFIs), as well as the extended time being taken to address facility design issues, is causing delays to the timely progression of the contract. MTACC will need to evaluate these assertions against an updated contract schedule that includes revised Milestone dates developed as part of contract Modification No. 18.

Construction Progress: During July 2016, the CS179 contractor continued various elements of work (e.g. conduit installations, concrete work, temporary power installations, etc.) at the 2nd Ave.; B10; Roosevelt; Vernon; Tunnel Tracks LL; 29th St.; Queens Plaza; 39th St. and 63rd St. facilities. In July 2016, the contractor continued the installation of lighting in Tunnel Tracks A, B/C, D, and LL and worked on preparing the conduits for cable installation in the B10, Roosevelt Island, Vernon, 12th Street, 29th Street, 39th Street, and Queens Plaza facilities. The two Stop Work Orders (SWOs) for work in the control rooms at the Vernon and B10 facilities have been lifted, allowing the contractor to proceed with work in these two facilities. However, there are now five other SWOs on this contract. With regard to two of the SWOs, one is related to the requirement for an Undercar Deluge System at GCT and the other is related to the requirement for a transformer at 43rd Street. These two original work scope items will be deleted from the CS179 contract via a contract modification. Regarding the other three SWOs, one is related to water infiltration in the 29th Street Facility Power Room, and the second is related to the Fire Stand Pipe installation in the Vernon facility, and the third is related to condenser pipes and drainage issues at the 2nd Avenue facility. All remaining items need to be resolved by MTACC. Work at the 23rd Street facility remains on hold as a result of an issue with water infiltration through the

concrete floor and discussions with the CQ032 contractor regarding the mitigation of this issue continue.

Queens Contracts:

CQ032 – Plaza Substation and Queens Structures: The MTACC Forecast at Completion for CQ032 decreased slightly to \$263,400,728 in May 2016. The MTACC Forecast for Substantial Completion remained September 6, 2016. Actual construction progress for May 2016 was 0.5% versus 1.8% planned. Cumulative progress through May 31, 2016, was 97.0% actual versus 96.5% planned.

Construction Progress: During July 2016, the CQ032 contractor continued architectural and mechanical finishes in the Yard Services Building (YSB). The contractor continued punch list activity at the Plaza Vent Structure (PVS). The contractor continued Plaza grading and sitework. The contractor also completed removal of the BMT underpinning on the north side of Northern Blvd. There was no work advanced at the SW/NW vent shafts of the 23rd St. facility in July 2016, and ESA reports that the remaining vent shaft work and water infiltration remediation work will be transferred to contract CS179. ESA has executed a contract modification for remediation of pre-existing water infiltration conditions present at the Plaza Structure, which includes waterproofing envelope issues at bracing slabs and in the launch block area.

Harold Interlocking Contracts:

CH053 Contract – Harold Structures Part 1 and G.0.2 Substation: MTACC declared Substantial Completion for CH053 on February 29, 2016, and discontinued reporting financial and construction progress as of its 1Q2016 (January, February, and March 2016) Monthly Report. The last financial forecast that the PMOC has for CH053 indicates that the Forecast at Completion decreased slightly to \$290,321,730 as of February 28, 2016. Since the CH053 report was discontinued, there is no monthly construction progress available for May 2016, although the last cumulative progress, through February 2016, was 96.1% actual versus 100.0% planned. This will be the last month that the PMOC will report on the CH053 Contract.

Construction Progress: During July 2016, the CH053 contractor continued to install communications duct bank along the Tunnel A Approach Structure and make miscellaneous catenary installations and punchlist repairs throughout Harold Interlocking and the new G02 Substation.

CH057 – Harold Structures Part III: MTACC's Forecast at Completion for the CH057 contract remained at \$90,225,943 during May 2016. The Substantial Completion date of August 18, 2017, remained the same although this contract has several options which could extend the eventual Substantial Completion date. Actual construction progress for May 2016 was 7.4% versus 9.1% planned. Cumulative progress through May 31, 2016, was 24.3% actual versus 28.7% planned.

Construction Progress: During July 2016, the CH057 contractor continued to install secant, soldier, and pre-cast concrete "H" piles and continued to excavate for the East Approach Structure of Tunnel D in Harold Interlocking. As the contractor excavated, it completed demolition of the TBM cutter head that was left in place by the CQ031 contractor. The CH057 contractor also completed demolition of the east and west abutments of the LIRR ML4 bridge over 48th St., began construction of new abutments, and continued to construct catenary pole foundations along the RPR (Relocated Primary Route) Track in Harold.

CH057A – Part 3 Westbound Bypass: MTACC’s Forecast at Completion for the CH057A Contract decreased slightly during May 2016 to \$148,809,603. MTACC’s forecast for Substantial Completion was extended by almost 5 months to October 28, 2017. Actual construction progress for May 2016 was 0.9% versus 0.0% planned (the contract was supposed to be complete by now). Cumulative progress through May 31, 2016, was 35.3% actual versus 100.0% planned. The PMOC estimates that the contract remains at least 8 months behind schedule although MTACC has not made any schedule adjustments to reflect this.

Construction Progress: During July 2016, the CH057A contractor continued to de-water the entire Westbound Bypass (WBY) construction site, and continued to excavate both the East and West Approach Structures of the tunnel, and continued to excavate the Westbound Bypass Tunnel where the contractor has installed 11 structural frames and excavated approximately 55 feet of the tunnel since excavation began on June 20, 2016..

Railroad Force Account Contracts:

FHA01 – Harold Stage 1 Amtrak: MTACC’s Forecast at Completion for FHA01 remained at \$18,824,861 during May 2016. MTACC reduced its forecast for Substantial Completion by 14 months to August 26, 2018, due to deletion of catenary work for the Sunnyside Yard Station, which has been deleted from the contract. Actual construction progress for May 2016 was 0.0% versus 0.0% planned. Cumulative progress through May 31, 2016, was 98.8% actual versus 100.0% planned.

Construction Progress: Amtrak did not perform any significant Stage 1 construction during July 2016.

FHA02 – Harold Stage 2 Amtrak: MTACC’s Forecast at Completion for FHA02 remained at \$60,150,231 during May 2016. MTACC reduced its forecast for Substantial Completion by 3 months to September 19, 2020, but did not offer an explanation for the cause. Actual construction progress for May 2016 was 0.0% versus 0.2% planned. Cumulative progress through May 31, 2016, was 100.0% actual versus 99.8% planned (MTACC did not explain this discrepancy although the PMOC notes that it reports construction progress based on accumulated project cost rather than actual construction).

Construction Progress: During July 2016, Amtrak Electric Traction personnel installed catenary brackets, hardware, and insulator assemblies on 12 catenary poles along Lines 1, 3, and Loop 1A Tracks, installed guy wires on 3 catenary poles, installed messenger wire and hardware between the B911 and B914 catenary poles along Line 3 Track, installed a ground wire between the B926 and B927 catenary poles, removed the F33 catenary break at catenary pole B913 on Line 3 Track, and demolished the catenary and body spans at catenary pole B924. Amtrak 3rd Rail personnel began installation of 3rd rail plates on wood ties along Loop 1 Track.

FQA65 – Loop Interlocking Amtrak: MTACC’s Forecast at Completion for FQA65 remained at \$33,287,863 during May 2016. MTACC’s date for Substantial Completion (SC) also remained the same at June 4, 2023. Actual construction for May 2016 was 0.4% versus 0.3% planned. Cumulative progress through May 31, 2016, was 19.8% actual versus 55.1% planned (the PMOC is not concerned about this discrepancy due to the extension of the SC date coupled with MTACC reporting of construction progress based on cost rather than actual construction).

Construction Progress: Amtrak did not perform any significant FQA65 construction during July 2016.

FHL01 – Harold Stage 1 LIRR: MTACC’s Forecast at Completion for FHL01 remained at \$24,379,363 during May 2016. MTACC extended its forecast for Substantial Completion by 10 weeks to June 22, 2017. Actual construction progress for May 2016 was 0.0% versus 0.0% planned. Cumulative progress through May 31, 2016, was 86.8% actual versus 100.0% planned.

Construction Progress: LIRR did not perform any significant Stage 1 construction during July 2016.

FHL02 – Harold Stage 2 LIRR: MTACC’s Forecast at Completion for FHL02 remained at \$92,932,559 during May 2016. MTACC extended its forecast for Substantial Completion by 2 weeks to August 12, 2019. Actual construction progress for May 2016 was 1.7% versus 1.0% planned. Cumulative progress through May 31, 2016, was 88.4% actual versus 93.6% planned.

Construction Progress: During July 2016, LIRR Signal personnel continued to install trough and pull and terminate signal cables between 3 turnouts and the “H5” CIL, pulled signal cable between the “H5” and “H4” CILs, continued to install track wires at Location 30 and Signal Bridge 30, installed 2 new signal heads on Signal Bridge 30, continued to wire the new supervisory racks in Harold Tower, and continued to make signal revisions at the new “H3” CIL. LIRR Communications personnel installed communications cables between Location 30 (59th St.) and Woodside Avenue. LIRR High Tension personnel installed power feed cables between the HP3 and HP4 poles over the Loop Tracks, installed return feed conduit between Harold Tower and the transformer pad, and spliced 6 signal power separation cables at Tower 37. LIRR 3rd Rail personnel installed positive duct banks at the new G02 Substation and LIRR EL&P personnel pulled power cable between the distribution box and the transformer east of “H4” CIL.

d. Quality Assurance and Quality Control (QA/QC)

ESA Quality Staff: The ESA Quality Manager has resigned after eight years on the job. His last day worked was July 15, 2016. The PMOC is concerned that there is insufficient quality staff. One year ago, there was a Quality Manager and five quality engineers. One quality engineer resigned and has not been replaced. Another is being promoted to the Acting Quality Manager position so the staff is now down two quality engineers. MTACC Quality Management has stated that they are actively recruiting qualified individuals to fill the two vacant positions.

GEC Quality: The ESA Quality Manager conducted an audit of the GEC’s Quality System on June 21, 2016, and identified the following issues: the GEC’s Quality Program has not been signed by GEC’s management; there is no internal audit schedule; GEC management is not allocating sufficient time for the GEC Quality Manager to perform his duties; and the GEC is delinquent in providing updated revisions of their quality procedures. The Acting Quality Manager plans to meet with the GEC Quality Manager in September to discuss the quality issues that were identified during the audit.

CM013: A closeout audit on this contract was held to determine whether any quality issues will prevent this contract from closing. There is an open nonconformance report (NCR) for pipes fabricated in China that were installed and are now inaccessible. Closure of this NCR still awaits resolution between MTACC Legal and the FTA.

CM005: The ESA Quality Manager performed a walkthrough with the CM office in April 2016. The CM office still has a “punchlist” with about 53 items remaining. The contractor is working with a skeleton crew to complete these open punchlist items and electrical conduit repair. Anticipated completion date is mid-October 2016. Currently, there are some questions regarding survey. The concerns are being looked into by the CM office and the surveyor. The PMOC is concerned that there are many actions still to be completed before this contract can be closed.

Quarterly Quality Oversight (QO): The Acting Quality Manager has scheduled QOs for eight (8) ESA contracts in August 2016.

2.0 SCHEDULE DATA

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Program Critical Path:

ESA has reported that the program-level (to the Late RSD) critical path of the IPS continues to be the Harold path of work, and that the Manhattan/Systems path of work is approximately three months behind the critical Harold path of work. The critical path of IPS Update #82 goes through the following contracts and tasks:

- Wiring, Testing, and cable termination at Harold MG Function;
- Implementation of Cut-over sequencing plans (phases 0, I, and II);
- H5/H6/Loc 30 Pre-testing;
- H5/H6/Loc30 Cutover and H1/H2/Loc 30 Pre-testing;
- H1/H2 Cutover and NH1/PW1 Outage electrical work;
- FHL04 electrical work;
- CH058 civil work on the B/C Approach Structure;
- Tie-in, Testing, and Cutover of 4C;
- LIRR Revenue Service Date (RSD);
- Train Contract Staffing and LIRR Final 3 Months Period;
- [REDACTED]
- [REDACTED]
- Late Revenue Service Date (Begin LIRR Revenue Service to GCT).

ESA reported the following regarding the forecasted critical path as of June 1, 2016:

The Harold critical path is shadowed by several other near-critical paths. Last month, the Harold path started with the development of software for the H5/H6/Location 30 interlockings (2G) cutover. This month, the Harold critical path is driven by the completion of Motor-power Generation (MG) Signal Power Separation (SPS) testing and revisions for the CIL cutover. Once the Harold MG is operational, LIRR can commence implementing the MG SPS cutover sequence followed by pre-testing for the H5/H6/Location 30 interlockings (2G) and H1/H2/Location 30 interlockings (2J). The cutover for H5/H6/Loc30 is scheduled for mid-September 2017. The cutover for H1/H2/Location 30 is scheduled for mid-September 2018. Both cutovers require lengthy pretesting.

In an effort to maintain or improve the current Harold Signal Cutovers schedule, MTACC has assembled a Harold Task Force which includes staff from LIRR and the GEC. LIRR has been requested to consider revisions to the existing schedule, principally by agreeing to begin LIRR pre-testing after receiving all Ansaldo software submittals. This would eliminate the LIRR requirement for approval of all Ansaldo software prior to pre-testing. The Ansaldo software packages include H1, H2 and H4 CILs; Wood Interlocking; and Plaza Interlocking.

In addition, the Harold Task Force has requested LIRR to consider an extended track outage on Main Line 4 to support/expedite the construction of the Tunnel D approach structure. This would include advancing the Stage 2I cutover and reduce the amount of pre-testing for the H5/H6/L30 interlockings. Supporting these

requests is the fact that the H3 and H4 CILs were pre-tested and cut over without final adjacent software being available.

The Harold critical path proceeds from these Harold Signal Cutovers into various switch removal and installation work in the northeast quadrant of Harold interlocking, performed by LIRR and the (future) CH057D PW/NH1 3rd Party contract. (An adjustment to the timing of the switch installations needs to be made to recognize weather constraints.) The path then moves into the B/C approach structure work (future CH058A), testing for the B/C approach structure track work cutover (4C) and into the “Harold ESA Ready for RSD” milestone of October 2020. The Harold critical path concludes with the ‘LIRR planning for final training’ and ‘LIRR final 3-month period’ tasks and terminates at the Target Revenue Service Milestone. The current IPS forecasts the Target Revenue Service Date (RSD) in February 2021, with the Late RSD forecast for December 2022.

The PMOC attempted to track the progress made to critical path activities over the update period but was unable to. For example, MTACC’s May 1, 2016 IPS showed the following sequence of activities leading up to FHL02-CSR300: Pre-testing – H5/H6/Loc 30, forecasted to begin on October 6, 2016 as of May 1, 2016:

Figure 2-1: Controlling Critical Activities as of May 1, 2016 (ESA IPS #81)

Activity ID	Activity Name	Remaining Duration	Start	Finish
FHL02-CSR700	ASTS addresses comments and incorporates - (L30)	10	11-Apr-16 A	13-May-16
FHL02-CSR710	GEC/LIRR Reviews ASTS submission - (L30)	25	16-May-16	20-Jun-16
FHL02-CSR720	LIRR Simulation - (L30)	30	21-Jun-16	02-Aug-16
FHL02-CSR730	Address Simulation Comments - (L30)	20	03-Aug-16	30-Aug-16
FHL02-CSR740	LIRR approves SW, FRA updates written test procedures - (L30)	25	31-Aug-16	05-Oct-16
FHL02-CSR300	Pre-testing - H5/H6/Loc 30	222	06-Oct-16	21-Aug-17

However, MTACC’s June 1, 2016 IPS no longer contains the first six activities shown above leading up to the start of Pre-testing at H5/H6/Loc 30. Instead, the current IPS shows the following critical path activities leading up to the start of FHL02-CSR300, which is now forecasted to begin six days later, on October 12, 2016:

Figure 2-2: Controlling Critical Activities as of June 1, 2016 (ESA IPS #82)

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

Activity ID	Activity Name	Remaining Duration	Start	Finish
CH053-7480	VHL02 Re-wire 60 Hz power for Harold MG	18	02-May-16 A	24-Jun-16
CH053-7190	VHL02 Test Harold MG Function (Powell) (8 Weeks)	10	04-Apr-16 A	11-Jul-16
FHL02-3300	LIRR Terminate cables in Harold MG	5	12-Jul-16	18-Jul-16
FHL02-2220	Implementing Cut-over Sequencing Plan - Phase 0	20	19-Jul-16	15-Aug-16
FHL02-5140	Implementing Cut-over Sequencing Plan - Phase I	20	16-Aug-16	13-Sep-16
FHL02-30140	Implementing Cut-over Sequencing Plan - Phase II	20	14-Sep-16	11-Oct-16
CH053-2080	LIRR Cutover Signal Power Separation and MG Set	0		11-Oct-16
FHL02-3260	LIRR Cutover MG SPS (SPS Complete) w/o EO Control	0		11-Oct-16
FHL02-CSR300	Pre-testing - H5/H6/Loc 30	202	12-Oct-16	28-Jul-17

As can be seen above, critical path activities leading up to FHL02-CSR300 changed over the update period. [REDACTED]

[REDACTED] However, the six critical activities leading up to FHL02-CSR300 in the May 1, 2016 IPS update were no longer contained within the June 1, 2016 IPS update; it appears they were deleted. The PMOC is very concerned about the deletion of activities from the critical path without discussion or justification. If these activities made progress and were completed, the activities should remain in the IPS and be reported with the actual completion dates. If they no longer represent applicable scope in the Contract, and were deleted, this discussion should be included in the IPS report.

The PMOC has observed changes in the Harold critical path, with regard to durations, logic, and sequencing of activities. There appears to be some discussion of these changes within the associated IPS update reports, but the PMOC believes the discussion to be too general and requires more detail. The PMOC will continue to work with the MTACC Project Controls group to resolve the issues.

Table 2-1, below, shows important 90 day Look-Ahead milestone dates reported in IPS #82:

Table 2-1: Critical Milestones 90 Day Look-Ahead (from ESA IPS #82)

Activity ID	Activity Name	Start	Finish	[REDACTED]
CH053: Harold Structures Part 1 & G.O.2 Substation / FHL02: Harold Stage 1 – LIRR F/A				
CH053-2080 / FHL02-3260	LIRR Cutover Signal Power Separation and MG Set / LIRR Cutover MG SPS (SPS Complete) w/o EO Control		11-Oct-16	[REDACTED]

ESA reported that work at Manhattan/Systems is a sub-critical path that controls the Target RSD:

The Manhattan/Systems critical path starts with the design, fabrication, and delivery of the first precast elements at the mezzanine level of the GCT Tunnel. The path then continues through the upper level structure, then the lower level. Elevator work then follows. The critical path then proceeds through CM007 work then transitions into the CS179 integrated systems testing (IST). CS179 performs

integrated systems testing for the communications systems and facility power at Jamaica Station; fire detection and security at the TMC and MTA Police systems; testing at the Train Operations Center (TOC); and concludes at CS179 substantial completion, currently forecast for July 1, 2020. [REDACTED]

The IPS continues to show an increasing divergence between the CS179 forecasted and current contract progress, which is of concern to the PMOC.

The PMOC recommends that the PMT fully describe changes to critical path activities that occur between IPS updates in its associated IPS reports.

Upcoming Contract Procurements:

Table 2-2, below, shows the reported status of current and upcoming Contract procurements in IPS #82:

Table 2-2: Future Procurement Schedule

Contract Description	Advertise Date	Bid Date	NTP	Project Period	Substantial Completion
CM015 48th Street Entrance	8/25/2016	10/20/2016	01/03/2017	24 Months	01/03/2019
CQ033 Mid-Day Storage Yard	8/18/2016	10/11/2016	01/25/2017	40 Months	05/06/2020
CH061A Tunnel A	5/23/2016	07/12/2016	10/14/2016	16 Months	02/13/2018
CS086 Systems Package 2: Signal Installation	9/6/2016	10/17/2016	12/12/2016	43 Months	07/01/2020

The PMT's May IPS report has a data date of June 1, 2016, and should include actual data for activities up until that date. However, as shown above, the PMT is reporting that the Advertise Date for CH061A Tunnel A is forecasted to be May 23, 2016. This appears to be a mistake, as this cannot be forecasted to occur before the data date if it is not yet complete.

The PMOC is concerned about the delay to the procurement of CQ033. The forecasted Advertise Date for CQ033 has moved from July 15, 2016 to August 18, 2016, over the last quarter.

IPS Concerns:

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

1. Page 1 of the June 1, 2016 IPS Report states the following:

In an effort to maintain or improve the current Harold Signal Cutovers schedule, MTACC has assembled a Harold Task Force which includes staff from LIRR and the GEC. LIRR has been requested to consider revisions to the existing schedule, principally by agreeing to begin LIRR pre-testing after receiving all Ansaldo software submittals. This would eliminate the LIRR requirement for approval of all Ansaldo software prior to pre-testing. The Ansaldo software packages include H1, H2 and H4 CILs; Wood interlocking; and Plaza interlocking. The PMOC recommends that the MTACC estimate the schedule savings this action may produce.

2. The PMOC is concerned about the delay to the procurement of CQ033. The forecasted Advertise Date for CQ033 has moved from July 15, 2016 to August 18, 2016 over the last quarter.
3. The PMT's May IPS report has a data date of June 1, 2016, and should include actual data for activities up until that date. However, as shown above, the PMT is reporting that the Advertise Date for CH061A Tunnel A is forecasted to be May 23, 2016. This appears to be a mistake, as this cannot be forecasted to occur before the data date if it is not yet complete. The PMOC recommends that the PMT check this date and if it's an actual date, so note it with an (A) in its table.
4. The IPS continues to show an increasing divergence between the CS179 forecasted and current contract progress, which is of concern to the PMOC.
5. The PMOC has noted a trend in Force Account Work not being completed as scheduled, due to a lack of resources within LIRR and Amtrak personnel needed to perform the work. Due to the concern that this work may begin to have an impact on the Project, the PMOC has been tracking this work and will begin to incorporate an analysis of any noted delays in these reports.
6. The PMOC recommends that the PMT fully describe changes in critical path activities between updates in the associated IPS reports.

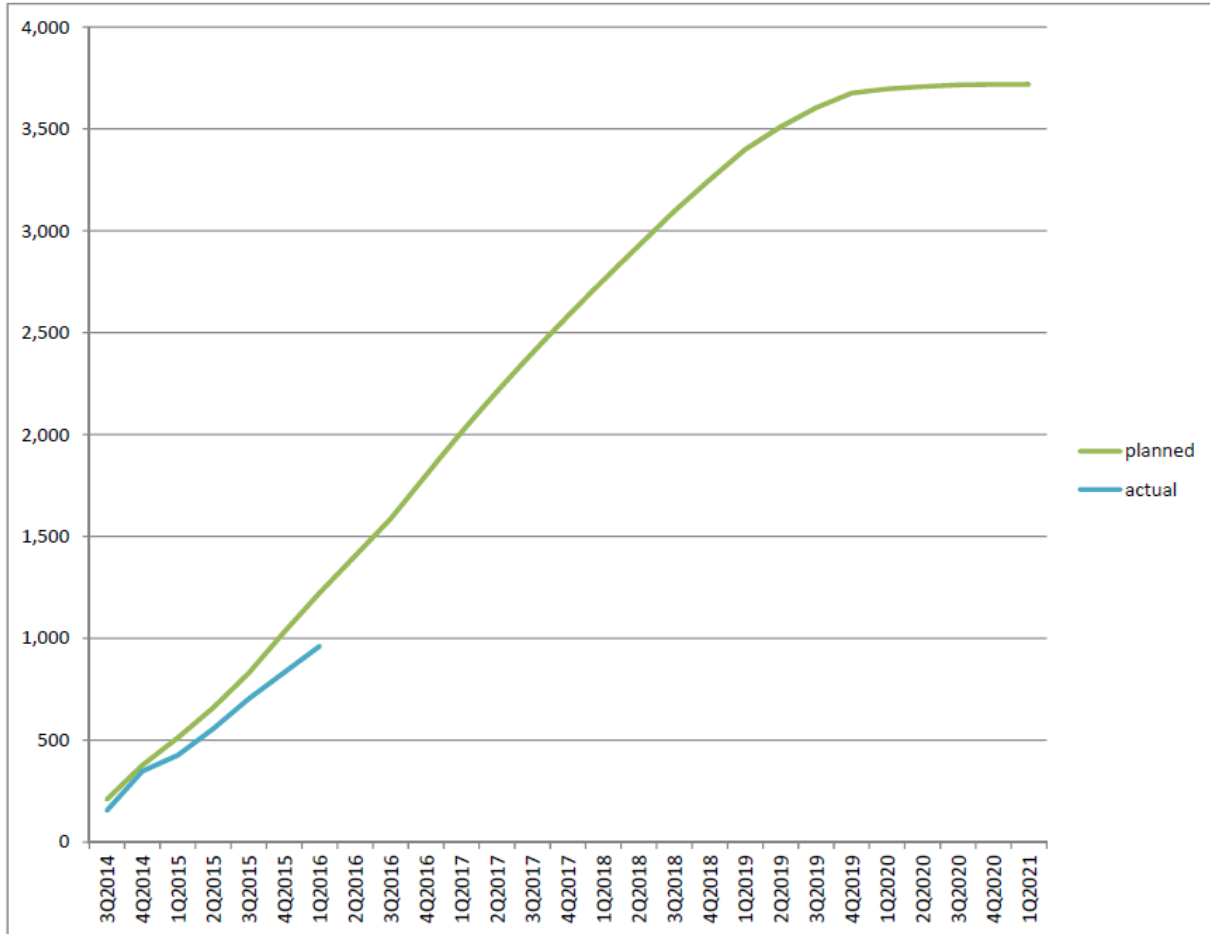
3.0 COST DATA

Funding: The funding concern that PMOC previously identified was resolved in May 2016 with CPRB approval of the 2015-19 Capital Planning.

Budget/Cost: The ESA May 2016 Progress Report (June 1 data date) shows that the actual total project progress was 63.6% versus 65.1% planned against the Current Baseline Budget (CBB) of \$10.178 billion. Total actual construction progress was 63.3% versus 66.0% planned based on the total invoiced amount of construction (details of project budget and expenditures are shown in Appendix B, Tables 2 and 3). A PMOC review of the ESA Planned Cash Flow Chart shows that it is based on a February 2021 completion date. This now aligns with the Target Revenue Service date resulting from the June 1 data date of the IPS. Since the 2014 rebaselining the actual cumulative construction amount spent is 79% of the planned construction spending. Since the start of the program, the actual cumulative construction amount spent is 95% of the planned construction spending. As a result of its inability to achieve the planned construction spending, and the increase in construction budget from the 2014 re-baselining to current, MTACC is no longer striving to achieve the Early Revenue Service Date. This spending trend and future projections are shown in Tables 3-1 and 3-2 below.

Table 3-1: Planned vs Actual Construction Cash Flow

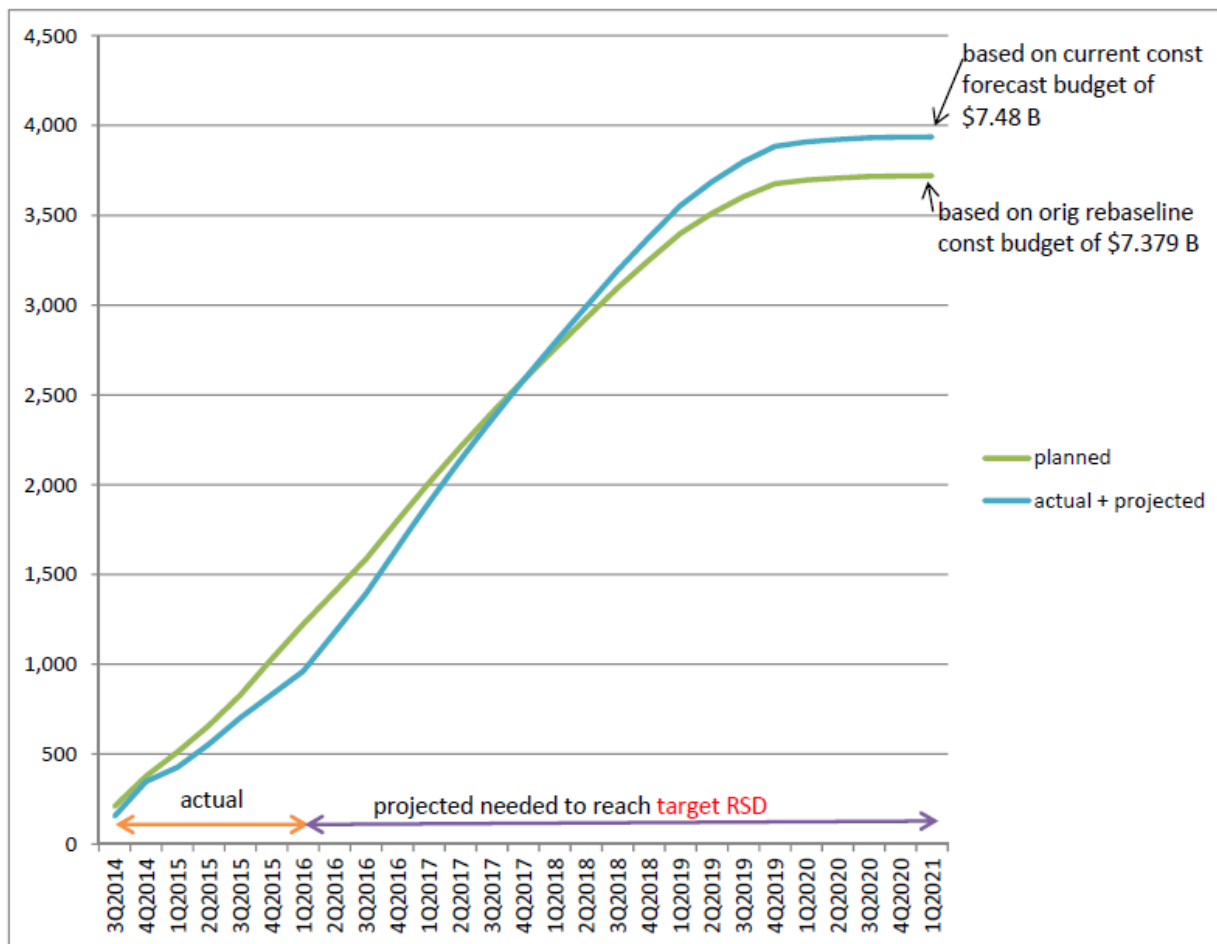
The "planned" curve shows construction cash flow that was planned by ESA at the 2014 re-baselining in order to reach revenue service by the 1Q 2021. The vertical axis is \$million, starting at \$0 at the time of the re-baselining. The "actual" curve, up to the 1st quarter of 2016, shows actual construction spending as reported by ESA.



Construction Cash Flow at 1Q 2016 – Starting at 2014 Rebaseline

Table 3-2: Actual & Projected Construction Cash Flow to Early RSD

The "planned" curve shows construction cash flow that was planned by ESA at the 2014 re-baselining in order to reach revenue service by the 1Q2021. At that time the total construction budget was \$7.38 billion. The vertical axis is \$million, starting at \$0 at the time of the re-baselining. The "actual" curve, up to 1Q2016, shows actual construction spending as reported by ESA. The "projected" portion of that curve, from the 1Q2016 through 1Q2021, shows the PMOC's projected construction spending rate to reach the current \$7.48 billion final construction budget by the 1Q2021.



Construction Cash Flow - Starting at 2014 Rebaseline

Several significant items were discussed at the Monthly Cost Review meetings of July 27, 2016.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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

[REDACTED]

Change Orders/Budget Adjustments: The PMT reported that, during May 2016, eight (8) construction Change Orders greater than \$100,000 were executed for a total of \$4.46 million. These include construction and GEC design modifications.

4.0 RISK MANAGEMENT

The ESA Risk Manager conducted a comprehensive risk review of the CQ033 contract for the Mid-Day Storage Yard over a two day period on May 10 and 11, 2016. The facilitator subsequently submitted its draft risk report to ESA. ESA plans to present the draft report to MTACC management on August 1, 2016, and then provide the draft to the FTA and the PMOC.

Based on long standing issues and concerns regarding Antrak’s ability to provide sufficient force account support to the ESA project, especially Electric Traction (ET) resources, ESA completed a Harold schedule re-sequencing in December 2014, also known as “ESA First,” that advances work elements required for the new LIRR service to GCT and delays some of the FRA funded High Speed Rail (HSR) work beyond 2017. Railroad construction work prior to development of the “ESA First” schedule was also falling behind schedule due to the overall delays to much of the Harold work. MTA continues to work with both the FTA and the FRA to resolve funding drawdown issues.

The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to harden ERT Lines 3 and 4 in preparation for extended outages for ERT Lines 1 and 2 to complete Hurricane Sandy damage-related reconstruction work, earlier scheduled to commence in 2018, but now planned for 2019. Amtrak has not yet provided any specific details about the ERT Lines 3 and 4 hardening work, but 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 plans to start work on the total track replacement in ERT Lines 3 and 4 during 3Q2016. There is also concern that track outages required for the hardening work may conflict with ESA needs to support completion of the planned Harold work, including the High Speed Rail scope, by 2020. The PMOC does note, however, that MTACC does not believe that Amtrak's decision about taking ERT Line 2 out of service first, in 2019, for the 18-month reconstruction work will directly impact the completion of the Harold work needed to commence LIRR service into GCT.

With regard to the implementation of the "ESA First" Harold Re-sequencing of late 2014, the PMOC notes, that through 2015 and into 2016, Amtrak has not been able to provide even the reduced level of force account resources that was planned in support of the schedule. [REDACTED]

[REDACTED] Since late 2015, ESA has been working on a comprehensive study to identify and evaluate the reasons for inadequate level of force account resources required to support the Harold schedule and to make recommendations to revise the schedule and to plan for the increasing force account costs. Based on the outcome of the study, the revised project schedule indicates that the Harold critical path has now become the ESA program critical path and leads the secondary Manhattan/Systems critical path by three months. Cost impacts are still being evaluated and had been expected to be available in July 2016, but are now expected in August, 2016.

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. The 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. The 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 the 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.
- **Continuing ELPEP Compliance:** The following ELPEP components continue to need improvement: Management Decision; Design Development; Change Control Committee (CCC) Process and Results; Stakeholder Management; Issues Management; Procurement; Timely Decision Making; and Risk-Informed Decision Making. The PMOC has noted progress in two areas – management decision

making and timeliness of decision making. The new ESA Risk Manager started in January 2016 and has worked to re-establish risk management as one of the key inputs to the decision-making process. The PMOC anticipates seeing continued improvements in the risk management area.

- **Project Management Plan:** The PMOC completed its review and evaluation of MTACC's revisions and responses and submitted its findings to FTA-RII in 4Q2014. MTACC subsequently submitted a revised Rev. 10 on March 13, 2015, that included updated information on the Change Control Committee. The revised Rev. 10 of the PMP was reviewed by the PMOC against the PMOC's evaluation in 4Q2014. The PMOC continues to coordinate with MTACC, arranging working meetings with ESA chapter authors and the corresponding PMOC reviewers to resolve the remaining outstanding FTA/PMOC evaluation comments. Several working meetings have been held since June 2015 and continued through December 2015. MTACC and the PMOC are working to schedule the few remaining meetings with ESA chapter authors required to complete this process.
- [REDACTED]

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. The PMOC believes that this continues to be a deficiency and needs to be corrected. The PMOC has noted 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, [REDACTED] against a current baseline schedule. The revised SMP was submitted in 4Q2015, and the PMOC completed its review in June 2016. Review comments were forwarded to MTACC on July 15, 2016, and a working meeting will be arranged to review, discuss and resolve the comments.
- **Cost Management Plan (CMP):** The ESA project remains partially non-compliant with requirements for Project Level EAC Forecasting, Project Level EAC Forecast Validation, [REDACTED] and Secondary Mitigation. The PMOC has noted some improvement in a number of areas, but more work is needed in other areas. After progressing with resolution of many PMOC comments, the PMOC met with MTACC in November 2015 to focus on the remaining issues. MTACC continued working on additional agreed upon revisions and evaluated the PMOC's recommendations in six areas. MTACC provided an initial draft of the revised CMP on December 15, 2015, and the PMOC completed its review in early June 2016. MTACC and the PMOC met on June 22, 2016, to review the PMOC comments. MTACC will follow up with the PMOC regarding any remaining actions.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The PMOC is working on a draft revision to the ELPEP document that reflects these agreements.

The next ELPEP Quarterly Review Meeting with the MTACC, FTA-RIL, the SAS and ESA projects, and the PMOC had been scheduled for June 16, 2016, but was postponed and had not been rescheduled as of the end of July 2016.

6.0 SAFETY AND SECURITY

Table 6-1, below, shows the ESA Lost Time and Recordable injury ratios through June 30, 2016. 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 2016 Lost Time and Recordable Injury Ratios

	Lost Time Ratio	Recordable Ratio
2015 BLS Ratio (used by OSHA)	1.80	3.20
ESA June 2016 Ratio	0.95	0.95
ESA CY2016 Ratio	0.62	2.15
ESA Reported Ratio (Cumulative since beginning of project as of May 31, 2016)	1.90	ESA does not report cumulative Recordable Injury Rates

Additionally, the ESA PMT did not report any significant security issues during July 2016.

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, are requiring considerably more time than expected; and,
- LIRR is making changes that alter the design basis and results in time-consuming re-design work by the GEC.

The PMOC recommends that the PMT engage upper level management of stake holders involved to assist in resolution of the more serious issues. The GEC is challenged to meet the schedule requirements for review of design submittals from the CS084 and CS179 contractors. The PMT needs to address this continuing problem and to also better coordinate the associated LIRR reviews.

Procurement: The lack of stability in the contracting strategy and Contract Packaging Plan remains a concern. The scope shifting among different packages delays completion of the required design packages, delays the procurement schedules, and makes it difficult to fully understand the impact of these changes to the overall ESA Project. The PMOC continues to recommend that the ESA PMT should make an effort to adhere to the current version of the CPP and minimize shifting scope for the remainder of the project.

Contract CS179: As noted in previous reports, the PMOC remains concerned that Buy/Ship America compliance issues remain as significant risks to the timely and successful completion of this contract. MTACC needs to quickly move forward with its intent to request Buy/Ship America waivers for the potential non-compliance issues so as not to adversely impact the CS179 and overall ESA project schedule.

The Buy/Ship America waiver request process can be a lengthy one, with no guarantee that a waiver will be granted. The sooner the waiver request documentation is finalized and submitted to the FTA, the sooner the MTA will know if alternative strategies and/or equipment are required to fulfill the contract's operational functionality requirements.

A fully tested solution to the numerous water infiltration issues in the equipment rooms remains a concern to the PMOC. To avoid Contract CS179 schedule slippage, proposed mitigation solutions need to be quickly approved and implemented so that these equipment rooms can be turned over to the CS179 contractor as soon as possible.

Late completion of reviews of contractor design submittals by ESA have caused the design completion date to slip seven months. ESA, working with the GEC and LIRR, needs to effectively manage the remaining design reviews to prevent any further schedule slippage.

Contract CS084: The PMOC remains concerned about the numerous water infiltration issues in the equipment rooms and the solutions that need to be implemented to provide permanent mitigation of the water infiltration in rooms with electronic equipment. While the GEC has now proposed a possible mitigation methodology, its implementation has yet to begin and its ability to successfully mitigate the water infiltration problem can only be validated after the mitigation work is complete.

If this proposed mitigation methodology is not entirely successful in preventing water infiltration, then it may be necessary to develop another strategy; further impacting the design and construction processes on this and other contracts.

The PMOC continues to have concerns about the various design issues now being identified and the length of time it is taking to provide responses and designs to mitigate the various issues. Lastly, ESA, the GEC and LIRR need to continue to aggressively reduce the backlog of contractor design submittals under review.

Contract CM006: In July 2016, ESA reported that the contract modification had been executed for the new schedule. The contractor is currently preparing a new CPM schedule. With the execution of the contract modification this issue is now closed.

Contract CM007: With the award of the CM007 contract on April 11, 2016, this issue is now closed.

Project Budget:

[REDACTED]

The PMOC is awaiting the results of the risk assessment for CQ033 which is currently scheduled for advertisement in August 2016. [REDACTED]

Project Schedule: The PMOC is concerned that, as stated by the PMT, Amtrak is not providing enough resources to support the ESA's scheduled critical work. The PMT has stated that they will continue to meet with Amtrak and has obtained clearances to transfer Amtrak work to 3rd parties to try to partially mitigate schedule delays. The PMOC had previously expressed concern that Harold Interlocking may already have been the Project Critical Path prior to it being reported as such by the PMT. As noted in Section 2.0 above, IPS #82 does indeed show that Harold is now the controlling critical path for the Late RSD, as tracked in the IPS.

Risk Management: In the PMOC's opinion, funding availability had been a significant risk to the ESA project for almost two years through April 2016. Funding uncertainty has already resulted in the following:

- PMT's delay of the CM007 contract award until 2016 due to budget constraints;
- The restructuring of the CS179 contract by splitting it into a base contract with seven options, based predominately on access restraints imposed by the CM006, CM007, and CM014B packages. This will significantly increase the construction contract interface risks; and,
- With CPRB approval of the 2015-2019 Capital Plan in May 2016, project funding availability is no longer a risk.

This 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 work site time and access constraints. Should delays start to accumulate, recovery will likely not be possible. Managing inter-contract handoffs and interfaces will be challenging and represents significant MTACC-retained risks. The PMOC does recognize the PMT's efforts to mitigate some of the potential cost exposure by negotiating adjustments to schedule constraints across the four ESA contracts currently held by the same contractor (CM006, CM007, CS179, and CQ032). These mitigations, however, are not necessarily effective in solving

the productivity challenges that result from the CM007 schedule that the PMOC considers very aggressive.

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 the 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 Eastside Access Program to be:

- 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 [increasing risk trend noted in 3Q2015 through 2Q2016]; and,
- Continued availability of required track outages in Harold Interlocking.

Although MTACC has actively engaged Amtrak to develop some specific mitigations for the last two risks and continues to work on strategies for mitigating many of the other identified risks, the PMOC notes that continued shortcomings in provision of adequate force account resources have adversely impacted the current Harold schedule and have 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. Although MTACC and ESA have been proactive in dealing with these issues as they arise, the PMOC believes that most of these issues require resolution at the upper management level.

The PMOC notes that ESA has been unable to develop a sustainable schedule for the remaining Harold Interlocking work that can be achieved despite the most recent full re-plans in 2013-2014 and again in 2015 as the "ESA First" Harold Re-Sequencing. Based on insufficient support from Amtrak during 2015 and into 2016, ESA has undertaken another Harold re-plan effort that reflects the continued deterioration of Amtrak support with regard to force account resources and track outages for ESA work. The results of the study, along with the recent Amtrak decision about the ERT tunnel program, do not provide any basis for optimism going forward, especially considering that the situation has deteriorated so quickly since the current baseline was established only 2 years ago:

- [REDACTED]
- [REDACTED]
- The Harold critical path has now become the ESA Program Critical Path and leads by three months, the secondary Manhattan/Systems critical path,
- Amtrak's decision to take ERT Line 2 out of service first for an extended outage of one year or more will not support the current ESA planning to complete all of the remaining Harold work, including the High Speed Rail work by 2020. The PMOC does note, however, that MTACC believes that Amtrak's decision about ERT Line

2 will not impact the remaining work in the Harold Interlocking required to provide LIRR service to Grand Central Terminal; and,

- Amtrak plans to commence total track replacement in the ERT Lines 3 and 4 structures during 4Q2016 in preparation for the extended outages for ERT Lines 1 and 2 starting in 2019; this situation may adversely impact the availability of force account resources for the remaining ESA work.

During 2Q2016 and into July 2016, ESA continued to experience a worsening trend of insufficient Amtrak Force Account personnel, predominately Electric Traction (ET), to properly support its 3rd Party contractors currently working in Harold Interlocking, CH053, CH057, and CH057A. Additionally, the ESA PMT has reported that it does not receive all the track outages it requires to do the work that it schedules. The ESA PMT has stated that both of these conditions have been major factors for why Harold construction recently became the critical path of the ESA Project. The PMOC recognizes ESA's efforts to rebaseline the remaining work in the Harold Interlocking to reflect more realistic expectations of Amtrak support. However, the situation continues to deteriorate and the PMOC recommends that the PMT engage upper management in MTACC and MTA to assist with resolution of this problem.

APPENDIX A - ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
BLS	Bureau of Labor Statistics
BOH	Back of House
BAFO	Best and Final Offer
C&S	Communication and Signals
CCC	Change Control Committee
CCM	Consultant Construction Manager
CIL	Central Instrument Location
CLSM	Controlled Low Strength Material
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
CPRB	Capital Program Review Board
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
ERT	East River Tunnel
ESA	East Side Access
ET	Electric Traction
FA	Force Account
FDR	Final Design Review
FFGA	Full Funding Grant Agreement
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCT	Grand Central Terminal
GEC	General Engineering Consultant

HSR	High Speed Rail
IEC	Independent Engineering Consultant (to MTA)
IFB	Invitation for Bid
IPS	Integrated Project Schedule
IST	Integrated System Testing
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
NTP	Notice to Proceed
NYAR	New York and Atlantic Railroad
NYCT	New York City Transit
PAC	Pneumatically Applied Concrete
PDR	Preliminary Design Review
PEP	Project Execution Plan
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PMT	ESA Project Management Team
PQM	Project Quality Manual
PVS	Plaza Vent Structure
PWE	Project Working Estimate
QA	Quality Assurance
RAMP	Real Estate Acquisition Management Plan
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
RTU	Remote Terminal Unit
SC	Substantial Completion
SCADA	Supervisory Control and Data Acquisition
SCC	Standard Cost Category
SDR	Second Design Review
SMP	Schedule Management Plan
SMU	Snow Melter Unit
SOE	Support of Excavation
SSMP	Safety and Security Management Plan
SWO	Stop Work Order
TCC	Technical Capacity and Capability
TELP	Temporary Eastbound LIRR Passenger
WBY	Westbound Bypass Tunnel
YSB	Yard Services Building

APPENDIX B – TABLES

Table 1: Summary of Critical Dates

	FFGA	Forecast (F) Completion, Actual (A) Start	
		Grantee*	PMOC**
Begin Construction	September 2001	September 2001(A)	September 2001(A)
Construction Complete	December 2013	December 2022 (F)	September 2023(F)**
Revenue Service	December 2013	December 2022 (F)	September 2023 (F)

* Source – Grantee 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

	FFGA			MTA's Current Baseline Budget CBB		Expenditures	
	(Millions)	(% of Grand Total Cost)	Obligated	(Millions)	(% of Grand Total Cost)	(Millions)	(% of CBB)
Grand Total Cost	\$7,386	100.0%	\$4,724	\$11,214.0	100.00%	\$6,948.9	61.97%
Financing Cost	\$1,036	14.0%	\$617	\$1,036.0	9.24%	\$617.6	59.61%
Total Project Cost	\$6,350	86.0%	\$4,107	\$10,178.0	90.76%	\$6,331.3	62.21%
Federal Share	\$2,683	36.3%	\$1,148	\$2,699.0	24.07%	\$2,228.2	82.56%
5309 New Starts Share	\$2,632	35.6%	\$1,098	\$2,436.6	21.73%	\$1,966.1	80.69%
Non New Starts Grants	\$51	0.7%	\$50	\$67.0	0.60%	\$66.7	99.55%
ARRA	0	0.0%	0	\$195.4	1.74%	\$195.4	100.0%
Local Share	\$3,667	49.6%	\$2,959	\$7,479.0	66.69%	\$4,103.1	54.86%

Table 3: Project Budget and Invoices as of May 31, 2016

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (May 2016)	Actual Awards (May 2016)	Paid to Date (May 2016)	Actual % Budget Paid
Construction	\$7,379,296,706	7,472,240,677	6,393,306,867	4,597,836,523	61.53%
Soft Costs Subtotal	\$2,798,474,304	\$2,705,530,333	\$1,822,103,894	\$1,733,488,072	64.07%
Engineering	\$720,615,810	\$723,521,828	\$688,873,189	\$667,827,887	92.30%
OCIP	\$282,613,620	\$282,613,620	\$282,613,620	\$250,938,522	88.79%
Project Mgmt.	\$972,168,644	\$972,168,644	\$734,139,903	\$699,921,978	72.00%
Real Estate	\$182,076,230	\$178,049,776	\$116,477,182	\$114,799,685	64.48%
Rolling Stock	\$202,000,000	\$202,000,000	\$0	\$0	0.00%
██████████	██████████	██████████	█	█	██████
██████████	██████████	██████████	██████████	██████████	██████
██████████	██████████	██████████	██████████	██████████	██████

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

Standard Cost Category (SCC) No.	FFGA SCC baseline (YOES) M	June, 2014 Re-Plan (YOES)	December 2015 SSC (YOES) M	January 2016 SSC (YOES) M	February 2016 SSC (YOES) M	March 2016 SSC (YOES) M	May 2016 SSC (YOES) M	CBB Variance from FFGA %
10	1,989	3,405	3,420	3,419	3,419	3,443	3,469	74.41%
20	1,169	2,238	2,338	2,338	2,338	2,314	2,323	98.72%
30	356	474	472	472	472	472	473	32.87%
40	205	611	593	593	593	594	594	189.76%
50	619	606	566	566	566	569	569	-8.08%
60	165	220	218	217	217	216	215	30.30%
70	957	210	210	210	210	210	210	-78.06%
80	1,184	1,975	1,976	1,977	1,977	1,977	1,978	67.06%
[REDACTED]								
[REDACTED]								
100	1,036	1,036	1,036	1,036	1,036	1,036	1,036	0.00%
[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]

Table 5: Quarterly ESA Planned Cash Flow- Actuals to Date and Actuals Remaining (as of 1Q2016)

Planned vs Actual Cash Flow at End of 1st Quarter 2016						
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
Remaining Planned	2,495,393,139	97,114,374	93,843,517	276,361,015	46,328,210	202,000,000
Remaining Actual	2,928,921,542	57,642,122	68,566,321	285,916,506	64,387,785	202,000,000
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
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
3Q2021	0	0	0	0	0	0
4Q2021	0	0	0	0	0	0

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

Standardized Cost Category	FFGA	May 2012 Re-Baseline	June 2014 Re-Plan	Awarded Value May 2016	Paid To Date May 2016
10- Guideway & Track Elements	\$1,988,742	\$2,943,165	\$3,405,463	\$3,081,822	\$2,363,379
20- Stations, Stops, Terminals, Intermodal	\$1,168,655	\$1,513,998	\$2,238,235	\$2,144,651	\$1,217,371
30- Support Facilities, Yards, Shops, Admin Buildings	\$356,264	\$384,583	\$474,177	\$230,649	\$209,639
40- Site Works and Special Conditions	\$205,105	\$491,341	\$610,570	\$456,194	\$459,561
50- Systems	\$619,343	\$698,296	\$605,592	\$434,832	\$305,016
60-ROW, Land, Existing Improvements	\$165,280	\$203,639	\$219,397	\$153,798	\$152,121
70- Vehicles	\$493,982	\$674,372	\$209,938	\$7,838	\$5,549
80- Professional Services	\$1,184,000	\$1,648,606	\$1,975,398	\$1,705,627	\$1,618,688
Estimated Financing Cost	\$1,036,100	\$1,116,000	\$1,036,000	\$617,607	\$617,607

Table 7: ESA Core Accountability Items

Project Status:		Original at FFGA	Current*	ELPEP **
Cost	Cost Estimate	\$7.368 billion	\$10.178 billion	\$8.119 billion
Schedule	RSD	December 31, 2013	December 2022	April 30, 2018
Total Project Percent Complete	Based on Invoiced Amount		63.6% (ESA Figure)	
	Based on Earned Value ±		79% (PMOC Calculation of construction spending planned vs actual since rebaselining)	
Project Performance Rate(Since 2014 ESA “Re-Plan”)				
Major Issue	Status		Comments	
			<ul style="list-style-type: none"> Amtrak’s decision to take ERT Line 2 out of service first for an extended outage of one year or more will not support the current ESA planning to complete all of the remaining Harold work, including the High Speed Rail work, by 2020. 	
Harold Re-planning	Based on continuing issues with inadequate railroad force account support, ESA completed a Harold schedule re-sequencing in December 2014, also known as “ESA First”, that advances work elements required for the new LIRR service to GCT and delays the FRA funded High Speed Rail Work beyond 2017. The 2015 Harold Re-Sequenced schedule advanced completion of ESA elements but did not achieve goals due to insufficient Amtrak force account support. Schedule has again been re-evaluated and the ESA Program Critical Path now passes through the remaining work in the Harold Interlocking.		Work on Harold Interlocking is subject to influences outside of the control of ESA. Continuing issues with the level of Amtrak force account support, currently providing only 60% of required resources, to support the “ESA First” schedule, has further delayed completion of the Harold Interlocking work and has forced it onto the ESA Program Critical Path.	

*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.