PMOC MONTHLY REPORT

East Side Access (MTACC-ESA) Project

Metropolitan Transportation Authority

New York, New York

Report Period May 1 – May 31, 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

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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 April 1, 2017.

MONITORING REPORT

1.0 PROJECT STATUS

a. Engineering Design and Construction Phase Services

MTACC reported in its 1Q2017 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 March 2017 shows that 95.5% of the overall "EIS and Engineering" category has been invoiced and 95.6% of the "Design" category (including $10 million Design Settlement) has been invoiced.

Status of Construction Packages Not Awarded:

On Contract CM015 (48th St. Entrance), the MTA Board had previously approved the design agreement with the building owner, Rudin Management Corporation (RMC). RMC agreed to provide the designs for the relocation of the existing interior utilities and to complete some limited

structural design. MTA had been meeting with the building owner, RMC, to advance and finalize the Work and Easement Agreements, but discussions have been temporarily suspended pending RMC's evaluation of the impacts resulting from the new Midtown Manhattan zoning changes at the 415 Madison Avenue Building. Parties were reportedly near final agreement, but RMC has again requested that additional work be added. Turner Construction was awarded the utility construction contract and started work in August 2016. The utility relocations were completed in May 2017, with the exception of water lines currently awaiting NYCDEP approvals. 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 nine 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. The updated FHA03 design package, that was submitted to Amtrak in mid-February 2017 to reflect changes made in support of CH058A regarding required catenary and track alterations, has been approved. The GEC finalized the design package and issued the signed and sealed drawings in April 2017. At the May 16, 2017, meeting with ESA, NYCDOT approved the alternate support of excavation plan that involves maintenance and support of the piers for the 39th Street Bridge. The GEC is incorporating the alternate support of excavation plan into the contract plans and specifications. PCO 119 will transfer CH057 trackwork option scope to CH058A. Progress continues on definition of catenary work scope for Amtrak Force Account FHA04A to support the next PCO.

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. MTACC is seeking labor clearance from LIRR for track work only, but union issues remain and meetings continue.

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. Based on the current situation regarding design completion, it is now anticipated that PTC will be added through a post-award contract modification. Bid advertisement was most recently forecast for May 12, 2017, but this did not occur. ESA has not provided a new forecast bid advertisement date. Bid advertisement delays through 2016 and into 2017 will now be at least eight months. PMT 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. These alternatives include:

- Add CS086 scope of work to Contract CS179, System Package 1 – Facilities Systems via contract modification. Negotiations are nearing completion and ESA expects a final cost proposal from the CS179 contractor by June 16, 2017.
- Use a negotiated procurement (RFP process) for CS086 to allow for pre-award establishment and agreement on contractor coordination processes.

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. The issue is expected to be resolved at the planned meeting in June 2017 after which 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 plan to 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 and presented to LIRR and Amtrak in June 2017. 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 continues to note that there are 127 Contractor 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, indicates that responses to submittals and RFIs, and the closure of open CPRs, needs increased attention. The contractor still needs to provide a monthly schedule update that contains the Integrated System Test Plan (ISTP) schedule. The completion of the last of the 10 Control System final designs has yet to be achieved; and, as of the end of May 2017, is 14 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 10 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 continues on a suitable replacement for a piece of equipment that is a third potential Buy/Ship America issue. Additional information regarding specific System designs for the CS179 contract is provided later in Section 1.0c., under CS179.

On Contract CS084, Traction Power Systems Package 4, the information presented for this CS084 contract comes from discussions at a mid-May 2017 progress meeting that reviewed contract progress for April 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 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 caused delays resulting from the LIRR's continuing inability to provide timely comments on design submittals. Six of the seven interim contract Milestones are already delayed and will, according to the contractor, continue to be delayed on a day-to-day basis until the designs are approved and the clarifications are provided. Additional information regarding specific System designs for the CS084 contract is provided later in Section 1.0c., under CS084.

On Contract VS086, Systems Package 3 – Signal Equipment Procurement, 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 and that is being carried by MTACC in its 1Q2017 PR. 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. And LIRR needs to support MTACC with regard to the LED signal unit issue and testing the proposed TRU-III track circuit. Additional information regarding specific System designs for the VS086 contract is provided later in Section 1.0c., under VS086.

b. Procurement

MTACC's Total Cost Report for March 2017 shows 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.

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

- CM015, 48th 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 eight and a half months.

- CS086, Systems Package 2-Tunnel Systems – Advertise date delayed two months from March 1, 2017, to April 20, 2017, and then to May 12, 2017, which did not occur ; Bid due date TBD. Total bid advertisement delay during 2016 and into 2017 is fourteen 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. These alternatives include

- Add CS086 scope of work to Contract CS179, System Package 1 – Facilities Systems, via contract modification. Negotiations are nearing completion and ESA expects a final cost proposal from the CS179 contractor by June 16, 2017.
- 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 1Q2017 Progress Report that total construction progress reached 68.6% complete versus 73.9% planned.

CM006 – Manhattan North Structures: As of April 1, 2017, MTACC slightly decreased its Forecast at Completion for CM006 to $359,266,473. The MTACC forecast for Substantial Completion (SC) changed slightly from the scheduled contractual date of June 1, 2017, to June 8, 2017. Actual construction progress for March 2017 was 2.0% versus 1.0% planned. Cumulative progress through April 1, 2017, was 95.6% actual versus 97.9% planned.

Construction Progress: During May 2017, the CM006 contractor continued rehabilitation/ remediation work at the 63rd St. Tunnels and Structures, which included: leak repair, crash wall extension, manholes, and doors/hardware. The contractor completed arch construction of the air plenum at the 55th St. Vent Facility. At the GCT 3 Crossover Cavern, the contractor continued to install pullboxes, doors, and hardware. The CM006 contractor continued stair construction, door and hardware work at the 50th St. Air Plenum, pullboxes installation at the 50th St. Air Tunnel, and door and hardware installation at the 53rd St. Sump. The contractor also continued contact and chemical grouting at several locations. The contractor continued work operations on both the day and graveyard shifts, and punch list work throughout the project.

CM007 - GCT Station Caverns and Track: As of April 1, 2017, the MTACC Forecast at Completion for CM007 remained at $712,311,733. The MTACC forecast for Substantial Completion changed from the scheduled contractual date of January 28, 2020 to March 6, 2020. The contractor's schedule showed this 38 calendar day delay due to the now resolved trackwork submittal approval for the Resilient Tie Block (RTB). Actual construction progress for March 2017 was 2.0% versus 3.9% planned. Cumulative progress through April 1, 2017, was 10.8% actual versus 18.4% planned.

Construction Progress:

Milestone #4 (Track and Third Rail Work Complete), August 7, 2019 now December 27, 2019 – Impacts to this milestone are due to previous delays in LIRR review and approval of the Resilient Tie Block (RTB) submittals. Also impacted by this delay is Milestone #6, Substantial Completion and Contract CS084, Traction Power Systems.

Precast Overview – At the May 11, 2017, progress meeting, the contractor reported that precast fabrication was approximately 75% complete. Through May 28, 2017, 17.3% of the precast had been set (449 pieces out of an approximately 2,850).

South Back of House, East – Through May 21, 2017, concrete progress reached 38.1% completion. Placement of PAC (Pneumatically Applied Concrete) wall liner nears completion._Formwork for the Upper Deck Slab began May 18, 2017.

South Back of House, West - Installation of rebar and placement of PAC nears completion.

North Back of House, East - Installation of MEP support steel nears completion in Cross Passage #7. Installation of HVAC piping is ongoing.

North Back of House, West - Placement of FRP equipment pads nears completion.

West Cavern - Waterproofing continues throughout wherever final rebar and lining is not complete. Post tensioning and removal of temporary shoring is ongoing. Erection of Upper and Mezzanine Level beams and panels continues and grouting beam pads and forming/placing closure concrete follows.

East Cavern - Waterproofing continues throughout wherever final rebar and lining is not complete. Erection of Upper and Mezzanine Level beams and panels continues and forming/placing closure concrete follows.

Tunnels – Third Rail Contact rail materials continues to be fabricated.

Other - LIRR completed review of the Resilient Tile Block (RTB) submittal and limited Qualification Testing has started.

CM014A – Concourse and Facilities Fit-Out Early Work: Through April 1, 2017, MTACC reports in their 1Q2017 report that the forecast cost at completion for CM014A remains $58,097,736. 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 continues to be 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: The B30 Substation for this project still has not been turned over to the follow-on CM014B contractor. Through May 31, 2017, progress in completing the remaining equipment testing continued to be very slow, however, fiber testing of the SCADA system was finally completed on May 1, 2017. The repairs to the L4 Breaker in the substation were completed April 3, 2017. The completion of "racking in" the breaker requires a ConEd outage and presence at the site with the contractor. The contractor has refused to return to the site to complete this work until payment is received from the change order created for this activity. MTACC reports that this is underway. 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 fully operational, which is scheduled for later in the construction program.

CM014B – Concourse and Facilities Fit-Out: Through April 1, 2017, MTACC reports in their 1Q2017 report that the forecast cost at completion was $481,009,088. 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 1Q2017, was 5.5% versus 11.3% planned. Cumulative progress, as of April 1, 2017, was 34.2% actual versus 85.2% planned.

Construction Progress: Through May 31, 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 through #42 for electrical relocations for the Biltmore Connection.

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

Milestone #5 (Completion of 44th St. Ventilation Building), June 4, 2017, now 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. Demolition of Tracks #123 and #125 has been completed into Zone #5. In that Zone #5 area, excavation for and installation of underground utilities was completed. Precast and cast-in-place manholes and handholds were set and waterproofing is ongoing. Electricians continued with grounding at manholes/handholds, rough-in work in CMU walls, installation of overhead conduit, (moving from south to north in the Concourse), and feeders for the B-20 Substation. Piping in the West Mechanical Corridor and the Chiller Plant is ongoing. Installation of AHUs (Air Handling Unit) and FCUs (Fan Coil Unit) is ongoing throughout the Concourse. Painting of block walls and columns continues throughout Zones 1-4. 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 and erection is underway in Zone #1.

Three-Story Building: Erection of CMU walls will begin the week of June 4, 2017.

Shaft #3 (Elevators #1, #2 and Stair 22): Work continues with the installation of Stair #22 and lighting.

Shaft #4: Forming and placement of the Elevator Machine House was completed. Installation of conduit, and lighting continued.

Biltmore Connection: Installation of grounding grid and top mat reinforcement at the platforms at Tracks #39 through #42 began. GCT has not furnished the field dimensions for the two escalators that the contractor requested yet. As a result, the contractor has stopped escalator fabrication. Conduit relocation continues on the MNR Express Track Level.

Wellways: The rigging and setting of escalator sections is underway and 4 of 5 escalators have been set in Wellway #1. The Wellway #2 area is prepared for installation of the structural steel rigging structure and sled tracks in the escalator incline. Installation of fiberglass panels and finishes continues in Wellways #3 and #4. The underslab conduit is available for cable/wire pulling by the CS179 contractor.

Dining Concourse Connection: Installation of conduit racks and overall fit-out is ongoing in the Escalator Machine Room. The Dining Room enclosure has been removed, new replacement vinyl flooring installed, and most of the area turned back over to MNR. A smaller enclosure has been erected to block off access to the escalators/stairs.

Elevator T-01: Remediation of the shaft issues outlined by the contractor's survey was completed. Cleaning the shaft and installation of temporary power and lighting began.

44th Street Vent Building: Completion of the MTA supplied steel stairs continues from the 3rd Floor to the Ground Floor. Installation of light fixtures throughout was completed. Pulling branch wire in the 2nd Basement continues. Surveying for the Elevator #12 Headhouse was completed.

45th Street Cross Passageway (CPW): Installation of Elevator #21 began the week of May 14, 2017.

47th Street Cross Passage: At Elevator #13, a Stop Work Order has been directed because the contractor has uncovered unforeseen conditions. The elevator shaft does not extend as far down as expected and 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 48th St. Entrance: Excavation of rock from the Express Level to the Concourse is ongoing along with cross-bracing. Re-paving of the street is scheduled for completion in October 2017.

East 50th 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: Through April 1, 2017, MTACC reports in their 1Q2017 report that the forecast cost at completion remains $45,589,023. Forecast Substantial Completion remains April 24, 2020. There is no progress curve included in the report for this contract. However, MTACC reports that, through March 2017, the contractor has 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: Through May 31, 2017, the contractor continued with the Phase II fabrication work.

Biltmore Room Connection: The contractor has requested confirmed field dimensions for Escalators #1 and #2 from CM014B. A Stop-Work-Order has been issued by MTACC on fabrication of these escalators and, through May 31, 2017, this remains in effect. The impact of

delayed fabrication and installation of these escalators to the overall project schedule needs to be evaluated by the ESA Construction Manager.

Wellways: Each escalator for the wellways consists of 11 sections covering an approximate 91' rise and 200' plus length. Through May 31, 2017, 4 of the 5 escalators had been set in place in Wellway #1. Mobilization for the Wellway #2 rigging structure is set to begin.

Systems Contracts:

CS084 - Traction Power System Package #4 - The information presented for this CS084 contract comes from discussions at a mid-May 2017 Progress Meeting that reviewed contract progress for April 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 caused delays resulting from a lack of timely responses to, and approvals of, design submittals. The "Design" section below provides more details regarding these designs. In its 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 design of the C08 Substation continues to be the primary critical path for the contract; and, the continuing delay in approving the designs for this location are, per the contractor, causing a day-to-day delay

in the overall contract schedule. MTACC 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 indicates that it has several issues with the design modifications that need to be resolved before it can develop estimates to perform the work. The PMOC continues to have concerns about the length of time it is taking to 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, the work has not started because negotiations leading to a contract modification have yet to take place. 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 water infiltration issues at the facility are resolved by the CS179 contractor. Access to the Traction Power Substation (TPSS) room in this facility has been significantly delayed as a result of the water infiltration issue. At a recent CS179 progress meeting, it was noted that, although the water infiltration related to the floor of the TPSS room was successfully mitigated, the TPSS room still has water infiltration issues from a leaky access hatch. The successful mitigation of the floor leak should, per MTACC, allow the CS084 contractor to begin some of the contract work in the room. The CS084 contractor will perform an inspection of the TPSS room in early June 2017 to see if conditions warrant the start of the CS084 work. Previously, 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. In the Factory Acceptance Test (FAT) report related to the testing of this transformer, the contractor identified the cause of this failure to having "foreign debris" between the layers of one of the transformer's coils, which caused the insulation to break down during the high voltage testing. The contractor visited the transformer manufacturer's facility to discuss the results of the FAT report and corrective action will be taken to prevent a reoccurrence of this problem. Previously, MTACC indicated that a transfer of construction work scope from this contract to either the CH058A or the CS179 contract was being considered to address the installation of positive and negative DC traction power cabling for the C08 substation. The CS084 contract calls for this cabling, which is necessary to perform the testing of the C08 substation and the integrated and dynamic testing of all the CS084 substations, to be installed in MTA-provided ductwork between the C08 substation and the track. Because procurement efforts on other ESA contracts were delayed, the CS084 contract schedule shows the testing to be performed, and the CS084 contract's Substantial Completion to occur, before the 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-May 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 purportedly 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. In April 2017, MTACC indicated that the Integrated System Test Plan (ISTP) schedule was approved and the contractor noted that it would be included in the Monthly Contract Schedule Update that would be submitted in early May 2017. However, the schedule submitted in May 2017 did not include the ISTP schedule and the contractor advised that it would now be included in the June 2017 update. Despite the continuing, now 14-month, slippage in the completion of all of the ten Control System designs, the MTA's reported Substantial Completion (SC) date for this contract remains at July 1, 2020; an approximate seven-month delay from the original November 19, 2019, SC date. There is no discussion of any potential delay to the established July 2020 SC date at any of the monthly progress meetings attended by the PMOC. MTACC continues to report that the two remaining required Contract Options (Option Nos. 4 and 5) will be exercised, as scheduled, in 2017. The two Buy/Ship America (BSA) issues previously identified remain unresolved. The MTACC recently advised that the FTA contacted MTACC's Legal department to request cost data on the HVAC units that are one of the BSA waiver requests from the MTA. That information will be forwarded to the FTA. The finalization of a BSA waiver request for the Main Display Panel Monitors proposed for this contract remains as an unresolved item that, in the opinion of the PMOC, continues to pose a significant risk to the successful and timely completion of this contract. An additional potential BSA issue, one regarding the Public Address (PA) speakers for the ESA Caverns, remains under investigation. The contractor continues to note that the 127 Contractor Proposal Requests (CPRs) that it has responded to still remain in an open status; and the lack of closure on many of these CPRs is causing serious delays on contract work, particularly finalization of designs. MTACC acknowledges 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 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 May 2017, the completion of the final designs of the last of the 10 Control Systems is still an open item that is already 14 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. The contractor continues to indicate 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 advises that some elements of the final design for two other Control Systems (the FLSS and BMS systems) are not "approved". MTACC recently advised that it sent forms for the SMM and AMS Control Systems to the LIRR that, once signed by the LIRR, would formally acknowledge the LIRR's approval of the final designs of these two systems. As of the end of May 2017, the execution and return of these approval forms remains as an open item. Further, the PMOC continues to note that, as of the end

of May 2017, the LIRR has not provided any "formal" notification to MTACC that any of the Control System final designs are "accepted" or "approved". The risk here continues to be that if the LIRR, for whatever reason, does not approve any specific Control System's final design, any equipment already procured for that particular Control System might need to be replaced to meet the LIRR requirements. The PMOC remains concerned about the LIRR's approval of the designs, and it will continue to follow this important aspect of the design process. In addition to the "Control" system designs, the contractor is also responsible for the design, fabrication, installation, and testing of 19 "Non-Control" systems. MTACC advised in its four most recent 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 a request from the PMOC to the ESA CS179 CM to provide progress data on each of these systems to identify the extent and impact of any reported delays, the contractor developed a tracking system that will identify design progress for these Non-Control systems. While some clarifications and improvements to this Non-Control System status chart are needed, MTACC acknowledges that it will enable the MTACC to more closely monitor the progress of these designs. Complicating the completion of the contract's designs is the resolution of issues identified in the 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 May 2017, the CS179 contractor continued various elements of work (installation of conduit, cable, fire stopping, fire standpipe, lighting, etc.) in the tunnels and at the various substation facilities. As noted in previous PMOC reports, numerous water infiltration issues at various facilities have severely impacted the progression of work on this and another Systems' contract. Water infiltration remediation work was performed at the Vernon, 23rd St., and 29th St. facilities. MTACC is reporting that, as of the end of May 2017, the water infiltration related to the floor of the TPSS room at the Vernon facility was successfully mitigated. This TPSS room still has water infiltration issues from a leaky access hatch; but, the mitigation of the water infiltration through the floor slab should, per MTACC, enable the CS084 contractor to begin some of its contract work in the room. The CS084 contractor's access to this TPSS room, if it occurs after the CS084 contractor's inspection of the room in June 2017, will have occurred 19 months later than what was stipulated in the CS084 contract. 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 23rd and 29th Street facilities appeared to be effective. However, new water infiltration areas in the 23rd Street and 29th Street facilities are now apparent. As previously reported, the subcontractor responsible for system designs and equipment fabrication, assembly, and testing advised that it continues to move forward on the procurement of Control Systems equipment based on the Control System final designs presented at the various Final Design Review (FDR) meetings. As a result, assembly of equipment racks in the subcontractor's off-site facility continues.

Currently, there are a number of Stop Work Orders (SWOs) on this contract; and, the PMOC has requested a listing of those SWOs, along with a status of when the SWOs will be rescinded.

Contract VS086, Systems Package 3, Signal Equipment Procurement: 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. 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 MTACC can use an updated/re-baselined schedule to effectively manage this contract. However, in previous reports, 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 tunnel signal units with Light Emitting Diodes (LEDs); a change to the designs already underway. To begin addressing this request, MTACC developed a discussion paper identifying several issues related to this replacement and sent it to the LIRR for review. 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 May 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 remain unresolved; 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 still 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: CQ032 – Plaza Substation and Queens Structures: As of April 1, 2017, MTACC reported that the Forecast at Completion for CQ032 decreased slightly to $263,256,836. MTACC reports the Forecast for Substantial Completion (SC) remained June 16, 2017. Actual construction progress for March 2017 remained 0.0% versus 0.0% planned. Cumulative progress through April 1, 2017 remained 99.0% actual versus 100.0% planned.

Construction Progress: During May 2017, the CQ032 contractor continued punch list work in the Yard Services Building (YSB). The contractor also continued to prepare required close-out documentation and training for LIRR. ESA reported that Con-Ed completed the gas line service to the YSB in May 2017, installing the meter and turning on the gas. There was no water infiltration remediation activity in May 2017. ESA continued negotiation/contract modifications for work items to be deleted and/or transferred to contracts CS179 and CQ033.

CQ033 – Mid-Day Storage Yard Facility: On April 11, 2017, MTACC issued the Notice of Award and Notice to Proceed for contract CQ033 to the contractor for the amount of $291,503,430. ESA reported that that this sets the substantial completion date to August 9, 2020. Cost and schedule data on construction progress will be presented when ESA begins reporting for this new contract.

Construction Progress: The contractor has started mobilization, permit applications, and the preparation of submittals and other documentation for this contract.

Harold Interlocking Contracts:

CH057 – Harold Structures Part III: MTACC's Forecast at Completion for the CH057 contract decreased slightly during March 2017 to $87,770,117 due to additional scope deletions. The MTACC forecast for Substantial Completion remained at July 5, 2017. Actual construction progress for March 2017 was 5.4% versus 1.9% planned. Cumulative progress through March 31, 2017, was 79.9% actual versus 87.7% planned (based on cost incurred rather than actual construction).

Construction Progress: During May 2017, the CH057 contractor continued construction of the Tunnel D headhouse, continued to grade and install ballast for the new LIRR ML4 Track roadbed, installed street lighting at the 43rd and 48th St. undergrade bridges, and performed miscellaneous catenary work in various locations in Harold Interlocking.

CH057A – Part 3 Westbound Bypass: MTACC's Forecast at Completion for the CH057A contract increased slightly during March 2017 to $162,690,917 due to execution of a contract modification. The MTACC forecast for Substantial Completion was extended by one month to

July 25, 2018. Actual construction progress for March 2017 was 1.2% versus 4.3% planned. Cumulative progress through March 31, 2017, was 52.3% actual versus 70.5% planned (based on cost incurred rather than actual construction).

Construction Progress: During May 2017, the CH057A contractor continued to install parapet walls on top of the West Approach sidewalls. Mining of the Westbound Bypass Tunnel and pump station construction remained on "Hold" 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 9 months.

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

Construction Progress: During May 2017, the CH061A contractor continued to excavate the west end of the Tunnel A Approach Structure while it mobilized to drive soldier piles at the east end of the approach structure.

Railroad Force Account Contracts:

FHA01 – Harold Stage 1 Amtrak: MTACC's Forecast at Completion for FHA01 remained at $18,824,861 during March 2017. The MTACC forecast for Substantial Completion was extended by 2 weeks to August 9, 2017. Actual construction progress for March 2017 was 0.0% versus 0.0% planned. Cumulative progress through March 31, 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 May 2017.

FHA02 – Harold Stage 2 Amtrak: MTACC's Forecast at Completion for FHA02 remained at $66,440,848 during March 2017. The MTACC forecast for Substantial Completion remained at May 20, 2018. Actual construction progress for March 2017 was 0.8% versus 0.0% planned. Cumulative progress through March 31, 2017, was 86.8% actual versus 81.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During May 2017, Amtrak Electric Traction personnel continued catenary construction at the #825 crossover, relocated feeder cables at the B929 catenary pole, and transferred catenary and body span wires at the B908 catenary pole. Amtrak C&S personnel installed the BP44.2 signal case on the south side of LIRR PW2 (Port Washington 2) Track and continued to install signal trough, conduit, and cable along Amtrak NH1 and NH2 (New Haven 1 and 2) Tracks in support of LIRR's 2018 CIL cutover program.

FQA65 – Loop Interlocking Amtrak: MTACC's Forecast at Completion for FQA65 remained at $33,287,863 during March 2017. The MTACC forecast for Substantial Completion remained at July 16, 2023. Actual construction progress for March 2017 was 0.4% versus 3.5% planned. Cumulative progress through March 31, 2017, was 17.5% actual versus 72.5% 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 May 2017, Amtrak C&S personnel installed the foundations for the new Loop Control Instrument House (CIH).

FHL01 – Harold Stage 1 LIRR: MTACC's Forecast at Completion for FHL01 remained at $24,379,364 during March 2017. The MTACC forecast for Substantial Completion was extended by 4 weeks to September 19, 2017. Actual construction progress for March 2017 was 1.4% versus 0.0% planned. Cumulative progress through March 31, 2017, was 94.1% actual versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During May 2017, LIRR 3rd Rail personnel installed 3rd rail conduit, negative bonds, and brackets on the newly constructed ML2 Track and continued to install third rail conduit into the new G02 Substation.

FHL02 – Harold Stage 2 LIRR: MTACC's Forecast at Completion for FHL02 remained at $84,417,099 during March 2017. The MTACC forecast for Substantial Completion remained at July 1, 2020. Actual construction progress for March 2017 was 0.8% versus 0.0% planned. Cumulative progress through March 31, 2017, was 94.0% actual versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During May 2017, LIRR Signal personnel installed signal conduits between the H2B and H3B signal cases and continued CIL pre-testing with signal Revision 600A and TSR (Train and Signal Revision) testing at "H6", revision ESA800B and TSR testing at new Location 30, revisions ESA909, ESA405, and TSR testing at "H5", and revisions ESA904 and ESA904A at Woodside.

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

ESA Quality Management: The PMOC previously reviewed the NCR logs for the active contracts, as well as following up on issues and status with ESA QM staff, and provided 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 QQO 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.

[redacted]

Program Critical Path-Harold Interlocking:

ESA reported in its April 1, 2017 IPS that the Program critical path remains running through work in Harold Interlocking to reach the Target RSD of February 11, 2021, [redacted]. Over the update period, the controlling critical work reported at Harold was the Input/Output Processor

Tests at the critical Harold CILs as part of the pre-cutover process. The April 1, 2017 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: April 1, 2017 IPS Critical Path

Contract & General Activities	Duration (CDs)	Start	Finish
FHL02: CIL Cutovers Pre-Testing and Cutovers	414	1-Apr-17	20-May-18
CH057D/FHL03/FHL04: NE Quadrant Preparatory Work, Outage, and B/C Approach Preparatory Work, Switch Work	160	21-May-18	28-Oct-18
FHL02: Retire Harold CIL	28	29-Oct-18	26-Nov-18
CH058A: Track B/C Approach Work & Catenary Structures	634	26-Nov-18	21-Aug-20
FHL04: Testing & Cutover of 4C	49	24-Aug-20	12-Oct-20
Train Contract Staffs LIRR Prior to 3 Months Period	29	15-Oct-20	13-Nov-20
LIRR 3 Month Period	89	14-Nov-20	11-Feb-21
Target Revenue Service Date			**11-Feb-21**
[redacted]	[redacted]	[redacted]	[redacted]
Late Revenue Service Date			**13-Dec-22**

Discussion of Progress along the Program Critical Path:

During the April 1, 2017 IPS update, ESA reported that the first activity in the critical Harold CIL pre-cutover testing sequence is in progress. FHL02-CSR1220: Input/output Processor Tests was reported to have begun on March 21, 2017 – against a planned date of March 20, 2017. This activity, as of the data date of April 1, 2017, is expected to be complete by April 14, 2017. This forecasted completion date for FHL02-CSR1220 is approximately two weeks later than the forecasted completion date shown in the previous month's IPS update. [redacted]

Path leading to the Start of FHL02-CSR1220: Input/output Processor Tests:

As of the last IPS Update, with data date March 1, 2017, the PMT reported that the work controlling the Program was a series of four activities needed to obtain signal power separation for the H1/H2/H5/H6 CILs. However, over the update period, only the first of those four activities were completed; the other three were reported to have not yet begun. There were also logic revisions to the IPS related to the start Input/output Processor testing, which is now controlling the Program's critical path. The April 1, 2017 IPS update shows that achieving signal power separation was not necessary to begin the Input/output Processor tests, as was reported for the previous few months of IPS updates.

90-Day Look-Ahead of Program Critical Milestones:

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

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

Activity ID	Activity Name	Start	Finish	[redacted]
FHL02: Harold Amtrak and LIRR Force Account				
FHL02-CSR1220	Input/Output Processor Tests		14-Apr-17	[redacted]
FHL02-CSR1230	H5/H6/30 TSR Pre-cutover Testing	17-Apr-17	5-May-17	[redacted]
FHL02-CSR1240	H5/H6/30 South Pre-cutover Testing	8-May-17	17-Jul-17	[redacted]

Sub Program Longest Path – Queens:

ESA reported in its April 1, 2017 IPS narrative that both the Notice of Award and the NTP for CQ033 Midday Storage Yard was granted on April 11, 2017, although the IPS schedule itself does not reflect this. The substantial completion date for CQ033 is projected to be four days later than the previous monthly update of the IPS, [redacted]. The longest path for the CQ033 project runs through VQ033 CIL procurement, to fabrication, FAT, and delivery, and installation of the MID-8 CIL, to CQ033 local and integrated testing, to substantial completion forecasted to occur on August 9, 2020.

Sub Program Longest Path – Manhattan/Systems:

The PMT's April 1, 2017 IPS reports that the controlling work for the Manhattan/Systems portion of the Program is CM007 work in the West Cavern. This is a change to the near-term Manhattan/Systems longest path, which previously showed work at the East Cavern Headings, specifically Heading 5 work, controlling this Sub-Program. From inspection, it appears that work along the previous longest path, at the East Cavern, made better-than-expected progress and gained approximately one week of time. Concurrently over the update period, it appears that work at the West Cavern experienced delays and this is the reason work at the West Cavern now controls the Manhattan/Systems longest path. It also appears that activities at the West Cavern that were shown to have started in the March 1, 2017 IPS, are now shown to have not started in the April 1, 2017 IPS (CM007-P1W-1030 and -1040). The corresponding IPS Report does not address this discrepancy or note the change in critical work in the Manhattan/Systems sub-program.

Follow on work at the West Caverns, critical work at Manhattan/Systems is then reported to go through East Cavern HVAC work, still under CM007, mechanical testing and balancing, and then into CS179 Integrated Systems Testing (IST). The forecasted completion of CS179 [redacted] for Manhattan/Systems work 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 April 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
CQ033 Mid-Day Storage Yard	10/20/2016 (A)	2/23/2017 (A)	4/11/2017	40 Months	8/9/2020
CM015 48th Street Entrance	TBD	TBD	TBD	TBD	TBD
CS086 Systems Package 2: Signal Installation	4/20/2017	6/21/2017	7/21/2017	36 Months	7/01/2020
CH058A: Harold Trackwork	12/6/2017	4/17/2018	6/12/2018	26 Months	8/21/2020
CH057D: Harold Trackwork	10/25/2017	1/25/2018	2/26/2018	15 Months	6/2/2019

The 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 previous two update periods, from a planned date of March 24, 2017, to April 7, 2017, and now forecasted to be April 11, 2017, when the NTP was actually issued. The delay to the planned NTP impacted the forecasted substantial completion date, which changed from July 22, 2020, to August 5, 2020, and is now forecasted to be August 9, 2020.

The forecasted dates for the procurement of CM015: 48th Street Entrance have been put on hold this month, ESA reported. The April 1, 2017 IPS Report noted that negotiations related to the impact of the new Midtown Manhattan zoning changes at 415 Madison Avenue are ongoing and that an Advertise date will be provided once those negotiations are complete.

Most of 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 three weeks since the previous IPS update, or about nine weeks over the last two monthly update periods. 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. The PMT's IPS Report stated that alternative procurement methods are being evaluated and that legal review of the Division 1 Specifications for CS086 are pending completion of the same review for CM015.

All of the forecasted dates for the procurement of CH057D: Harold Trackwork and CH058A: B/C Tunnel, 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 controlling Program-critical CIL pre-cutover testing continues to experience delays [redacted]. This is a continued concern. Adding to the PMOC concern is the fact that if the May 2018 cutover date is missed, it could impact this critical path work significantly by delaying the cutover by months, potentially.
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 to the Program than the Manhattan/Systems path of work. The PMOC is also 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 forecasted dates related to the procurement of CM015 have been put on hold. This is a continued concern.
3. The PMOC is also concerned about the tightened interface between the forecasted Substantial Completion date of CQ033 and CS179's critical Integrated Systems Testing (IST). Currently, CQ033's Substantial Completion is forecasted for July 23, 2020, while the completion of CS179 IST is scheduled for July 1, 2020. ESA stated that once CQ033 is awarded and a baseline schedule is developed, and the CS179 IST schedule is finalized and approved, it will have more information regarding the interface between what needs to be completed on CQ033 in order to not delay CS179 IST and impact the Program.
4. The PMOC notes that the growing contractor-claimed delay, currently 125 work days, on Contract CS179 regarding changes to the backbone communications system (PCS), could become a significant issue.

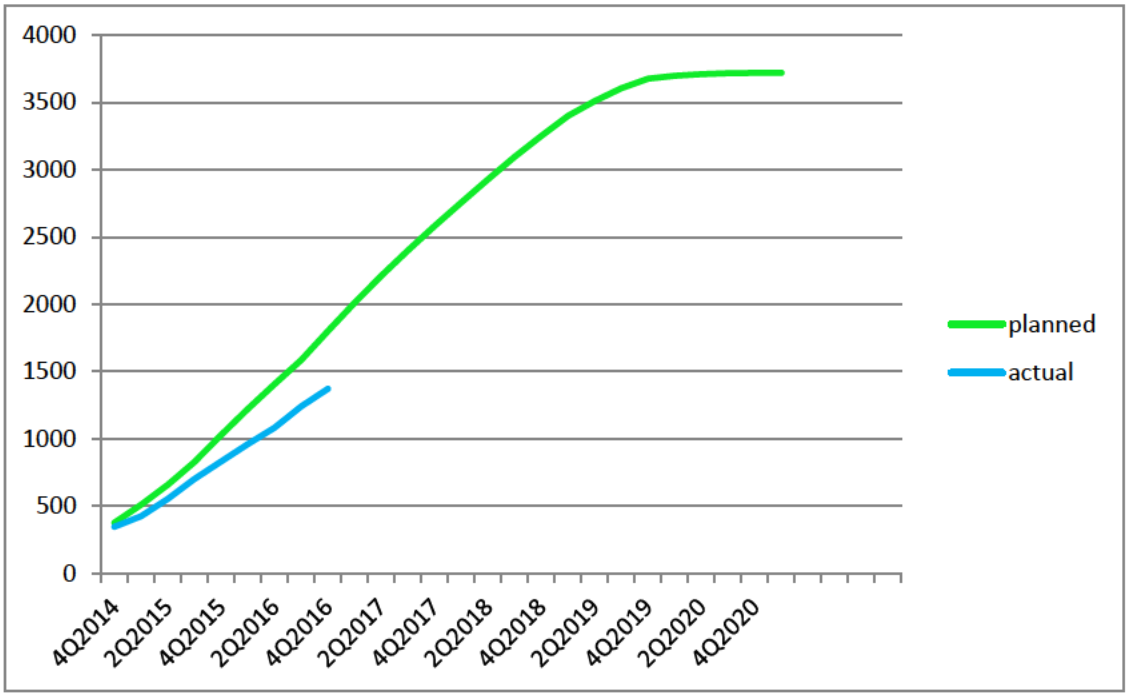
3.0 COST DATA

Funding: The approval of the 2015–2019 Capital Plan in 2016 has eliminated the cost uncertainty associated with funding interruptions, at least in the near term. MTACC had earlier indicated that it will request further amendments to the MTA Capital Plans (both 2010 to 2014 and 2015 to 2019), seeking funding for both the forecast cost overruns for Owner Controlled Insurance Program (OCIP) and Force Account as well as the additional costs for other project scope additions. [redacted]

Budget/Cost: MTACC reported in its 1Q2017 Progress Report that the actual total project progress was 69.4% versus 73.2% planned against the Current Baseline Budget (CBB) of $10.178 billion. Total actual construction progress was 68.6% complete versus 73.9% 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 1Q2017, the actual cumulative construction amount invoiced since the project start is 100.0% of the original plan. Since the 2014 re-baseline, the actual cumulative construction amount spent is 74.8% of the planned construction spending through 1Q2017. 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.

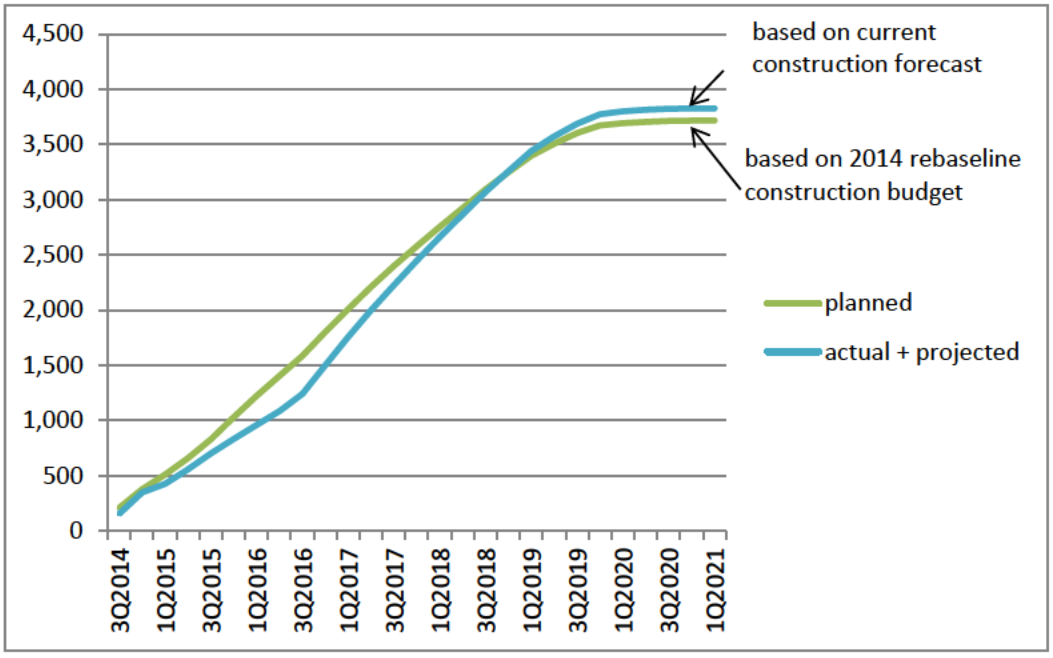


Construction Cash Flow at 4Q2016 – Starting at 2014 Rebaseline

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 4th 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 2016 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 2010-14 and 2015-19 Capital Plans 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 May 31, 2017, ESA has not received specific forecast dates regarding any aspect of the ESA Capital Plan Amendment.

[redacted]

- [redacted]
- [redacted] ESA stated that this will fund the GEC's CPS activities through the end of 2017. An additional $6.2 million adjustment in February 2017 was to fund GEC PM and Project Controls Staff through the end of 2017. This adjustment was based on a separate GEC contract modification.
- In May 2017, ESA reported that the current project budget will support the following soft costs only through the time periods indicated:
  - PM/CM – March 31, 2019
  - CCM – December 31, 2018
  - GEC – December 31, 2017

[redacted]

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]						
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

- [redacted]

[redacted]

Change Orders/Budget Adjustments: The PMT reported that, during March 2017, nine (9) construction Change Orders greater than $100,000 were executed. These were:

- CH053 - Harold Structures, Part 1 – Mod. #158 ($9,525,000)
- CH053 - Harold Structures, Part 1 – Mod. #164 ($1,432,764)
- CH057 - Harold Structures, Part 3 – Mod. #7 $335,650
- CH057 - Harold Structures, Part 3 – Mod. #18 $960,000
- CH057 - Harold Structures, Part 3 – Mod. #20 $952,500
- CH057A - Harold Structures, Part 3 WBBP – Mod. #25 $628,848
- CM013A - 55th Street Vent Facility – Mod. #20 ($1,455,372)
- CM014A - GCT Concourse/Facilities Fit-Out – Mod. #54 $135,836
- CS179 - System Facility Pkg. No. 1 – Mod. #34 $190,000

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 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 contract construction work. The preparation meeting to review the cost and schedule risk models was held on April 7, 2017. The risk workshop to evaluate the risks and quantify the probability of occurrence and cost and schedule impacts was held over a three-day period April 19, 20, and 21, 2017. Participants included ESA staff associated with the Harold work, the ESA Project Management Team (select members), the GEC, MTA-OCO, the PMOC, ESA-CM, ESA-IEC, Amtrak, and LIRR. The risk assessment facilitator's draft Risk Report is expected to be available in June 2017.

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

The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to harden East River Tunnel (ERT) Lines 3 and 4 in preparation for extended outages for ERT Lines 1 and 2 to complete Hurricane Sandy damage-related reconstruction work, now planned for 2019. There is concern, shared by both the PMOC and MTACC, that significant Amtrak Force Account resources will be needed to support the hardening work, which could further reduce the Amtrak resources available to support the ESA Harold Re-Sequencing Plan. During July 2016, Amtrak advised MTACC that it had planned to start work on the total track replacement in ERT Lines 3 and 4 during 4Q2016. During March 2017, MTACC advised the PMOC that Amtrak hardening work on Line 3 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 remaining hardening work

may conflict with ESA needs to support completion of the planned Harold work required for LIRR service into GCT by 2021. However, no noticeable impacts to availability of Amtrak force account resources through May 2017 were observed attributable 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 completed within 12 months. This will place a very significant additional demand on Amtrak's force account resources and the PMOC remains concerned that there may be immediate and substantial adverse impacts on Amtrak's support for the ESA work in the Harold Interlocking. This new risk has been realized based on ESA reporting that the Amtrak force account resource availability for the ESA Harold Interlocking work dropped noticeably during May 2017.

The PMOC notes that the delayed award of Contract CQ033, Mid-Day Storage Yard Facility has resulted in the appearance of a new secondary, near-critical schedule path for the ESA program [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 3Q2017 time frame.

- **Project Management Plan:** MTACC submitted its last version of Revision 10 to the PMP in June 2016 that reflected ESA organizational changes along with some additional updates and revisions to certain sections. The PMOC completed its evaluation, concluded that the current version of the PMP, Rev. 10, is acceptable, and provided the FTA with comment close-out details in early April 2017. The FTA subsequently notified MTACC in April 2017 that the FTA accepts Revision 10 of the ESA PMP.
- [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, [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, a working meeting was completed, and MTACC resubmitted comment responses and a revised SMP in October 2016. The PMOC 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 completed its final 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.
- **Cost Management Plan (CMP)**: The ESA project remains partially non-compliant with requirements for Project Level EAC Forecasting, Project Level EAC Forecast Validation, [redacted] and Secondary Mitigation. The PMOC has noted some improvement in a number of areas, but additional work is needed in other areas. MTACC provided an initial revision to the CMP in

December 2015. The PMOC worked with MTACC over a period of time to reach agreement on certain specific revisions and to evaluate the PMOC's recommendations in six areas. During October 2016, MTACC submitted the completed review comment matrix and a revised CMP. The PMOC completed its final evaluation, concluded that the CMP is acceptable, and provided the FTA with the comment close-out details in November 2016. The FTA subsequently notified MTACC that the FTA has accepted the current revision of the CMP.

Revisions to the ELPEP Document: [redacted] The PMOC's recommendations were presented at several meetings with the MTACC in 2015. [redacted] The PMOC continues work on a draft revision to the ELPEP document that reflects these agreements.

6.0 SAFETY AND SECURITY

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

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

	Lost Time Ratio	Recordable Ratio
2016 BLS Ratios (used by OSHA)	1.7	3.0
PMOC Calculated ESA April 2017 Ratios	0.0	0.0
PMOC Calculated ESA CY2017 Ratios	0.49	1.47
ESA Reported Ratio (Cumulative since beginning of project as of April 30, 2017)	1.82	ESA does not report cumulative Recordable Injury Rates

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

7.0 ISSUES AND RECOMMENDATIONS

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

Also, the PMOC has observed the following:

- Approvals from the railroads, both LIRR and Amtrak, and other outside stakeholders are requiring considerably more time than expected; and,
- LIRR is making changes that alter the design basis and results in time-consuming and costly re-design work by the GEC.

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 electrical and electronic equipment. The GEC's proposed remediation methodologies for the various locations should, in theory, mitigate the water infiltration issues; however, as was already experienced, theoretical solutions do not always work under actual field conditions. The successful mitigation of the water infiltration problem can only be validated after remediation work is complete. Further, if, after implementation, one of the water infiltration remediation methodologies is not entirely successful in preventing water infiltration, it

may be necessary to develop another strategy; which could further impact the design and construction processes on the Systems contracts.

Additional Water Infiltration Concerns - On CQ032, ESA reported that continued remediation effort is being planned under this contract to deal with the ongoing water infiltration in the former Early Access Chamber and Tunnel Boring Machine Launch Block areas. Also, ESA reported that the CM006 contractor's subcontractor continued to perform leak repair of water infiltration conditions at locations over installed work installed by CM006.

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 for the last of the ten Control Systems to slip over 14 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 Program Logic Controls (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.

Project Budget: [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] 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. This is a continuing concern.

The PMOC is also concerned with continuing delays related to procurement of future contracts including CM015 and CS086. For example, it was reported that CS086 has experienced delays to planned procurement dates. While these expected dates were impacted, the planned Substantial Completion date remained the same, at July 1, 2020. In order to achieve this, the planned project period was reduced to offset the impact of the delays. However, no information was provided to alleviate concerns about the basis for the project period reduction. This appears instead to be a high-level revision aimed at keeping the same Substantial Completion date, showing no impact to the program. The PMOC recommends that any reduction to the planned project period of future contracts be rooted in analysis and agreed upon by project and program stakeholders. Otherwise, the PMOC views changes like this as temporary adjustments that will inevitably affect the program and are likely to adversely impact the schedule. This is a continued concern.

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 an ESA 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:

  A. Major Risks included in the Risk Assessment

  1. Positive Train Control: Installation, testing, and activation of Positive Train Control by LIRR in the Harold Interlocking to meet the December 31, 2018, FRA mandated deadline. Risk is not well defined because scope and schedule details have not been finalized.
  2. LIRR Force Account Performance: Ability of LIRR force account resources to provide both a very high level of support for third-party contractor access and protection and adequate productivity for significantly increased direct labor work involving track, 3rd rail, and signals, in accordance with the current ESA schedule plan.

3. Northeast Quadrant Rail Work: Ability of MTACC-ESA, Amtrak, and LIRR to fully prepare for and execute the remaining work in the Northeast Quadrant in the Harold Interlocking, in accordance with the current ESA schedule plan, on a very tight schedule involving major Amtrak and LIRR track outages. Preparation work includes obtaining all required track turnouts and necessary track materials for the planned work.
4. LIRR CIL Cutovers: Ability of LIRR to complete the pre-testing and final cutovers of CILs H1/H2/H5/H6/Loc 30 in accordance with the current ESA schedule plan.
5. Contract CH058A Preparation Work: Ability of Amtrak and LIRR force account resources to complete, in accordance with the current ESA schedule plan, all track, catenary, and third-rail work required prior to NTP for CH058A.

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

1. ESA Project funding constraints;
2. Future "Regional Projects" requiring extensive support from Amtrak including: NYPS 2017-18 Track Rehabilitation; Moynihan Station; Gateway; MNR to NYPS;
3. Amtrak program to reconstruct existing ERT Lines 1 and 2, starting with Line 2 in 2019. Risk is not well defined because Amtrak scope and schedule details have not been finalized and presented to MTA-LIRR.

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.

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

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. This new risk has been realized based on ESA reporting that the Amtrak force account resource availability for the ESA Harold Interlocking work dropped noticeably during May 2017. PMOC is not certain how Amtrak plans to balance this new need with the standing commitment to the Moynihan Station project. The PMOC is quite concerned that this new development will further jeopardize MTACC-ESA efforts to complete the critical remaining work in the Harold Interlocking.

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
PLC	Program Logic Control
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PMT	ESA Project Management Team
PR	Progress Report
QA	Quality Assurance
QPR	Quarterly Progress Report
RFI	Request for Information
RFP	Request for Proposal
RMC	Rudin Management Corporation
RMP	Risk Management Plan
ROD	Revenue Operations Date
ROW	Right of Way
RPR	Relocated Primary Route
RSD	Revenue Service Date
SC	Substantial Completion
SCADA	Supervisory Control and Data Acquisition
SDR	Second Design Review
SMP	Schedule Management Plan

SMS	Security Management System
SWO	Stop Work Order
TCC	Technical Capacity and Capability
TELP	Temporary Eastbound LIRR Passenger
TPSS	Traction Power Substation
TSR	Train and Signal Revisions
WBY	Westbound Bypass Tunnel
YSB	Yard Services Building

APPENDIX B – TABLES

Table 1: Summary of Critical Dates

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

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

Table 2: Project Budget/Cost Table

	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%	$ 7532.1	67.17%
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%	$ 6914.5	67.93%
Total Project Cost		$ 10,922	90.73%					
Federal Share	$ 2,683		36.33%	$ 1,148	$ 2,699	24.07%	$ 2231.6	82.66%
Federal Share		$ 2,683	22.29%					
5309 New Starts share	$ 2,632		35.63%	$ 1,098	$ 2,437	21.73%	$ 1969.5	80.82%
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%	$ 4286.9	62.61%
Local Share		$ 8,239	68.44%					

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

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (March 2017)	Actual Awards (March 2017)	Paid to Date (March 2017)	Actual % Budget Paid (March 2017)
Construction	$7,379,296,706	$7,562,576,878	$6,626,699,846	$5,051,253,926	66.79%
Soft Costs Subtotal	$2,798,474,304	$2,615,194,132	$1,987,322,761	$1,863,196,282	71.25%
Engineering	$720,615,810	$732,721,828	$705,681,280	$692,817,201	94.55%
OCIP	$282,613,620	$307,613,620	$298,593,953	$294,618,113	95.78%
Project Mgmt.	$972,168,644	$972,168,644	$863,886,260	$758,532,402	78.02%
Real Estate	$182,076,230	$178,049,776	$119,161,268	$117,228,566	65.84%
Rolling Stock	$202,000,000	$202,000,000	$ -	$ -	0.00%
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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 Current Budget	Jun-16 Current Budget	Sep-16 Current Budget	Dec-16 Current Budget	CBB Variance from FFGA	CBB Variance from Amended FFGA
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%
[redacted]									
100 - Financing Cost	$ 1,036	$ 1,036	$ 1,116	$ 1,036	$ 1,036	$ 1,036	$ 1,036	0.00%	-7.20%
[redacted]									

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

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

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

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	Mar-17		
				Current Budget	Awarded Value	Paid to Date
10 - Guideway & Track Elements	$ 1,988,742	$ 3,405,464	$ 3,353,399	$ 3,486,097	$ 3,259,954	$ 2,631,581
20 - Stations, Stops, Terminals, Intermodal	$ 1,168,655	$ 2,238,235	$ 2,326,752	$ 2,328,142	$ 2,171,134	$ 1,350,770
30 - Support Facilities (Yards, Shops, Admin)	$ 356,264	$ 474,177	$ 450,757	$ 472,417	$ 230,614	$ 212,943
40 - Site Work and Special Conditions	$ 205,105	$ 610,570	$ 562,461	$ 588,117	$ 460,986	$ 471,942
50 - Systems	$ 619,343	$ 605,592	$ 627,657	$ 579,874	$ 458,853	$ 341,148
60 - ROW, Land, Existing Improvements	$ 165,280	$ 219,397	$ 192,225	$ 215,371	$ 156,482	$ 154,550
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	$ 1,868,161	$ 1,745,968
[redacted]						
[redacted]						
Estimated Financing Cost	$ 1,036,100	$ 1,036,100	$ 1,116,454			
[redacted]						

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]	[redacted]
Schedule	RSD	December 31, 2013	December 31, 2023	December 2022	April 30, 2018
Total Project Percent Complete		Based on Invoiced Amount		69.4% actual vs. 73.2% planned (ESA Figure)	
Project Performance Rate(Since 2014 ESA "Re-Plan)		Based on Earned Value*** ±		74.8% (PMOC Calculation of construction spending at 1Q2017 planned vs. actual since re-baselining). Actual cumulative construction amount invoiced since project start is 100.0% of original plan.	

Major Issue	Status	Comments
Project Schedule	MTACC presented a new baseline schedule to the MTA CPOC in June 2014, with an RSD in December 2022. [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.	The PMOC remains concerned about the impacts of the major developments during 2016 with regard to the remaining work in Harold Interlocking. ▪ [redacted] ▪ The Harold critical path has now become the ESA Program Critical Path; and, ▪ Amtrak's decision to take ERT Line 2 out of service for an extended period in 2019 may impact Force Account support to ESA work now due to the need to "harden" the Line 1, 3 and 4 tunnels prior to 2019.
Harold Re-planning	Based on continuing issues with inadequate railroad force account support, ESA completed a Harold schedule re-sequencing in December 2014, also known as "ESA First", that advances work elements required for the new LIRR service to GCT and delays the FRA funded High Speed Rail Work beyond 2017. The 2015 Harold Re-Sequenced schedule advanced completion of ESA elements but did not achieve goals due to insufficient Amtrak force account support. 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. In May 2017, a new risk appeared based on Amtrak's accelerated program for major track work between NYPS and the Hudson River Tunnels that had impacted FA availability for ESA work.	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. Amtrak's 2017 accelerated NYPS track project is likely to impact FA availability for ESA work through 3Q2017.

*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.