

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

**Report Period April 1 – April 30, 2017**



PMOC Contract No. DTFT60D1400017

Project No. DC-27-5287, Task Order No. 0002, Work Order No. 04

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

## TABLE OF CONTENTS

---

<b>THIRD PARTY DISCLAIMER.....</b>	<b>1</b>
<b>REPORT FORMAT AND FOCUS.....</b>	<b>1</b>
<b>MONITORING REPORT .....</b>	<b>1</b>
<b>1.0 PROJECT STATUS .....</b>	<b>1</b>
a. Engineering Design and Construction Phase Service .....	1
b. Procurement .....	4
c. Construction.....	5
d. Quality Assurance and Quality Control (QA/QC).....	16
<b>2.0 SCHEDULE DATA .....</b>	<b>17</b>
<b>3.0 COST DATA .....</b>	<b>22</b>
<b>4.0 RISK MANAGEMENT.....</b>	<b>26</b>
<b>5.0 ELPEP COMPLIANCE SUMMARY.....</b>	<b>28</b>
<b>6.0 SAFETY AND SECURITY .....</b>	<b>31</b>
<b>7.0 ISSUES AND RECOMMENDATIONS .....</b>	<b>32</b>

## APPENDICES

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### 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 February 28, 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 March 1, 2017.

## **MONITORING REPORT**

### **1.0 PROJECT STATUS**

#### **a. Engineering Design and Construction Phase Services**

MTACC reported in its February 2017 Progress Report that the overall engineering effort was 99.9% complete, based on Earned Value for Design Deliverables, compared with a planned status of 100.0%. MTACC's Total Cost Report for February 2017 shows that 95.2% of the overall "EIS and Engineering" category has been invoiced and 95.4% of the "Design" category (including \$10 million Design Settlement) has been invoiced.

#### Status of Construction Packages Not Awarded:

On Contract CM015 (48<sup>th</sup> 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 continues meetings with the building owner, RMC, for the Work and Easement Agreements. Parties are reportedly near final agreement, but RMC has recently requested that additional work be added. Turner Construction was awarded the utility construction contract and started work in August 2016. The utility relocations are approximately 85% complete and Phase 1 is now forecast to be completed by May 31, 2017. The GEC is only reviewing shop drawings for coordination with the CM015 work scope and is not providing technical approval of the shop drawings. MTACC Counsel has completed legal review of Division 1 in the specifications. Submittal will be made to the NYC Department of Buildings upon incorporation of all comments and issuance of the signed and sealed plans. Bid advertisement was most recently forecast for April 6, 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 8 months.

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. An updated FHA03 design package was submitted to Amtrak in mid-February 2017 to reflect changes made in support of CH058A regarding required catenary and track alterations. ESA plans to meet with NYCDOT to discuss and reach agreement with NYCDOT regarding maintenance and support of the piers for the 39<sup>th</sup> Street Bridge.

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 has agreed to the track outages required to support the cut-and-cover construction but has 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 has 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.

Contract CH057D, Harold Track Work, is a new package whose work scope is currently being finalized by the PMT and the CM. Preparations for a labor clearance request to LIRR continue and meetings with the unions are ongoing.

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. The PMOC notes that LIRR had been expected to complete the PTC design in April 2017, but this was not achieved. 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. Bid advertisement was most recently forecast for April 20, 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 7 months.

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 is one outstanding

issue to which the GEC must respond. When the issue is resolved, ESA will re-issue the 100% design package.

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 has been completed. The GEC and the PMT will discuss study results with LIRR, then with Amtrak. Additionally, an alternative track alignment that does not include the diamond crossover will be developed by the GEC. The alternative alignment does involve some adjustments to the current CQ033 track layout, but no major impact is anticipated.

#### 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 advised that there are 127 Contract Proposal Requests (CPRs) that it has responded to that 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 has exceeded the 30-day turn-around time period stipulated in the contract; and, indicated that the closure of open CPRs needed increased attention. During April 2017, MTACC indicated that the Integrated System Test Plan (ISTP) schedule was approved and the contractor noted that it is included in the Monthly Contract Schedule Update that would be submitted in early May 2017. The contractor made revisions to the ISTP and submitted it to MTACC for review. The completion of the last of the 10 Control System final designs has yet to be achieved; and, as of the end of April 2017, is 13 months late. Any further delay in the completion of the designs could jeopardize the timely completion of this contract. Further, the PMOC continues to note that MTACC has yet to receive any “formal acceptance” or “final approval” of any of the Control Systems final designs from the LIRR. The contractor is also responsible for the design, installation, and testing of 19 “Non-Control” systems. As it did in previous Monthly Progress Reports (MPRs), MTACC notes in its 1Q2017 Progress Report (PR) that the contractor’s progress on several of these non-control system designs is falling behind schedule and will cause delays to the fabrication of equipment racks. Also, two long-standing Buy/Ship America issues remain unresolved; both of which could impact designs already in progress. Research on a suitable replacement for a piece of equipment that is a third potential Buy/Ship America issue continues.

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 information presented for this CS084 contract comes from discussions at a mid-April 2017 progress meeting that reviewed contract progress for March 2017 and from the MTACC’s 1Q2017 ESA Progress Report (PR). 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 1Q2017 PR, MTACC now indicates that the previously reported March 2020 Substantial Completion (SC) date has slipped another three months to June 30, 2020. This revised SC date, is

a date that does not, as yet, take into account previously identified coordination issues with other ESA contractors or the contractor's assertions of MTA-imposed 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, an updated VS086 schedule recently submitted by the contractor and under review by MTACC, shows that the contract's substantial completion (SC) date changed once again from the SC date most recently reported; this time almost three (3) months from August 2019 to mid-November 2019. This mid-November 2019 SC date is one month later than the October 14, 2019, SC date established at contract award. 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. Additional information regarding specific System designs for the VS086 contract is provided later in Section 1.0c., under VS086.

## **b. Procurement**

MTACC reported in its February 2017 Progress Report that total procurement activity for the project was 84.6% complete, with \$8.61 billion awarded out of the \$10.178 billion current projected budget.

Contract CQ033, Mid-Day Storage Yard Facility, was advertised on October 20, 2016, with bid sets available starting October 24, 2016. The Pre-Bid conference/site tour was held on November 10, 2016. The bid date had been extended from December 22, 2016, to January 19, 2017 and then to February 17, 2017. Four bids were opened on February 23, 2017. The most recent forecast date for Award and Notice-to-Proceed was April 7, 2017. The contract was awarded on April 11, 2017 along with the Notice-to-Proceed. Total bid advertisement delay during 2016 was six months and total bid date delay was two months. The PMOC notes that unresolved design and approval issues that continued over an extended period of time are primarily responsible for the late procurement.

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

- CM015, 48<sup>th</sup> Street Entrance – Advertise date delayed one month from February 28, 2017, to April 6, 2017, and is now estimated for later in 2Q2017; Bid due date TBD. Total bid advertisement delay during 2016 and into 2017 is seven and a half months.
- CS086, Systems Package 2-Tunnel Systems – Advertise date delayed two months from March 1, 2017, to April 20, 2017, and is now estimated for later in 2Q2017; Bid due date TBD. Total bid advertisement delay during 2016 and into 2017 is thirteen months.

For Contract CS086, Systems Package 2-Tunnel Systems, the ESA-PMT has noted that alternate procurement strategies are being considered to minimize coordination issues that would develop

due to adding another third-party contractor requiring access to guideway and control area spaces:

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

### c. Construction

MTACC reported in its February 2017 Progress Report that total construction progress reached 68.3% complete versus 73.6% planned.

**CM006 – Manhattan North Structures:** As of March 1, 2017, MTACC slightly decreased its Forecast at Completion for CM006 to \$359,631,219. The MTACC forecast for Substantial Completion (SC) has improved by increasing personnel levels to meet the scheduled contractual date of June 1, 2017. Actual construction progress for February 2017 was 1.3% versus 1.1% planned. Cumulative progress through March 1, 2017, was 93.6% actual versus 96.9% planned.

Construction Progress: During April 2017, the CM006 contractor continued rehabilitation/remediation work at the 63rd St. Tunnels and Structures, which included: invert work, drains, and manholes. The contractor continued wall, slab, and arch construction at the 55th St. Vent Facility. Arch construction at the GCT 3 Crossover Cavern was completed, and duct bench and stair construction continued. Duct bench construction continued at the 300 series Tunnels. The CM006 contractor continued concrete wall construction, door and hardware work at the 50th St. Air Plenum, installed pullboxes at the 50th St. Air Tunnel, and installed doors and hardware at the 53rd St. Sump. The contractor also continued contact and chemical grouting at several locations. The contractor continued to investigate water infiltration conditions over installed work under the existing F Line subway at York Ave.

**CM007 - GCT Station Caverns and Track:** As of March 1, 2017, the MTACC Forecast at Completion for CM007 remained at \$712,311,735. The MTACC forecast for Substantial Completion remained at January 28, 2020. Actual construction progress for February 2017 was 1.7% versus 2.7% planned. Cumulative progress through March 1, 2017, was 8.8% actual versus 14.5% planned.

Construction Progress: During April 2017, the CM007 contractor continued mezzanine level slab, wall, and columns and upper level slab and column concrete construction at the South Back of House in the East and West Caverns. The contractor continued grounding grid and topping slab construction and began mechanical support steel and piping 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: waterproofing, exterior concrete wall construction (pneumatically applied concrete - PAC), closure wall construction (cast-in-place concrete - CIP), mezzanine and upper level precast beams and panels installation, grouting, and post-tensioning of beams. The precast subcontractor continued production casting of beams and panels at their upstate NY facility. There were no track construction activities this month, as materials and installation are pending LIRR review and approval of the Resilient Tie Block (RTB) submittal. Delay and approval of the Special Trackwork RTB has delayed Contract Milestone #4, approximately 87 CDs. The ninth monthly Construction Progress Meeting was held on April 13, 2017. Contact rail materials are being fabricated.

**CM014A – Concourse and Facilities Fit-Out Early Work:** MTACC reports that, through March 1, 2017, the project forecast cost at completion has increased slightly to \$58,095,002 from the previous \$57,984,365. MTACC continues to report that Substantial Completion will be retroactively declared for 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, but, actually, has not been finalized. Final Completion is now being reported as May 24, 2017. Cumulative construction progress remained at 97.1% versus 100.0% planned. This has generally remained the same through 1Q2017 and into April 2017, and indicates that there has been very little progress since June 2016.

Construction Progress: Through April 30, 2017, progress in completing the remaining equipment testing continued to be very slow. Through April 2017, the B30 Substation for this project has not been turned over to the follow-on CM014B contractor pending completion of testing. The electrical work to complete the repairs to the L4 Breaker in the substation was completed April 3, 2017, although the SCADA fiber testing remains to be completed. The CM014A contractor continues to provide 2 electricians to man this feed in case there is a trip in the F6 breaker for CM007. This watch occurs only during the periods when the CM007 contractor is working on site and will remain in effect until the substation is turned over to CM014B. The CM014A contractor has provided and is maintaining temporary air conditioning units in the equipment rooms to mitigate the large heat buildup in the rooms from the energized equipment. This issue will be permanently resolved once the HVAC system installed by the CM014B contractor is operational.

**CM014B – Concourse and Facilities Fit-Out:** MTACC reports that, through March 1, 2017, the forecast cost at completion increased to \$485,404,672 from the previous \$482, 141,500. 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. Actual construction progress for March 2017, was 1.9% versus 3.8% planned. Cumulative progress as of March 1, 2017, was 32.1% actual versus 82.2% planned.

Construction Progress: Through April 30, 2017, surveying in the concourse continued and will be on-going throughout this contract.

TA Force Account Work – Flagging is ongoing at Track #115 for unloading of work trains. Flagging continues at Tracks #39-42 for electrical relocations for the Biltmore Connection.

Milestone #1 (Complete Terminal Management Center, Communication Room C-2 & Communication Closet C-5) – The milestone is complete. The purge system for the FM200 fire suppression has been designed and the drawings have been distributed to the contractor.

Milestone #4 (Comm. Closets CC-C3, CC-7, & Room B3265) March 5, 2017; now June 5, 2017 – This milestone will likely be further extended due to FM200 issues and for increase in the room size for Communications Closet CC-C7.

Milestone #5 (Completion of 44th St. Ventilation Building), June 4, 2017 - This milestone has been extended to December 13, 2017. Construction of the 2nd Floor has been completed.

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



Concourse (Madison Yard): Stantec Repairs (repairs to MTA and privately owned existing building columns and related structures in Madison Yard) continue throughout and near completion. Third Party Inspections continue for concrete, rebar, masonry, bolting, welding, and firestops. Electricians continued with grounding at manholes/handholds, rough-in work in CMU walls and installation of overhead conduit, moving from south to north in the Concourse, and feeders for the B-20 Substation. Plumbers continued installing fire protection mains and branch lines. Piping in the West Mechanical Corridor and the Chiller Plant is ongoing. Installation of duct in the East Service Corridor is beginning. Painting of block walls and columns continues throughout Zones 1-4. Placement of the final concrete slab invert is approximately 80% complete throughout the Concourse. Masonry material deliveries have been accomplished throughout the concourse and erection of walls for rooms proceeds from south to north. Structural steel deliveries are underway for Zone #1. Demolition of Tracks #123 and #125 (temporary work train tracks) and excavation for underground utilities up to US-10 began.

Three-Story Building: This area of the work has slowed down pending delivery of structural steel.

Shaft #3 (Elevators #1, #2 and Stair 22): Continuation of the installation of Stair #22 is pending resolution of Field Change Request #101.

Biltmore Connection: Work continued with the “H” footing at the Concourse Level. GCT has not given field dimensions for the escalators (2) to Schindler (VM014), as requested, and Schindler is now moving to stop escalator fabrication for this area and take these units off of the production line.

Wellways: The Wellway Ceiling Mockup will be ready for review by May 15, 2017. The rigging structure for the escalators in Wellway #1 was completed and the first sections of escalators were lowered into Wellway #1. Wellway #2 rigging structure installation will follow. Installation of the tracks for the escalator(s) is beginning. Installation of fiberglass panels continues in Wellways #3 and #4.

Dining Concourse Connection: The escalators for the Dining Concourse (2) have been set in place. Leveling and anchoring continue.

Elevator T-01: Erection of concrete block continued.

44<sup>th</sup> Street Vent Building: Construction of the Second Floor is complete. Utility work on the south side of 44th St. continues. Surveying for the Elevator #12 Headhouse was completed.

45<sup>th</sup> Street Cross Passageway (CPW): Mobilization for the installation of Elevator #21 began.

47<sup>th</sup> 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 needs to be extended to the Concourse. The contractor must correct this by shoring up the existing shaft walls to extend the shaft and the shaft walls.

East 48<sup>th</sup> St. Entrance: Re-paving of the street is scheduled for completion in October 2017. The load transfer at the UA Wall is complete.

East 50<sup>th</sup> St. Vent Building: Installation of Elevator #9 door frame and sill installation continued at the Street and Concourse Levels. Installation of light fixtures throughout is ongoing.

### **VM014 –Vertical Circulation Elements (Escalators & Elevators)**

Status: MTACC reports that, through March 1, 2017, the final forecast cost at completion remains at \$45,589,023. Forecast Substantial Completion is now April 24, 2020, instead of the previous July 1, 2020. There is no progress curve included in the report for this contract. However, MTACC reports that, through February 2017, the contractor completed 38.8% of the work. That includes the Phase I (design) & Phase II (fabrication) portions of the contract. 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: During April 2017, the contractor continued with the Phase II fabrication work. Through April 30, 2017, there were 8 elevators and 7 escalators completed and either stored at the contractor's storage facility or on site. Each escalator for the wellways consists of 11 sections covering an approximate 91' rise and 200' plus length.

Specification Issues (Elevator #10): This issue involves a problem with the contractor's installation and maintenance of Elevator #10 in the 50th St. Vent Facility. Elevator #10 is located below the street level, in the middle of the driveway between 49<sup>th</sup> and 50<sup>th</sup> Streets. It was originally designed to handle trash extraction from the site to street level. The problem is that this driveway has been temporarily turned over to the CM007 contractor for their concrete slick line operations into the Caverns. The elevator contractor's legal department won't let them proceed with this work unless MTA indemnifies them from liability if the elevator is damaged. The GEC has developed a white paper and MTACC is preparing a response to the contractor based on the white paper.

New 45th St. Node Entrance: The new conceptual plan for the escalator and elevators has been sent to the contractor for information only. The contractor's Project Manager advised ESA that it will need a 12 to 14 month lead time to fabricate and deliver the units for this entrance.

Biltmore Room Connection: The contractor has requested confirmed field dimensions for Escalators #1 and #2 from CM014B. Through April 2017, these dimensions have not been provided and VM014 has advised that they are moving to stop production of Escalators #1 and #2.

Wellways: The rigging structure for the escalators in Wellway #1 and tracks work was completed and the first sections of escalators were lowered into Wellway #1. Wellway #2 rigging structure installation will follow.

### **Systems Contracts:**

**CS084 - Traction Power System Package #4** - The information presented for this CS084 contract comes from discussions at a mid-April 2017 Progress Meeting that reviewed contract progress for March 2017 and from the MTACC's 1Q2017 ESA Progress Report (PR).

Status: In its 1Q2017 ESA Progress Report (PR), 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 continues to slip during each reporting period. In its 1Q2017 PR, MTACC now reports that the SC has slipped another three (3) months, from March 2020 to June 2020; citing access restraints caused by delays associated with the CM007 contract. However, it is unclear to the PMOC if this new June 2020 date takes into account the CS084 contractor's assertions of MTA-imposed 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 1Q2017 ESA PR, MTACC indicates that the 0.4% work progress during the 1Q2017 was significantly below the planned 6.4% amount; and, MTACC reports an actual

cumulative progress at 11.8% versus a planned 70.2%. While the 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 the general C08 substation design impacted its ability to meet its own original design, procurement, fabrication, and installation schedules. MTACC indicates in its 1Q2017 PR, and the PMOC can confirm, that the backlog of submittal responses is worsening once again. MTACC indicates that it needs to focus again on reducing that backlog. The two most critical outstanding design issues are the approval of the switchgear for the C08 substation and, now that the most serious of the SCADA issues is resolved, the issuance of a contract modification to progress the SCADA work. The design of the C08 Substation continues to be the primary critical path for the contract; and, the continuing delay in approving the switchgear for this location is, per the contractor, causing a day-to-day delay in the overall contract schedule. MTACC has provided a revised design 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 indicated in the latest monthly progress meeting 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 provide responses to design submittals and 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 is additional work (the installation of panel heaters, a transformer, and lightning arrestors) that must take place. Despite the initial urgency to perform this extra work, this work has not started. An RFP for this work was issued to the contractor; but, further progress on issuing a contract modification for this work is being delayed due to late completion of the GEC provided "signed and sealed" drawings to progress a contract modification. 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 cannot begin until all water infiltration issues at the facility are resolved by the CS179 contractor. Access to the Traction Power Substation

(TPSS) room in this facility is significantly delayed as a result of the water infiltration issue. At a recent CS179 progress meeting, it was noted that, while the latest water infiltration remediation effort on the equipment room floor slab appears to be successful, water continues to infiltrate the room from other spots in the room. Additional remediation efforts need to be undertaken to address these newly identified infiltration areas. The contractor reported that a high-voltage test of one of the types of transformers to be used on this contract failed due to unknown reasons and that it was waiting for the transformer manufacturer to provide a “root cause” analysis identifying the reason for the failure. The PMOC has asked for a copy of the analysis. In its December 2016 ESA MPR, 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. Because procurement efforts on other ESA contracts were delayed, the CS084 contract schedule shows the testing to be performed before the ductwork 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 is 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-April 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 No. 1:** In its 1Q2017 PR, MTACC shows that the CS179 Budget remains at the previously reported value of \$606,938,540, with a \$615,500,690 Forecast cost that is mainly driven by potential contract modifications. The 1Q2017 PR indicates that the contract is only 40.7% complete versus the 67.8% planned progress. These progress numbers, which are based on actual versus projected costs and not physical work activities, continue to imply that the contract is significantly behind schedule. While in its 1Q2017 PR, MTACC notes that the contractor’s monthly schedule update shows a 4-month delay in the contract’s SC date, MTACC indicates that it does not agree with causes or delays the contractor is showing in the contract milestones and the delayed SC date. During April 2017, MTACC indicated that the Integrated System Test Plan (ISTP) schedule was approved and the contractor noted that it is included in the Monthly Contract Schedule Update that would be submitted in early May 2017. Despite the continuing, now 13-month, slippage in the completion of the 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 reports that the two remaining required Contract Options (Option Nos. 4 and 5) will be exercised, as scheduled, in 2017. There are still two potential Buy/Ship America issues that pose schedule risks to the successful and timely completion of this contract. The ESA CS179 CM advised that a Buy/Ship America waiver request letter for the HVAC equipment was submitted to the FTA in October 2016. At a CS179 contract progress meeting that discussed contract progress through February 2017, the ESA CS179 CM advised that a Buy/Ship America waiver request for similar HVAC equipment being used on another project located in Indiana was recently granted by the FTA. The PMOC requested

documentation from MTACC that substantiates this waiver approval. The waiver request letter for the video display panels is still under review by MTA Legal staff and MTACC continues to be unable to forecast a date when the MTA Legal staff would complete its review. One additional potential Buy/Ship America issue was identified several months ago; that of the two contract-specified Public Address (PA) speakers that were once USA-made, but are now manufactured in China. A suitable Buy America compliant replacement was found for one of the two speakers; but research on a suitable replacement for second speaker that is a third potential Buy/Ship America issue continues. The contractor recently advised that there are 127 Contract Proposal Requests (CPRs) that it has responded to that 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 has exceeded the 30-day turn-around time period stipulated in the contract; and, indicated that the closure of open CPRs needs increased attention.

Design Progress: As noted in previous reports, the reduction of the backlog of submittal and RFI reviews remains as an issue and, despite some initial limited improvement resulting from action by MTACC, is worsening once again. A continued focus on reducing the backlog and ensuring timely responses on future submittals and RFIs is needed. The CS179 contractor continues to work on the design development of the various contractually required Control and Non-Control systems. As of the end of April 2017, the completion of the final designs of the last of the 10 Control Systems is still an open item that is already 13 months late. A Final Design Review (FDR) meeting between MTACC, the contractor, the GEC, and the LIRR on the CCTV and Security Management System (SMS) must still be scheduled; and, the contractor has indicated that holding this FDR meeting and getting approval of the final design is a critical item needed to prevent any further delay in the completion of the contract work. In its 1Q2017 ESA PR, MTACC reports that nine of the ten Control System Final designs are approved. However, the contractor recently advised that some elements of the final design for two other Control Systems (the FLSS and BMS systems) are not “approved”. Further, the PMOC continues to note that, as of the end of April 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 will continue to follow this important aspect of the design process. In addition to the “Control” system designs, the contractor is also responsible for the design, fabrication, installation, and testing of 19 “Non-Control” systems. Three times now, MTACC advised in its MPRs that the contractor’s progress on these non-control system designs is falling behind schedule and will cause delays to the fabrication of equipment racks. In response to the PMOC request that the ESA CS179 CM provide progress data on each of these systems to identify the extent and impact of any reported delays, the contractor is developing a tracking system that will identify design progress for these Non-Control systems. Complicating the completion of the contract’s designs is the resolution of issues identified in numerous CPRs noted above. The contractor continues to state that other design and coordination issues continue to cause schedule delays; and, that any further delay in the closure of the open CPRs, the resolution of the design issues, and/or the approval of final designs could jeopardize the timely completion of this contract. MTACC will need to evaluate these assertions against an updated contract schedule that includes an accurate and comprehensive listing of all contract activities; including those associated with the closure of the CPRs.

Construction Progress: During April 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. A Stop Work Order (SWO) was issued for the 23rd Street facility because another contractor (CQ032) stopped its work at this facility due to numerous differing site conditions that need to be addressed before the CQ032 contractor can complete its work and turn the space over to the CS179 contractor. 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, 23<sup>rd</sup> St., and 29<sup>th</sup> St. facilities. While the latest remediation of the water infiltration through the floor slab in the Traction Power Substation (TPSS) room at the Vernon facility appears to be successful, water infiltration is now evident at other locations in the room. Solving this water infiltration problem in the Vernon TPSS room is a critical contract milestone, one that is already 18 months late; and, it impacts the ESA CS084 (Traction Power Systems) contractor's ability to access the room and complete its work. Initially, the remediation work for the 23<sup>rd</sup> and 29<sup>th</sup> Street facilities appeared to be effective. However, new water infiltration areas in the 23<sup>rd</sup> Street and 29<sup>th</sup> Street facility are now apparent. As previously reported, the subcontractor responsible for system designs and equipment fabrication, assembly, and testing advised that it was moving 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:** In its 1Q2017 PR, MTACC indicates a Forecast cost of \$21,637,399 and Budget of \$21,835,022 for this contract. The contractor's latest schedule update indicates a mid-November 2019 SC date. The MTACC, however, continues to show the October 16, 2019, SC date established at contract award, despite acknowledging that five interim contract milestones continue to show delays of up to 543 days. MTACC indicates in its 1Q2017 PR that, while revised Milestone dates were tentatively agreed to last year, contract modification language to change the Milestones is still under review within the MTACC's Legal department with no completion date identified. Once the revised Milestone modification is executed, then the MTACC can use an updated/re-baselined schedule to effectively manage this contract. However, in its January 2017 report, the PMOC noted that there are still several outstanding design issues that are not included in the tentatively agreed to revised Milestones. The PMOC raised concerns about establishing revised interim contract milestone dates that did not include the known outstanding design issues, as the effectiveness of using a potentially incomplete schedule as a management tool could then be diminished. MTACC appears to be moving forward with a two-step approach to modify the contract's interim Milestones by preparing to first issue a contract modification to identify new milestones agreed to in mid-2016; and then, after any additional schedule impacts related to the known design issues are quantified, issue another contract modification to address those impacts. The PMOC agrees that this two-step approach, while not optimal, will at least create a contract schedule that MTACC can use to begin a more aggressive approach to effectively manage this contract.

Design Progress: There is no change in the previously reported contractor concerns over the timeliness of responses from the MTA on design submittals and inquiries. The contractor continues to assert that the lack of timely responses is causing day-to-day delays in the progression of the

work. 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 signal units with Light Emitting Diodes (LEDs); a change to the contract requirements and to designs already underway. To address this request, MTACC proposes to engage the GEC to perform a study to identify the feasibility of replacing the tunnel signal units currently designed to use incandescent light bulbs with signal units that use LEDs. MTACC developed a discussion paper identifying several issues related to this replacement and sent it to the LIRR for review; the PMOC requested copies of this document. If it is determined that LED signal units for the tunnels are possible and warranted from a cost and schedule perspective, then MTACC will have to quickly progress a contract modification to minimize any impact to the design completion date. The PMOC previously reported that another different type of track circuit was proposed to conform to FRA standards. This type of track circuit, designated as a TRU-III track circuit, 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, 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. As of the late April 2017 VS086 Monthly Progress meeting, neither the bench testing nor the field testing had commenced. These design and equipment approval issues remain as outstanding items. Several other design issues were recently identified; the most serious, because of differing resolution approaches by the LIRR and MTACC, being the installation of HVAC equipment in the Plaza Interlocking Central Instrument Room (CIR). This issue needs to be resolved before the contractor can finalize the signal equipment layout in the room. Another of the issues is the inclusion of a Positive Train Control (PTC) design in the overall signal design. A Memorandum of Understanding (MOU) between the LIRR and MTACC needs to be executed after which the PTC design will be incorporated into the various ESA contracts that will interface with the PTC system and equipment. In its 1Q2017 PR, MTACC indicates that, if the current direction (not specified) is changed per the MOU, it will impact the design, equipment, and schedule of the VS086 contract.

### **Queens Contracts:**

**CQ032 – Plaza Substation and Queens Structures:** As of March 1, 2017, MTACC reported that the Forecast at Completion for CQ032 decreased slightly to \$263,528,050. MTACC reports the Forecast for Substantial Completion (SC) remained June 16, 2017, due to delayed completion of the Yard Services Building and by the late completion of required close-out documentation. Actual construction progress for February 2017 was 0.0% versus 0.0% planned. Cumulative progress through March 1, 2017, was 99.0% actual versus 100.0% planned.

Construction Progress: During April 2017, the CQ032 contractor continued architectural finishes and electrical work in the Yard Services Building (YSB). Work continued on punchlist work items and close-out documentation. Con-Ed completed the gas line service connection piping to the YSB, while meter and turn-on is scheduled for early May 2017. There was no water remediation

activity this past month. ESA continued negotiation of CPRs for work items to be deleted and/or transferred to contracts CS179 and CQ033, for which the GEC is preparing the necessary documents.

### **Harold Interlocking Contracts:**

**CH057 – Harold Structures Part III:** MTACC’s Forecast at Completion for the CH057 contract decreased during February 2017 to \$87,839,150 due to additional scope deletions. The MTACC forecast for Substantial Completion remained at July 5, 2017. Actual construction progress for February 2017 was 4.1% versus 2.5% planned. Cumulative progress through February 28, 2017, was 76.6% actual versus 88.2% planned (based on cost incurred rather than actual construction).

Construction Progress: During April 2017, the CH057 contractor completed its construction of the LIRR MM2 Track at 48<sup>th</sup> St. including the placement of the #6176W and #6167E turnouts, completed placement of ballast for the new section of LIRR ML 4 Track between existing Harold Tower and the area just above the Tunnel D portal, and continued construction of the Tunnel D headhouse building and installation of wayside electric equipment in various project locations.

**CH057A – Part 3 Westbound Bypass:** MTACC’s Forecast at Completion for the CH057A contract increased slightly during February 2017 to \$162,096,632. The MTACC Forecast for Substantial Completion was extended by 7 weeks to June 25, 2018. Actual construction progress for February 2017 was 2.5% versus 7.3% planned. Cumulative progress through February 28, 2017, was 51.1% versus 66.3% (based on cost incurred rather than actual construction).

Construction Progress: During April 2017, the CH057A contractor completed placement of invert and sidewall concrete in the West Approach Structure of the Westbound Bypass (WBYP) and began to form the West Approach parapet walls. Mining of the WBYP Tunnel and pump station construction remained on “Hold” during April 2017 as the ESA PMT and the contractor continued to negotiate the parameters of work resumption at those locations. The PMOC notes that the tunnel excavation shield has not advanced since August 2016, a period of 8 months.

**CH061A – Track A Cut and Cover Structure:** MTACC issued the Notice to Proceed (NTP) for the CH061A contract on January 27, 2017. MTACC’s Forecast at Completion is \$41,981,972. The MTACC forecast for Substantial Completion is May 28, 2018. MTACC has not developed a progress curve for this contract yet, so no monthly or cumulative construction progress data has been developed yet.

Construction Progress: During April 2017, the CH061A contractor completed repairs to the Right of Way fence adjacent to its work area, completed all catenary pole foundation test pits to the 6’ level, and began preliminary excavation for Tunnel A.

### **Railroad Force Account Contracts:**

**FHA01 – Harold Stage 1 Amtrak:** MTACC’s Forecast at Completion for FHA01 remained at \$18,824,861 during February 2017. The MTACC forecast for Substantial Completion remained at July 6, 2017. Actual construction progress for February 2017 was 0.0% versus 0.0% planned. Cumulative progress through February 28, 2017, was 98.9% actual versus 100.0% planned (based on cost incurred rather than actual construction).

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



**FHA02 – Harold Stage 2 Amtrak:** MTACC’s Forecast at Completion for FHA02 remained at \$66,440,848 during February 2017. The MTACC forecast for Substantial Completion remained at May 20, 2018. Actual construction progress for February 2017 was 0.4% versus 0.0% planned. Cumulative progress through February 28, 2017, was 86.1% versus 81.0% (based on cost incurred rather than actual construction).

Construction Progress: During April 2017, Amtrak Electric Traction personnel completed catenary modifications at catenary poles B908W and B910W in preparation for the Montauk Cutoff demolition, installed a new steady span over the LIRR Westward Passenger and Freight Tracks and Amtrak Lines 2 and 4 at catenary pole B924W, and relocated the cross track feeder over Loops 1 and 2 at catenary pole B927W. Amtrak C&S personnel began installation of signal trough and conduit along New Haven #1 Track between Harold and Gate Interlockings in support of the 2018 LIRR cutovers of the “H1”, “H2”, “H5”, “H6”, and Location 30 CILs.

**FQA65 – Loop Interlocking Amtrak:** MTACC’s Forecast at Completion for FQA65 remained at \$33,287,863 during February 2017. The MTACC forecast for Substantial Completion remained at July 16, 2023. Actual construction progress for February 2017 was 0.1% versus 3.2% planned. Cumulative progress through February 28, 2017, was 17.1% versus 77.3% planned (based on cost incurred rather than actual construction). The PMOC is not concerned about this large discrepancy due to the current forecast Substantial Completion date.

Construction Progress: During April 2017, Amtrak Track personnel constructed approximately 300 LF of Loop 1A Track between the F2 CIH and the area just east of Thomson Avenue.

**FHL01 – Harold Stage 1 LIRR:** MTACC’s Forecast at Completion for FHL01 remained at \$24,379,363 during February 2017. The MTACC forecast for Substantial Completion was extended by 2 weeks to August 16, 2017. Actual construction progress for February 2017 was 0.8% versus 0.0% planned. Cumulative progress through February 28, 2017, was 92.7% actual versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During April 2017, LIRR 3<sup>rd</sup> Rail personnel completed third rail cable installation for the #50, #51, and the #50T51 breakers in Harold Interlocking and installed conduit for the R6 reactor (to prevent stray current from passing between electrical circuits).

**FHL02 – Harold Stage 2 LIRR:** MTACC’s Forecast at Completion for FHL02 remained at \$84,417,099 during February 2017. The MTACC forecast for Substantial Completion was extended by 10 weeks to July 1, 2020. Actual construction progress for April 2017 was 1.0% versus 0.0% planned. Cumulative progress through February 28, 2017, was 93.5% actual versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During April 2017, LIRR Signal personnel installed snow melter and signal conduit and cables at the “H1” CIL and continued to make Rev600A signal revisions at the “H6” CIL, 200A and ESA909 signal revisions at “H1” and “H2” CILs, ESA800B signal revisions at new and existing Location 30 CILs, ESA405, ESA502, and ESA503 signal revisions at “H5” CIL, and ESA903 and ESA903A signal revisions at the Woodside CIL. LIRR High Tension personnel terminated cables for the high tension back-up feed at Woodside MG and energized the new #134 and #135 circuits for the Harold MG.

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

**ESA Quality Management:** The PMOC reviewed the NCR logs for the active contracts, as well as following up on issues and status with ESA QM staff, and provides the following observations, by contract:

- **CM007:** Work on this project is ramping up, but there needs to be an increased focus on the contractor's quality planning and management. There were 8 new NCRs opened in 1Q2017, 6 of which remained open at the end of March. The 4Q2016 QGO noted issues with revision control of the contractor's quality plan, Material Receiving Inspection forms not being filled out properly, a lack of quality activities on the six-week-look ahead schedule, and a lack of compliance with their own subcontractor/supplier audit schedule (only one of six scheduled audits was performed).
- **CM005:** All work has stopped on site. MTACC and the contractor continued negotiations on close out, CPRs, and the pending transfer of remaining work to follow-on contracts. Approximately ten (10) Nonconformance Reports (NCRs) remain open.
- **CM006:** There are fifty-five (55) open NCRs, and approximately one-third have "Use-As-Is" status pending closure paperwork. The contractor has brought in a subcontractor to address an existing water infiltration condition over work installed by the CM006 contractor, under the existing F Line subway tunnel at York Ave.
- **CH057:** No NCRs were closed in March 2017. There are currently 7 total NCRs, 5 of which remain "ball in court" to the contractor. The oldest of these was opened in December 2016, which the contractor has put on hold for mitigation, root cause, and corrective action assignment until they can have a meeting with their responsible subcontractor to discuss. Two of the seven were recently implemented and are awaiting verification. Timely follow-up of root cause and corrective action was identified as a potential problem in the quarterly audit conducted on February 1, 2017.

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[REDACTED]

Program Critical Path-Harold Interlocking:

ESA reported in its March 1, 2017 IPS that the Program critical path remains running through work in the Harold Interlocking to reach the Target RSD of February 11, 2021, [REDACTED]. Over the update period, the controlling critical work reported at Harold were tasks leading up to the start

of input/output processor testing at the CILs as part of the pre-cutover process. The March 1, 2017 IPS update continues to show that the Manhattan/Systems path of work is approximately three months behind the critical Harold path of work, with 105 days of Project Level contingency leading up to the Target RSD. 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: March 1, 2017 IPS Critical Path**

<b>Contract &amp; General Activities</b>	<b>Duration (CDs)</b>	<b>Start</b>	<b>Finish</b>
FHL02: CIL Cutover Pre-Testing Predecessor Work	18	01-Mar-17	19-Mar-17
FHL02: CIL Cutovers Pre-Testing and Cutovers	426	20-Mar-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
<b>Target Revenue Service Date</b>			<b>11-Feb-21</b>
			
<b>Late Revenue Service Date</b>			<b>13-Dec-22</b>

Discussion of Progress Leading up to Critical Start of CIL Pre-Cutover Testing:

During April 2017, ESA reported that there are four predecessor tasks controlling the start of critical Harold CIL pre-cutover testing: completion of CH053 punchlist items and LIRR training; performing a splice on circuit #135; isolating 91.6Hz power to the H1/H2/H5/H6 CILs from Sub 44; and feeding the signal circuit #135 from Harold MG. Over the progress period, the controlling work changed from the ARINC resequencing screen shots to the work leading up to the signal power separation at the H1/H2/H5/H6 CILs. The PMOC analyzed this path of work over the update period in order to determine progress made and/or delays encountered. The PMOC notes, however, that ESA reported that LIRR began formal Harold CIL pre-cutover testing during the week of March 27, 2017.

Path through Signal Power Separation:

The PMT reports that the controlling path of work along the Program, as of the March 1, 2017 IPS update, runs through the completion of signal power separation for the H1/H2/H5/H6 CILs. The activities involved and the progress made over the update period can be seen below. In the following figure, the black bars represent actual progress made; the light blue bars and lines represent planned progress and logic from the previous IPS update; and the dark blue bars and lines represent planned progress and logic from the current IPS update.

**Figure 2-1: Program Critical Work – LIRR Signal Power Separation**

Path through Signal Power Separation	IPS	Start	Finish	2017				
				JAN	FEB	MAR	APR	MAY
FHL02-31190: Step 5: CH053 - Complete Punch List items and LIRR Training*	1-Feb	11/29/2016 A	2/20/2017	█	█			
	1-Mar	11/29/2016 A	3/13/2017	█	█	█		
FHL02-31200: Step 6: Perform "Y" Splice on Circuit #135*	1-Feb	3/4/2017	3/5/2017			█		
	1-Mar	3/18/2017	3/18/2017	█	█	█		
FHL02-31210: Step 7: Feed Signal Circuit #135 from Harold MG*	1-Feb	3/11/2017	3/12/2017			█		
	1-Mar	3/19/2017	3/19/2017			█		
FHL02-31180: 91 6 Hz Power to H1/H2/H5/H6 CIL's - To be isolated from Sub 44	1-Feb	2/17/2017	2/17/2017		█			
	1-Mar	3/19/2017	3/19/2017			█		
FHL02-CSR290: Ready to start testing / Revision	1-Feb		2/24/2017			◆		
	1-Mar		3/20/2017			◆		
FHL02-CSR1220: Input/Output Processor Tests	1-Feb	2/27/2017	3/10/2017		█			
	1-Mar	3/20/2017	3/31/2017			█		

Order of the path above is from the March 1, 2017 IPS. The February 1, 2017 IPS path is different due to logic revisions over the update period. \*Activity description from March 1, 2017 IPS. Description is slightly different from the February 1, 2017 IPS, although the work appears to be the same. This activity was not necessary for the start of critical input/output processor testing in the previous update.

Analyzing the progress of this work as reported in the March 1, 2017 IPS compared against the February 1, 2017 IPS shows that the planned path of work through signal power separation has been re-sequenced over the update period, and therefore, different activities now control the start of critical CIL Cutover Pre-Testing, which has been delayed almost day-for-day over the update period. The logic contained within the March 1, 2017 IPS shows that the start of CIL Cutover Pre-Testing is now dependent on work that was previously shown as an unnecessary predecessor to the output/input predecessor tests. For example, activities noted with an asterisk (\*) in the figure above were shown as not necessary for the start of CIL pre-cutover testing, whereas in the previous IPS update, these activities were shown to be performed after the start of testing.

**90-Day Look-Ahead of Program Critical Milestones:**

Table 2-3, below, shows the only Program-critical milestone in the IPS forecasted to occur within the next 90 days, as reported in the March 1, 2017 IPS. FHL02-CSR290: Ready to start testing/Revision, below, is the milestone representing the ability to start the Program-critical CIL Cutover Pre-testing, as dictated by the IPS logic.

**Table 2-3: Critical Milestones 90 Day Look-Ahead (from ESA March 1, 2017 IPS)**

Activity ID	Activity Name	Start	Finish	
<b>FHL02: Harold Amtrak and LIRR Force Account</b>				
FHL02-CSR290	Ready to start testing/Revision		20-Mar-17	■

**Program Secondary Path – Manhattan/Systems:**

The PMT's March 1, 2017 IPS reports that the controlling work for the Manhattan/Systems portion of the Program continues to be led by the CM007 East Cavern Headings, specifically Heading 5 work. Critical work at Manhattan/Systems is then reported to go through East Cavern electrical work, still under CM007, mechanical testing and balancing, and then into CS179 Integrated Systems Testing (IST). The forecasted completion of CS179 [REDACTED] [REDACTED] remained unchanged at July 1, 2020, and 105 calendar days, respectively.

**Upcoming Contract Procurements:**

Table 2-4, below, shows the status of current and upcoming Contract procurements, as reported in the March 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
<b>CQ033 Mid-Day Storage Yard</b>	10/20/2016 (A)	2/23/2017 (A)	4/7/2017	40 Months	8/5/2020
<b>CM015 48<sup>th</sup> Street Entrance</b>	4/6/2017	6/15/2017	7/24/2017	33 Months	4/24/2020
<b>CS086 Systems Package 2: Signal Installation</b>	4/20/2017	6/21/2017	7/21/2017	36 Months	7/01/2020
<b>CH058A: Harold Trackwork</b>	12/6/2017	4/17/2018	6/12/2018	26 Months	8/21/2020
<b>CH057D: Harold Trackwork</b>	10/25/2017	1/25/2018	2/26/2018	15 Months	6/2/2019

The Bid Due date for CQ033: Mid-Day Storage Yard actually occurred on February 23, 2017, as previously planned. However, the forecasted NTP date has been delayed over the update period, from a planned date of March 24, 2017, to April 7, 2017. The delay to the planned NTP impacted the forecasted substantial completion date, which changed from July 22, 2020, to August 5, 2020, over the update period.

The forecasted dates for the procurement of CM015: 48<sup>th</sup> Street Entrance were delayed over the update period, a trend that has continued over the previous three update periods. The planned Advertise Date, Bid Date, NTP, and Substantial Completion dates were all delayed by approximately three weeks. The planned Project Period remained the same at 33 months. The PMT's IPS Report notes that the delay to the start of CM015 procurement is due to the completion of the GEC's update to the design drawings and that the overall impact is currently being evaluated by the GEC.

The planned dates for the procurement of future contract CS086 - Systems Package 2, Signal Installation, continue to be delayed. The Advertise Date, Bid Date, and NTP were all delayed approximately six weeks since the previous IPS update. However, the planned Substantial Completion date remained the same at July 1, 2020. This date was able to remain the same by decreasing the planned project period by the equivalent amount of delay, or approximately six weeks. The PMT's IPS Report did not state what analysis was performed to determine whether the project period could be reduced by that amount.

All of the forecasted dates for the procurement of CH057D and CH058A: Harold Trackwork, did not change over the update period.

### **PMOC Concerns:**

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

1. The PMOC is concerned that the current path of work controlling the start of Program-critical CIL pre-cutover testing continues to experience delays. Complicating this, the work required before this critical work can begin changes with each IPS update. For example, in this March 1, 2017 IPS update, there are activities shown as necessary that were not previously shown as predecessors. The constant change of logic within the IPS, especially when it affects critical work, is of concern to the PMOC and appears to signal the need for improved coordination and planning. (Continued concern)
2. The PMOC is concerned regarding the delay to the forecasted procurement dates for future contracts. Delays associated with the procurement of CQ033: Mid-Day Storage Yard have begun to impact the Queens sub-program, with the PMT now reporting that that work is more critical than the Manhattan/Systems path of work. The PMOC is most concerned with the reduction in the planned project period of future contract CS086: Systems Package 2: Signal Installation, assumed to have been made to absorb the delay to procurement activities. The IPS Report does not state how the reduction of the project period by approximately six weeks was determined or if it was agreed upon by all project stakeholders, etc. The PMOC views this as a temporary fix to keep an end date of July 1, 2020, and is not confident that it is based on a deeper review and analysis, which would be necessary for a major revision such as this. (Continued concern)

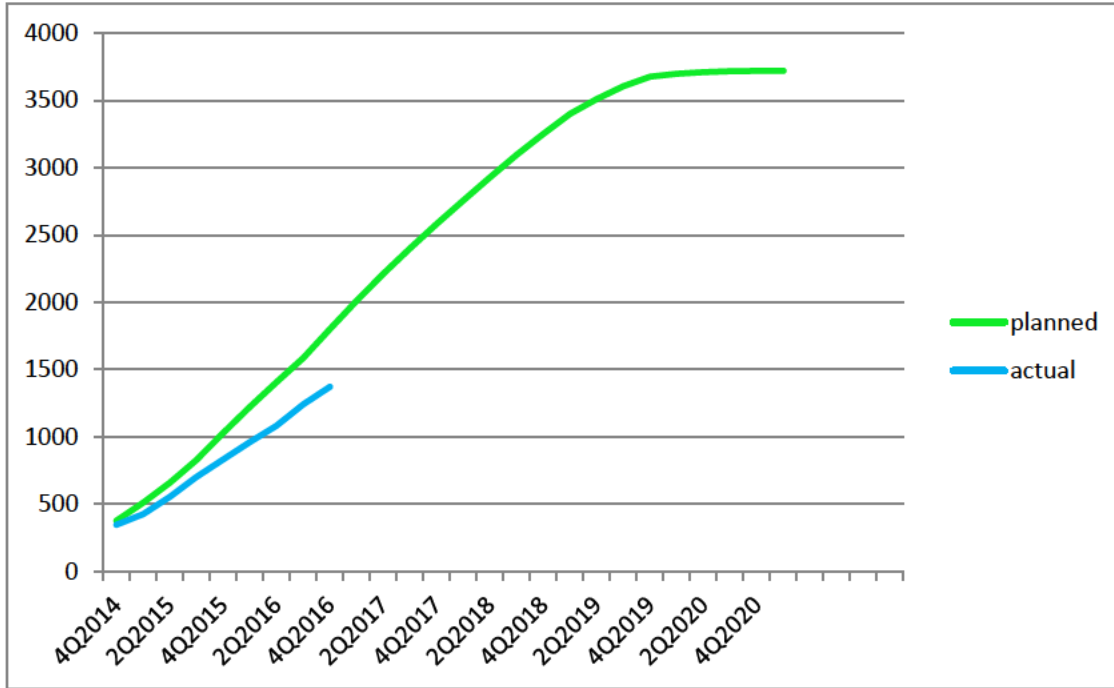
[REDACTED]

**Budget/Cost:** MTACC reported in its February 2017 Progress Report that the actual total project progress was 68.6% versus 72.4% planned against the Current Baseline Budget (CBB) of \$10.178 billion. Total actual construction progress was 68.3% complete versus 73.6% 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. A PMOC review of the ESA Planned Cash Flow Chart shows that it is based on the MTACC February 2021 Revenue Service Date. This now aligns with the Target Revenue Service date resulting from the July 1, 2016, data date of the IPS. Through 4Q2016, the actual cumulative construction amount invoiced since the project start is 97.3% of the original plan. Since the 2014 re-baseline, the actual cumulative construction amount spent is 76.2% of the planned construction spending through 4Q2017. 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 planned construction spending rate may impact ESA's ability to achieve its 1Q2021 Target 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 achieve their 1Q2021 Target Revenue Service Date. The vertical axis is \$million, starting at \$0 at the time of the re-baselining. The "actual" curve, up to the 4Q2016, shows actual construction spending as reported by ESA.



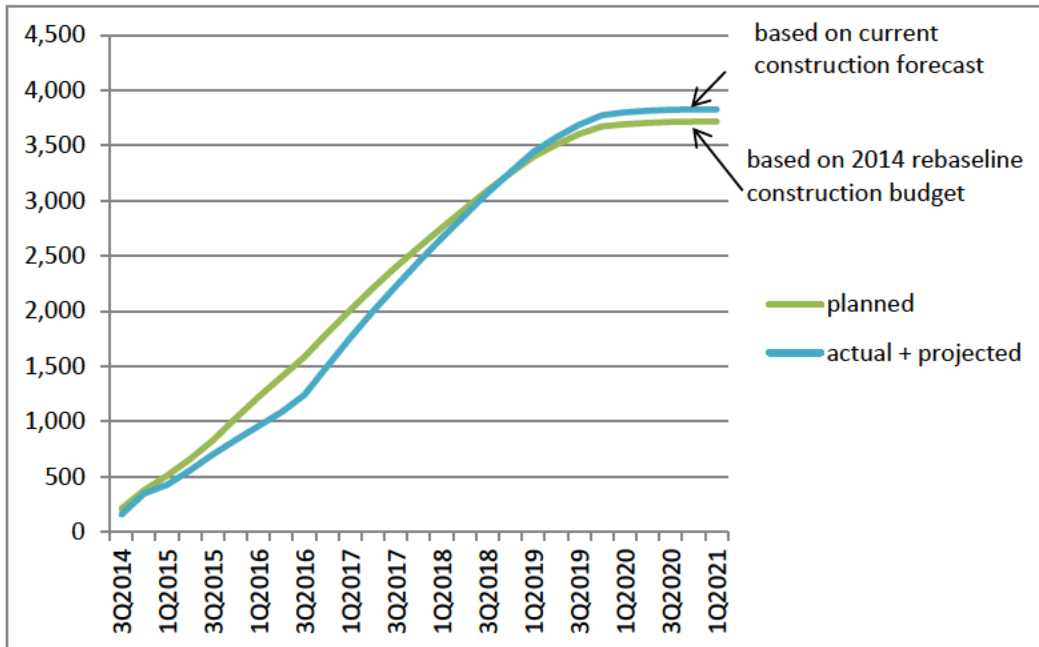
**Construction Cash Flow at 4Q2016 – Starting at 2014 Rebaseline**

Table F-1 - 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 1st quarter of 2021. The vertical axis is \$million, starting at \$0 at the time of the re-baselining. The "actual" curve, up to the 4<sup>th</sup> quarter of 2016, shows actual construction spending as reported by ESA.

**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 3Q2016, shows actual construction spending as reported by ESA. The "projected" portion of that curve, from 1Q2016 through 1Q2021, shows the PMOC's projected construction spending rate to reach the current \$7.48 billion final construction budget by the 1Q2021.

[REDACTED]



**Construction Cash Flow - Starting at 2014 Rebaseline**

As related to the previously reported cost increases, the ESA study indicated that \$111.4 million in additional Amtrak and LIRR Force Account costs will be required to complete the ESA FFGA scope (Revenue Service), while \$245 million in additional FA costs will be needed to complete the full Harold Rev. 14-4M Alignment, including the Regional Investment scope. It had been previously reported that there will also be an increase in OCIP costs of approximately \$191 million to fund the insurance program through February 2022. ESA indicated that it will pursue recovery of the increase in Force Account and OCIP costs as well as OICs on Contract CM014B and other identified cost overruns through MTA funding by seeking amendments to the Capital Plan in December 2016, but that did not occur. In February 2017, ESA reported that the ESA Capital Fund Amendment has been further postponed and a late completion target established as the 1Q2018. As of April 30, 2017, ESA has not received specific forecast dates regarding any aspect of the ESA Capital Plan Amendment.

[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]

**PMOC Concerns:**

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

- [REDACTED]
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.

- CS086 – Incorporation of Positive Train Control into ESA signal system. This contract has not yet been advertised.
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.

**Change Orders/Budget Adjustments:** The PMT reported that, during February 2017, two (2) construction Change Orders and one (1) GEC Change Order greater than \$100,000 were executed. These were:

▪ CS084 - Traction Power System – Mod. #2	\$112,000
▪ CM014B - GCT Concourse/Facilities Fit-Out – Mod. #57	\$575,000
▪ General Engineering Consultant – Mod. #124	\$6,200,000

#### **4.0 RISK MANAGEMENT**

The ESA Risk Manager has conducted a number of risk reviews since assuming the position in January 2016. The status of the risk reviews is summarized here.

##### Contract CQ033, Mid-Day Storage Yard Facility

Using a consultant risk assessment facilitator, the ESA Risk Manager conducted a comprehensive risk review of the CQ033 contract over a two day period on May 10 and 11, 2016. The risk assessment facilitator subsequently submitted his draft risk report to ESA. On August 25, 2016, ESA made a summary level presentation to the PMOC of the risk based cost and schedule outcomes. The PMOC subsequently requested a copy of the presentation and the draft risk report. MTACC would not release the requested information because the CQ033 contract was in the procurement stage at that time. The FTA, MTACC, and the PMOC had attempted to resolve issues regarding the language of the MTACC’s Non-Disclosure Agreement required for the release of these documents but the parties did not reach an agreement. With the award of Contract CQ033 on April 11, 2017, this issue is now closed.

##### Contract CM014B, GCT Concourse and Facilities Fit-Out

During February 2017, the ESA Risk Manager conducted a “Risk Refresh” evaluation of the ongoing CM014B contract that was approximately 32% complete at that time. The results of the evaluation of the cost and schedule risks were presented at the ESA Monthly Cost and Schedule Review Meeting held on March 31, 2017.

##### Harold Interlocking

Using a consultant risk assessment facilitator, the ESA Risk Manager conducted a comprehensive risk review of the remaining work in the Harold Interlocking required to be completed to provide LIRR service into the near 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 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.

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 were planned in support of the schedule. Additionally, the projected force account costs are trending noticeably higher than planned [REDACTED]

[REDACTED] Additionally, Amtrak has notified MTA not to rely on critical weekend track outages in support of the planned ESA work in the Harold Interlocking. ESA has completed a comprehensive study, started in late 2015, 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 shows that the Harold critical path has now become the ESA program critical path. Cost impacts have been evaluated and ESA estimates the additional Amtrak and LIRR force account cost to be \$200-300 million for support of all remaining Harold Interlocking work to complete the Rev. 14-4M Alignment. Details of the force account cost analysis and forecast were presented to the FTA and the PMOC on October 26, 2016. Through April 2017, MTA continued to work with both the FTA and the FRA to monitor and resolve FRA grant funding drawdown issues.

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 plans 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 had been completed. 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 hardening work may conflict with ESA needs to support completion of the planned Harold work required for LIRR service into GCT by 2020. However, no noticeable impacts to availability of Amtrak force account resources through April 2017 were observed due to work in the ERT Lines 3 and 4. The PMOC does note, however, that according to the ESA-PMT, Amtrak’s decision about taking ERT Line 2 out of service first, in 2019, for the 18-month reconstruction work is not expected to directly impact the completion of the Harold work needed to commence LIRR service into GCT. Amtrak’s decision will, however, impact Contract CH058B, Harold Structures – Part 3B, Eastbound Re-Route - a Regional Investment initiative having independent utility that is not required to provide the connection for LIRR service to GCT. The ESA-PMT has indicated that there is no work-around plan for this situation, during which ERT Line 1 would have to be taken out of service in order to construct the Eastbound Re-Route.

A potential 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 two significant derailments that occurred at New York Penn Station during March and April 2017,

Amtrak is now planning to accelerate a major project to reconstruct the track turnout area between 15 platform tracks at Penn Station and the two Hudson River Tunnels, NRT-2 and NRT-3. The project had originally been planned for a three-year duration but is now being advanced to start in July 2017 and will be scheduled to be complete within 12 months. This will place a very significant additional demand on Amtrak's force account resources and the PMOC is concerned that there may be immediate and substantial adverse impacts on Amtrak's support for the ESA work in the Harold Interlocking.

The PMOC notes that the delayed award of Contract CQ033, Mid-Day Storage Yard Facility has resulted in the appearance of a new secondary critical path for the ESA program through the Queens construction path [REDACTED].

## 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.
- **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 CMP, SMP, and RMP, and now expects to complete this effort during the late 2Q2017 – early 3Q2017 time frame.
- **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.

MTACC submitted the next revision to the PMP in June 2016 that reflects ESA organizational changes along with some additional updates and revisions to certain sections. The PMOC has now completed its evaluation, concluded that the PMP, Rev. 10, is acceptable, and provided the FTA with comment close-out details on April 12, 2017. The FTA subsequently notified MTACC on April 21, 2017 that the FTA accepts the ESA PMP, Rev. 10.

- [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, 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 [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 was held on August 25, 2016, to review, discuss, and resolve the comments. MTACC has followed up with the agreed upon revisions to the SMP and has completed its responses in the review comment matrix. During October 2016, MTACC submitted the completed review comment matrix and a revised SMP. The PMOC has completed its evaluation, found no significant issues, and provided its findings, including the remaining comments requiring resolution, to the FTA in November 2016. The FTA subsequently forwarded the PMOC's comments to MTACC. In January 2017, MTACC submitted additional documents to the FTA and the PMOC in response to the remaining comments. The PMOC has now completed its evaluation, 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.

- [REDACTED]

[REDACTED]

[REDACTED]



## 6.0 SAFETY AND SECURITY

Table 6-1, below, shows the PMOC calculated and ESA Reported Lost Time and Recordable injury ratios through March 31, 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
2016 BLS Ratios (used by OSHA)	1.7	3.0
PMOC Calculated ESA March 2017 Ratios	0.84	1.68
PMOC Calculated ESA CY2017 Ratios	0.69	2.06
ESA Reported Ratio (Cumulative since beginning of project as of February 28, 2017)	1.82	ESA does not report cumulative Recordable Injury Rates

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

## 7.0 ISSUES AND RECOMMENDATIONS

**Design:** The PMT design management team needs to focus on achieving intermediate milestones in a timely fashion and work 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 results in time-consuming and costly re-design work by the GEC.

All of the above factors contribute 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, has delayed procurement significantly. This situation has caused Contract CQ033 to appear on the Queens construction near-critical path [REDACTED] 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.

The GEC continues to be challenged to meet the schedule requirements for review of design 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, but notes that more improvement 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 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 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, the contractor performed two phases of grouting in the former EAC and Launch Block areas which significantly remediated infiltration. ESA's goal of zero infiltration was not achieved, however. ESA reported that another remediation effort is being planned under this contract to deal with the ongoing water infiltration. Also, ESA reported that the contractor's subcontractor was brought back to investigate water infiltration conditions over work installed by CM006 under the F Line subway at York Ave., adding that this activity is contract work.

**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 any Buy/Ship America waivers for the potential non-compliance issues so as not to adversely impact the CS179 and overall ESA project schedules. To date, only one of the two positively identified waiver requests has been submitted to the FTA; and, a third one may be necessary if American-made Public Address speakers that meet contract specifications cannot be identified. 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.

Additionally, the PMOC remains concerned that late completion of reviews of contractor design submittals by MTA has caused the design completion date to slip over 13 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 continues to have concerns about the length of time it is taking to provide responses and designs to mitigate the various issues and approve substation and equipment designs that the contractor continues to assert are delaying the completion of contract Milestones. MTACC should prioritize the delivery of requested design information related to the PLCs, the approval of substation switchgear equipment, and the execution of SCADA-related contract modifications to preclude any further impact to substation design and fabrication. Additionally, the PMOC has a concern regarding the testing of the C08 substation and the integrated testing of all the substations installed under the CS084 contract. 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 previously suggested and reported by the PMOC, MTACC 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 MTACC does not have a current updated schedule to use to effectively manage this contract. There are also concerns regarding design decisions that must still be made by the MTA that could impact designs that are already in progress.

[REDACTED]

**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. [REDACTED]

[REDACTED] It is expected that this work will continue to fall behind schedule, impacting the 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 will have a magnified impact on the program schedule, as the track outages needed for this work must be obtained with sufficient notice.

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 fixes that will inevitably catch up to the program and may cause a negative impact on the schedule.

**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. Delays have already started to accumulate 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. Managing inter-contract handoffs and interfaces will be challenging and represents significant MTACC-retained risks. 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 existing CM014B and CS084 contracts 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 will rely on Capital Plan amendment and other sources);
- 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;
- Continued availability of required track outages in Harold Interlocking; and,
- 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 LIRR and Amtrak force account management for both access and protection and direct labor work. 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 the Harold Interlocking planned for 2017-18 and cause a significant delay to the Revenue Service Date. These risks include the following:
  - Installation, testing and activation of Positive Train Control by LIRR in the Harold Interlocking to meet the December 31, 2108 FRA mandated deadline.
  - 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, 3<sup>rd</sup> rail and signals.
  - Ability of MTACC-ESA, Amtrak and LIRR to fully prepare for and execute the remaining work in the Northeast Quadrant in the Harold Interlocking on a very tight schedule involving major Amtrak and LIRR track outages.

Although MTACC continues 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

notes that 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 actively engage executive management in MTACC and MTA to assist with resolution of this problem.

Currently, the Moynihan Station project is Amtrak's top priority for assignment of the local division force account resources. The PMOC believes that this situation will need to change very soon 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.

A potential 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.

## 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
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
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
NTP	Notice to Proceed
NYCT	New York City Transit
OCIP	Owner Controlled Insurance Program
PAC	Pneumatically Applied Concrete
PCO	Proposed Change Order
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
SC	Substantial Completion
SCADA	Supervisory Control and Data Acquisition
SDR	Second Design Review
SMP	Schedule Management Plan
SMS	Security Management System



<b>SWO</b>	<b>Stop Work Order</b>
<b>TCC</b>	<b>Technical Capacity and Capability</b>
<b>TELP</b>	<b>Temporary Eastbound LIRR Passenger</b>
<b>TPSS</b>	<b>Traction Power Substation</b>
<b>WBY</b>	<b>Westbound Bypass Tunnel</b>
<b>YSB</b>	<b>Yard Services Building</b>

**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**

	FFGA				MTA's Current Baseline Budget (CBB)		Expenditures February 28, 2017	
	Original FFGA (Millions)	Amended FFGA (Millions)	(% of Grand Total Cost)	Obligated	(Millions)	(% of Grand Total Cost)	(Millions)	(% of CBB)
Grand Total Cost	\$ 7,386	\$ 12,038	100.00%	\$ 4,724	\$ 11,214	100.00%	\$ 7439.5	66.34%
Financing Cost	\$ 1,036		14.03%	\$ 617	\$ 1,036	9.24%	\$ 617.6	59.61%
Financing Cost		\$ 1,116	9.27%					
Total Project Cost	\$ 6,350		85.97%	\$ 4,107	\$ 10,178	90.76%	\$ 6821.9	67.03%
Total Project Cost		\$ 10,922	90.73%					
Federal Share	\$ 2,683		36.33%	\$ 1,148	\$ 2,699	24.07%	\$ 2230.3	82.63%
Federal Share		\$ 2,683	22.29%					
5309 New Starts share	\$ 2,632		35.63%	\$ 1,098	\$ 2,437	21.73%	\$ 1968.2	80.76%
5309 New Starts share		\$ 2,632	21.86%					
Non New Starts share	\$ 51		0.69%	\$ 50	\$ 67	0.60%	\$ 66.7	99.55%
Non New Starts share		\$ 51	0.42%					
ARRA	\$ -	\$ -	0.00%	\$ -	\$ 195	1.74%	\$ 195.4	100.21%
Local Share	\$ 3,667		49.65%	\$ 2,959	\$ 7,479	66.69%	\$ 4591.6	61.39%
Local Share		\$ 8,239	68.44%					

**Table 3: Project Budget and Invoices as of February 28, 2017**

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (February 2017)	Actual Awards (February 2017)	Paid to Date (February 2017)	Actual % Budget Paid (February 2017)
Construction	\$7,379,296,706	\$7,499,505,760	\$6,631,545,572	\$4,982,206,416	66.43%
Soft Costs Subtotal	\$2,798,474,304	\$2,678,265,250	\$1,979,082,193	\$1,839,733,270	68.69%
Engineering	\$720,615,810	\$732,721,828	\$705,681,280	\$692,543,220	94.52%
OCIP	\$282,613,620	\$307,613,620	\$290,470,653	\$282,295,829	91.77%
Project Mgmt.	\$972,168,644	\$972,168,644	\$863,768,992	\$747,677,843	76.91%
Real Estate	\$182,076,230	\$178,049,776	\$119,161,268	\$117,216,378	65.83%
Rolling Stock	\$202,000,000	\$ 202,000,000	\$ -	\$ -	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 (\$ in millions)**

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	Mar-16	Jun-16	Sep-16	Dec-16	CBB Variance from FFGA	CBB Variance from Amended FFGA
				Current Budget	Current Budget	Current Budget	Current Budget		
10 - Guideway & Track Elements	\$ 1,989	\$ 3,405	\$ 3,353	\$ 3,443	\$ 3,467	\$ 3,475	\$ 3,486	75.27%	3.96%
20 - Stations, Stops, Terminals, Intermodal	\$ 1,169	\$ 2,238	\$ 2,327	\$ 2,314	\$ 2,326	\$ 2,325	\$ 2,328	99.16%	0.06%
30 - Support Facilities (Yards, Shops, Admin)	\$ 356	\$ 474	\$ 451	\$ 472	\$ 473	\$ 472	\$ 472	32.70%	4.80%
40 - Site Work and Special Conditions	\$ 205	\$ 611	\$ 562	\$ 594	\$ 594	\$ 592	\$ 588	186.89%	4.57%
50 - Systems	\$ 619	\$ 606	\$ 628	\$ 569	\$ 568	\$ 582	\$ 580	-6.32%	-7.61%
60 - ROW, Land, Existing Improvements	\$ 165	\$ 219	\$ 192	\$ 216	\$ 215	\$ 215	\$ 215	30.53%	12.04%
70 - Vehicles	\$ 494	\$ 210	\$ 880	\$ 210	\$ 210	\$ 210	\$ 210	-57.50%	-76.13%
80 - Professional Services	\$ 1,184	\$ 1,975	\$ 1,809	\$ 1,977	\$ 1,978	\$ 1,978	\$ 2,003	69.20%	10.74%
100 - Financing Cost	\$ 1,036	\$ 1,036	\$ 1,116	\$ 1,036	\$ 1,036	\$ 1,036	\$ 1,036	0.00%	-7.20%

**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)
<b>Paid To Date</b>	<b>3,660,194,771</b>	<b>646,377,892</b>	<b>155,604,955</b>	<b>580,041,291</b>	<b>112,634,547</b>	<b>0</b>
<b>Remaining</b>	<b>3,719,144,273</b>	<b>74,237,918</b>	<b>127,008,665</b>	<b>392,127,353</b>	<b>69,441,683</b>	<b>202,000,000</b>
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	181,988,435	-1,983,850	4,774,951	16,652,320	4,658,137	13,070,855
<b>Remaining Planned</b>	<b>2,132,549,946</b>	<b>102,388,913</b>	<b>84,293,615</b>	<b>243,041,241</b>	<b>37,011,936</b>	<b>180,262,600</b>
<b>Remaining Actual</b>	<b>2,704,296,244</b>	<b>47,441,129</b>	<b>16,499,229</b>	<b>246,922,443</b>	<b>62,142,125</b>	<b>202,000,000</b>
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	Dec-16		
				Current Budget	Awarded Value	Paid to Date
10 - Guideway & Track Elements	\$ 1,988,742	\$ 3,405,464	\$ 3,353,399	\$ 3,486,097	\$ 3,242,919	\$ 2,559,126
20 - Stations, Stops, Terminals, Intermodal	\$ 1,168,655	\$ 2,238,235	\$ 2,326,752	\$ 2,328,142	\$ 2,169,674	\$ 1,294,682
30 - Support Facilities (Yards, Shops, Admin)	\$ 356,264	\$ 474,177	\$ 450,757	\$ 472,417	\$ 230,537	\$ 212,900
40 - Site Work and Special Conditions	\$ 205,105	\$ 610,570	\$ 562,461	\$ 588,117	\$ 480,503	\$ 474,498
50 - Systems	\$ 619,343	\$ 605,592	\$ 627,657	\$ 579,874	\$ 459,407	\$ 335,233
60 - ROW, Land, Existing Improvements	\$ 165,280	\$ 219,397	\$ 192,225	\$ 215,371	\$ 155,838	\$ 153,347
70 - Vehicles	\$ 493,982	\$ 209,938	\$ 879,530	\$ 209,938	\$ 7,838	\$ 5,549
80 - Professional Services	\$ 1,184,000	\$ 1,975,398	\$ 1,808,989	\$ 2,003,304	\$ 1,852,442	\$ 1,711,587
Estimated Financing Cost	\$ 1,036,100	\$ 1,036,100	\$ 1,116,454			

**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
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Schedule	RSD	December 31, 2013	December 31, 2023	December 2022	April 30, 2018
Total Project Percent Complete Project Performance Rate(Since 2014 ESA "Re-Plan)		Based on Invoiced Amount		67.6% actual vs. 70.8% planned (ESA Figure)	
		Based on Earned Value*** ±		76.2% (PMOC Calculation of construction spending at 3Q2016 planned vs. actual since re-baselining). Actual cumulative construction amount invoiced since project start is 97.3% of original plan.	
Major Issue	Status			Comments	
Project Schedule	<p>[REDACTED]</p> <p>[REDACTED] It should be noted that there have been significant changes in elements comprising the baseline schedule, including two full re-sequencings of the Harold work and restructuring of the interfaces among the following construction contracts that are held by the same contractor: CM006; CM007; CQ032; and CS179. The current Integrated Project Schedule continues to show that the remaining Harold work is now the ESA Program Critical Path. Based on the current IPS, the ESA late RSD is approximately 12.5 months before the Amended FFGA RSD.</p>			<p>The PMOC remains concerned about the impacts of the major developments during 2016 with regard to the remaining work in Harold Interlocking.</p> <ul style="list-style-type: none"> <li>[REDACTED]</li> <li>[REDACTED]</li> <li>The Harold critical path has now become the ESA Program Critical Path; and,</li> <li>Amtrak's decision to take ERT Line 2 out of service for an extended period will not support the ESA planning to complete all of the remaining Harold work, including the High Speed Rail work, by 2021.</li> </ul>	
Harold Re-planning	<p>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. The schedule was again re-evaluated and further adjusted in 2016 with the result that the ESA Program Critical Path now passes through the remaining work in the Harold Interlocking.</p>			<p>Work in Harold Interlocking is subject to influences outside of the control of ESA. Continuing issues with the level of Amtrak force account support, for the "ESA First" schedule, has further delayed completion of the Harold Interlocking work and has forced it onto the ESA Program Critical Path. New issues in 2016 included: reduced priority weekend track outages; increased demand for track foremen to provide access/protection; Amtrak Program to harden Lines 1, 3, and 4 prior to extended outages for ERT Lines 1 and 2, beginning with Line 2 in 2019.</p>	

\*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.