

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

**Report Period August 1 – August 31, 2017**



PMOC Contract No. DTFT60D1400017

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

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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 July 1, 2017, that corresponds to MTACC's "East Side Access Q2 2017 (April, May, and June) Progress Report" and is referenced as [ESA 2Q2017 Progress Report](#) in this PMOC Report.

## **MONITORING REPORT**

### **1.0 PROJECT STATUS**

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

In the ESA 2Q2017 Progress Report, MTACC reported that the overall Engineering effort is 99.9% complete vs. 100% planned. The ESA June 2017 Total Cost Report shows that 96.1% of the overall EIS and Engineering budget, and 96.2% of the Design budget, has been invoiced.

#### **Status of Construction Packages Advertised:**

Contract CS086, Systems Package 2 - Tunnel Systems, was advertised on August 10, 2017, with proposals due on October 20, 2017. This will be a negotiated procurement using the RFP method. Based on when LIRR completes the design for Positive Train Control (PTC), the PTC scope will

be added to the CS086 contract either by addendum before proposal submission or by contract modification after award. See the Procurement section below for more details.

**Status of Construction Packages Not Awarded:**

On Contract CM015 (48<sup>th</sup> St. Entrance), MTA had been meeting with the building owner, Rudin Management Corporation (RMC), to advance and finalize the Work and Easement Agreements, but discussions were temporarily suspended pending RMC's evaluation of the impacts that the new Midtown Manhattan zoning changes may have on RMC's 415 Madison Avenue Building. The parties were reportedly near final agreement, however, RMC has again requested that significant additional work be included in the design scope. Discussions between MTA/MTACC and RMC have resumed, but further changes to the NYC East Midtown Zoning regulations have apparently shifted the cost of the 48<sup>th</sup> Street Entrance facility back to MTA. Final disposition will be based on the outcome of MTA/MTACC negotiations with RMC and subsequent MTA/MTACC management level decisions. Design work on this package remained suspended through August 2017.

Contract CH058A will include construction of the Tunnel B/C Approach Structure. During August 2017, NYCDOT continued its review of the updated package, plans and specifications that was revised to incorporate the alternate support of excavation involving maintenance and support of the piers for the existing 39<sup>th</sup> Street Bridge. The scope of the required catenary work for Amtrak Force Account FHA04A has been finalized and is included in PCO 222. GEC has started work on this PCO based on a retro-active authorization. PCO 222 (R3) is currently under MTA legal review. The 90% (revised) design package was issued on August 4, 2017.

Contract CH058B will include construction of the East Bound Re-route. The GEC has been developing the scope of work for finalizing the tunnel design based on a cut-and-cover construction method. LIRR agreed to the track outages required to support the cut-and-cover construction, but requested additional rail traffic simulations, now in progress, from their consultant. The rail traffic simulation outcomes will not impact the design for Contract CH058B. MTACC had previously directed ESA to proceed with design finalization of CH058B based on using the cut-and-cover tunnel construction method and without the Temporary Eastbound LIRR Passenger (TELP) Track. Last month, the ESA-PMT advised that this package has been temporarily put on hold. There was no change in status during August 2017.

Contract CH057D, Harold Track Work, is a new package that includes completion of all the remaining track work in the Harold Interlocking Northeast and Southeast Quadrants. The package scope of work has been finalized by the PMT and the CM. MTACC has obtained labor clearance from LIRR for track work only. ESA continues to seek labor clearance for third-rail work. The 90% design package was submitted on August 1, 2017. The 100% design milestone is scheduled for September 29, 2017.

Contract CH059, Harold Structures Part 4 - Amtrak Car Washer, will be updated prior to bid advertisement that is currently forecast for the year 2022. The package will be refreshed at that time. Selected option work that was not exercised on Contract CH057 may be added.

Package FQA33A, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for yard access to Amtrak tracks via a connection from Sub 4 to Line 2. Amtrak has requested that ESA develop the full scope of exiting routes from the Mid-Day Storage Yard (MDSY) for review of the required associated changes to Penn Station Control Center. ESA met with LIRR to discuss Option C, an alternative MDSY exit route. The GEC is also evaluating another MDSY exit route

alternative, Option D. Upon completion of the reviews and acceptance by LIRR, ESA will meet with Amtrak to review all of the exiting schemes from the Mid-Day Storage Yard to Penn Station – the three MDSY exiting schemes are configured as follows:

1. Option A + Option B
2. Option C
3. Option A + Option D

Option C replaces both Options A and B, deletes the Amtrak diamond crossover and provides access to ERT Lines 2 and 4. Option D requires Option A to access ERT Lines 2 and 4; deletes both the Amtrak and LIRR diamond crossovers.

Package FQA33B, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for a second MDSY access to Amtrak tracks via a connection from Sub 3 to Line 4. Amtrak, LIRR, and ESA have met to discuss the diamond crossover proposed in the design package. An earlier study about this proposed track alignment was completed. The GEC developed an alternative track alignment that does not include the diamond crossover. The GEC is now reviewing an additional exiting scheme, Option D. Upon completion of ESA review and evaluation of the exiting options, LIRR will review and evaluate the options to select the desired option. ESA and LIRR will then meet with Amtrak. The 100% design package is temporarily on hold awaiting a final decision based on the exiting option study. See “FQA33A, Mid-Day Storage Yard Facility – Amtrak F/A”, above for a summary of the four MDSY exiting options and the three exiting schemes.

#### **Status of Positive Train Control Design by LIRR**

The PMT had previously advised that the MOU between MTACC and LIRR for the implementation of Positive Train Control (PTC) on ESA has been modified to move the technical portions into a separate “Technical Concurrence Document” and to leave only the agency administrative and legal agreements in the MOU itself. The MOU has been executed, and the “Technical Concurrence Document” review is nearing completion. LIRR continues to advance the PTC design. LIRR has provided the GEC with “advanced design” documents for its use in starting to prepare for modifications to contracts CS179, VS086, and CS086 to provide for overlay of the LIRR designed PTC onto the ESA systems.

#### **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 Requests for Information (RFIs) reviews from the LIRR on submittals and RFIs remained as a significant issue; causing, per the contractor, delays to the contract schedule. The contractor contends that open Notices of Change (NOCs) are causing serious delays on contract work, particularly finalization of designs. While MTACC asserts that all ten of the Control System final designs are approved, the PMOC questions the validity of this assertion, as unanswered questions remain on the design for the CCTV and SMS Control System. It is the PMOC’s opinion that completion of the 10 Control System final designs has yet to be achieved; and is, as of the end of August 2017, 18 months late. MTACC received formal approval from the LIRR of the final designs of 4 of the 10 Control Systems. MTACC continues to request formal approval of the remaining Control System final designs from the LIRR; but, as of the end of August 2017, these approvals remain as an open item. Additional information regarding specific System designs for the CS179 contract is provided later in Section 1.0c., under CS179.

On Contract CS084, Traction Power Systems Package 4, the contractor continues to perform site surveys and submit design documentation. Issues related to the tunnel SCADA system design remain unresolved, allowing the contractor to continue to contend that the lack of clarity on SCADA details has caused delays to its contract schedule. In its 2Q2017 Progress Report, MTACC indicates that the previously reported June 2020 Substantial Completion (SC) date is now September 2020. The contractor indicates that all seven contract milestones are already delayed and will, according to the contractor, continue to be delayed until designs clarifications are provided and the designs are approved and the clarifications are provided. Additional information regarding specific System designs for the CS084 contract is provided later in Section 1.0c., under CS084.

On Contract VS086, Systems Package 3 – Signal Equipment Procurement, the contractor continues to raise concerns over the timeliness of responses from MTACC on design submittals and inquiries; asserting that the lack of timely responses is causing delays in the progression of the work. The contractor contends that design coordination efforts with other ESA contractors, especially CS179 and CS086, pose potential delays to the timely completion of its work. MTACC needs to make key design decisions that have the potential to impact designs already in progress. Additionally, LIRR needs to support MTACC with regard to the LED signal unit issue and testing of the proposed TRU-III track circuit. Additional information regarding specific System designs for the VS086 contract is provided later in Section 1.0c., under VS086.

## **b. Procurement**

The ESA June 2017 Total Cost Report shows that total procurement for the ESA Program portion of the project is 88.1% complete, with \$8.962 billion awarded of the \$10.178 billion current project budget.

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

- CM015, 48<sup>th</sup> Street Entrance: – All design work on this package remains suspended. Total bid advertisement delay through 2016 and into 2017 is twelve months. There was no change in status during August 2017.
- CS086, Systems Package 2 - Tunnel Systems: – Advertised August 10, 2017; Proposals due October 20, 2017. Total proposal advertisement delay through 2016 and into 2017 is fifteen months.

Contract CS086 will be a negotiated procurement using the RFP method. The bid package was made available on August 21, 2017, and the pre-proposal tour was held on August 31, 2017. Notice to Proceed is forecast on January 2, 2018.

## **c. Construction**

In the ESA 2Q2017 Progress Report, MTACC reported that total actual construction progress reached 71.4% complete compared with planned progress of 76.6%.

**CM006 – Manhattan North Structures:** As of July 1, 2017, MTACC decreased its Forecast at Completion for CM006 to \$355,627,901. The MTACC forecast for Substantial Completion (SC) changed from June 22, 2017 to August 31, 2017. ESA reported that SC remains dependent on the contractor preparation of a detailed list of base contract work items, open NCRs, and all open commercial issues. Actual construction progress for June 2017 was 1.0% versus 0.4% planned. Cumulative progress through July 1, 2017, was 98.8% actual versus 99.4% planned.

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

**CM007 - GCT Station Caverns and Track:** As of July 1, 2017, the MTACC Forecast at Completion for CM007 remained at \$712,311,733. The MTACC forecast for Substantial Completion changed from April 6, 2020 to July 17, 2020, due to continued impact from the lack of resilient tie block (RTB) approvals. Actual construction progress for June 2017 was 2.3% versus 4.5% planned. Cumulative progress through July 1, 2017, was 17.6% actual versus 31.2% planned.

Construction Progress: During August 2017, the CM007 contractor continued upper level slab concrete construction at the South Back of House in the East and West Caverns. The contractor continued mechanical piping, electrical conduit, and CMU installation at the North Back of House in the East and West Caverns. The CM007 contractor also continued the following construction in the East and West Caverns: temporary shoring, waterproofing, exterior concrete wall construction (pneumatically applied concrete - PAC), closure wall construction (cast-in-place concrete - CIP), mezzanine and upper level precast beam and panel installation, grouting, and post-tensioning of beams. The contractor has focused effort in the West Cavern and anticipates removing the crane by the end of September 2017. The precast subcontractor continued production casting of beams and panels at their upstate NY facility (fabrication is approximately 95% complete). Construction power has been restored to all work areas affected by the July 2017 electrical system outage. Through August 20, 2017, 30.1% of the precast had been set and completed (which includes a combination of 661 pieces out of an approximate 2,774, rebar installed, post-tensioning/grouting, and concrete pours). This progress has caught back up to the baseline schedule late finish percentage of 25.9%.

The contractor started construction of the plinths for the Direct Fixation Fasteners (DFF) trackwork in 63<sup>rd</sup> St. Tunnel WB1 in Queens. Laboratory Qualification Testing of Trackwork Fasteners: Test report for the standard Resilient Tie Block (RTB) units has been submitted, fabrication has started and first deliveries are to begin after September 4, 2017; Testing of the DFF and the High Attenuation RTB units continued. LIRR/GEC submittal review for the Special Trackwork RTB continued, and testing and fabrication will commence when approval is received.

**CM014A – Concourse and Facilities Fit-Out Early Work:** MTACC reports in its 2Q2017 report that the forecast cost at completion for CM014A has been reduced to \$58,124,328 from the previous \$58,175,904. MTACC continues to report that Substantial Completion will be retroactively declared for November 1, 2015, from the previous November 15, 2015. The MTACC Project Office has advised the PMOC that this retroactive date is the result of negotiations with the contractor and its bonding company, which have not been finalized. Final Completion is now reported as September 30, 2017, from the previous July 24, 2017. Progress for 2Q2017 was 1.7% versus 0% planned. Cumulative construction progress was at 96.1% versus 100.0% planned.

Construction Progress: The B30 Substation for this project still has not been turned over to the follow-on CM014B contractor. As previously reported, all tests and repairs have been completed. The contractor submitted the test reports on July 17, 2017, and the reports were transmitted to ConEd for its review and approval. ConEd responded with a requirement for an engineer stamped letter stating that the L4 breaker equipment is acceptable. Following the rejection of its first letter, the contractor submitted a second engineer stamped letter to ConEd on August 25, 2017. ConEd

is tentatively scheduled to return to the site to “rack in” the repaired breaker in September 2017. This should resolve all final work required to turn the B30 Substation over to the CM014B contractor. MTACC has issued a Time and Material (T&M) change order to the contractor to clean all of the electrical equipment.

**CM014B – Concourse and Facilities Fit-Out:** Through July 1, 2017, the ESA 2Q2017 Progress Report indicates that the forecast cost at completion increased to \$486,904,902 from the previous \$486,178,233. The forecast Substantial Completion date remained June 17, 2019. The contract continues to be impacted by earlier delays, including late critical structural steel submittals, fabrication, and delivery; late removal of existing unforeseen obstructions by MNR; and issues with the availability of subcontractors to perform finish work in the four (4) Wellways.

The emergency trackwork at New York Penn Station was completed this summer and Amtrak is scheduled to stop running some trains from the MNR Express Track level in Grand Central Terminal (GCT) on September 7, 2017. This will allow CM014B to resume work in those Track areas for the Biltmore Room escalators and other entrance work.

Actual construction progress for 2Q2017, was 5.4% versus 5.8% planned. Cumulative progress, was 39.1% actual versus 71.8% planned.

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

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

Milestone #4 (Comm. Closets CC-C3, CC-7, and Room B3265) March 5, 2017; now August 25, 2017 – This milestone is projected to be further extended due to FM200 issues, the required increase in the room size for Communications Closet CC-C7, and the lengthy change order process.

Milestone #5 (Completion of 44th St. Ventilation Building), June 4, 2017. This milestone has been further extended to April 1, 2018, from the previous December 13, 2017. The contractor continues to perform corrective work related to the previous contracts CM004 and CM014A. Fit-out of the interior is ongoing.

Milestone #5A (Completion of 48th St. Entrance) November 25, 2016, now April 13, 2018- There is additional structural steel work that must be done for MNR. This work will be paid for by MNR.

Quality: The mockups for the finish stone wall panels and terrazzo flooring have been completed at the south end of the Concourse along the north wall of the Terminal Management Center (TMC).

Concourse (Madison Yard): Safety walkthroughs take place weekly and housekeeping, dust control, and safety items are addressed on an ongoing daily basis. Tracks #115, #123, and #125 are used for material/equipment/services into and out of the site. Stantec repairs continue throughout and near completion. 3rd Party Inspections continue for concrete, shotcrete, rebar, masonry, bolting, welding, and firestops. Structural steel deliveries are ongoing and steel erection continues from south to north with a focus on the East Corridor. Electricians neared completion of switchboards, relay panels, lighting and grounding at Unit Substations #5 and #6. Pull box and conduit installation continues at Track #39. Painting of block walls and columns continues



throughout Zones 1-4. Placement of the final concrete slab invert remains approximately 85% complete throughout the Concourse.

Shaft #2: Installation of lighting nears completion.

Shaft #3 (Elevators #1, #2 and Stair 22): Installation of structural steel and metal deck for the Elevator Headhouse is complete. Installation of the Stair #22 handrails is complete.

Shaft #4: Installation of Stair #23 is underway.

Biltmore Connection: Conduit and relocation work continues at the Express Level at night. Excavation of rock is ongoing for Elevator #22 at the Concourse Level. This work has now moved onto the critical path for the contract.

Wellways: All 5 escalators in Wellway #1 have been installed and splicing and fit out continue. Installation (rig and set) of the 4 escalators in Wellway #2 has begun and the 1st escalator has been set (without the head unit). Installation of the glass tile finishes is complete in Wellway #3 and is underway in Wellway #4. Wellway #3 ceiling grid installation is beginning.

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

Elevator T-01: Installation of Elevator #14 began.

44<sup>th</sup> Street Vent Building: Installation of conduit and pulling wire continues at the Roof Level. Installation of fixtures throughout the facility continues. Erection of the entrance canopy steel is complete. Installation of Elevator #12 continues. Storefront façade is underway.

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

47<sup>th</sup> Street Cross Passage: At Elevator #13, a Stop Work Order has been directed because the contractor has uncovered unforeseen conditions. The elevator shaft does not extend as far down as expected and is needed to take the elevator down to the Concourse. The contractor will shore up the existing shaft walls and extend the shaft and the shaft walls. This work is also held up in the MTACC change order process.

East 48<sup>th</sup> St. Entrance: Excavation of rock from the Express Level to the Concourse is ongoing along with cross-bracing. Waterproofing of the walls is complete. Formwork, rebar, and preparation for concrete invert is ongoing.

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

**VM014 –Vertical Circulation Elements (Escalators & Elevators)** - Through July 1, 2017, the ESA 2Q2017 Progress Report indicates that the forecast cost at completion remains \$45,589,023. Forecast Substantial Completion remains April 24, 2020. There is no progress curve included in the report for this contract, but the PMOC is aware that work on Phase II, Fabrication, and Phase III, Installation, continues to advance. MTACC reports that, through 2Q2017, the contractor has completed 48.1% of the work. The Phase III (installation) portion of the contract is dependent on access availability provided by the CM007, CM014B, and upcoming CM015 contracts.

Construction Progress: There are 47 total escalators and 21 total elevators currently in the contract. This does not include the upcoming CM015 contract. The contract is broken down into 5 phases:

Phase I – Design; Phase II – Fabrication; Phase III – Installation; Phase IV – Pre Revenue Service Maintenance; Phase V – Post Revenue Service Maintenance.

Through August 2017, the contractor continued with design support for the Concourse Entrances and continued with fabrication, storage and installation of escalators and elevators for the CM014B contract. Drilling for hydraulic elevator pistons in the Caverns is complete and the contractor continues with review and approval of shop drawings for the upcoming fabrication and installation of escalators/elevators for the CM007 contract.

### **Systems Contracts:**

**CS084 - Tunnel Systems Package 4 – Traction Power Systems** - The information presented for this CS084 contract comes from discussions at an early-August 2017 Progress Meeting that reviewed contract progress up to August 9, 2017, and from the ESA 2Q2017 Progress Report.

Status: In its ESA 2Q2017 Progress Report, MTACC reports that the Budget and Forecast for the CS084 contract remained at the \$79,717,772 level previously reported. Senior management from MTACC and the contractor have met to discuss, among other things, the fabrication schedule for the substation equipment. As a result, this fabrication schedule was incorporated into the latest monthly schedule update from the contractor that is available to the PMOC – data date August 1, 2017. That schedule shows a contractor forecasted Substantial Completion (SC) date of April 28, 2020. Conversely, MTACC indicates in the ESA 2Q2017 Progress Report that the SC date for this contract has slipped once again; this time, approximately 2-1/2 months from the June 23, 2020, date reported last month to September 10, 2020. This September 2020 date is nine months later than the original contractual SC date of December 2019. MTACC attributes this additional 2-1/2 month delay in SC to “unmitigated” delays in contract CM007. In the ESA 2Q2017 Progress Report, MTACC indicates that the 0.5% work progress during June 2017 was significantly below the planned 3.0% amount. MTACC reports an actual cumulative progress at 12.3% versus a planned 73%. While these numbers are based on actual versus projected costs, not physical construction efforts, the actual versus planned progress numbers indicate that this contract is significantly behind schedule; and, falling further behind schedule on a month-to-month basis. The contractor continues to contend that the variance in the actual versus planned progress is because: 1) funds were not expended as originally projected due to delays in approving the substation designs and equipment; 2) fabrication of the substations and procurement of equipment could not progress until designs were approved; and, 3) the lack of access to substation rooms precluded the contractor from performing construction activities. The contractor continues to indicate that all of the 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. The PMOC continues to recommend that, in order to make tracking of actual versus planned progress more useful as a management tool, MTACC and the contractor should consider modifying the MTACC’s Progress Curve to reflect the current and projected progression of the contract.

Design Progress: The contractor continued with the transmission of contractual submittals and its design development of the substations. The contractor continues to assert that previous delays in receiving comments back from MTACC on the C08 facility switchgear, SCADA requirements, PLC information, and general C08 substation design impacted its ability to meet its own original design, procurement, fabrication, and installation schedules. However, at the last three monthly progress meetings, it was noted that the GEC’s submittal/comment review period improved as a

result of continued focus by MTACC. MTACC continues to report and have concerns about the timeliness of LIRR comments on design submittals. While the design of the C08 Substation continues to be the primary critical path for the contract, the continuing delay in finalizing SCADA requirements is, per the contractor, causing delays in the overall contract schedule. The PMOC continues to have concerns about the length of time it is taking to address the various design approval issues.

Construction Progress: The PMOC previously reported that, while the extra L3 electrical service was completed and turned over to the MTA, the MTA had yet to energize two of the LIRR signal huts because there was additional work required. The modification for the completion of the extra L3 Electrical Service work was issued and the contractor began preparations to start the work. The work will require an electrical service outage of approximately two days to those new signal huts/cases that are already being fed by the original L3 electrical service; and, coordination with LIRR to schedule that outage will be required. Both MTACC and the contractor planned to perform this work in August 2017, but were not able to. The new target date to do this work is forecast for September 2017. A meeting between MTACC and the CS084 and CS179 contractors was held earlier, to discuss staging areas at the street and substation levels for the C05 (Vernon) facility. Agreements were reached on how the two contractors would share the staging areas; and, the CS084 contractor has begun its mobilization process. However, the CS084 contractor continues to note that its work at the C05 location will be extremely limited because there is a Stop Work Order (SWO) in place as a result of water infiltration issues that have yet to be resolved. Additionally, the contractor has submitted a Notice of Change (NOC) to MTACC related to the 3/8 inch depression required in the floor to enable the CS084 contractor to install di-electric insulation padding under the electrical equipment. MTACC still needs to respond to this NOC. In June 2017, the contractor performed facility handover inspections of the C06 and C07 locations and subsequently submitted lists of 177 and 231 deficiencies, respectively, for these locations. The contractor contends that all these deficiencies need to be corrected before it will consider starting work in these facilities. Additionally, there is a significant water infiltration issue on all levels of the C06/C07 facility that must be corrected. Further, based on earlier discussions between the contractor and MTACC, both parties have work to perform regarding the design and installation of the C07 rectifier equipment. One other significant deficiency with the C05 TPSS room was noted earlier this year by the contractor. The floor of the C05 TPSS room is supposed to have a 3/8 inch depression in it to accommodate the installation of di-electric padding under the traction power equipment. The floor was installed by another ESA contractor and accepted by MTACC without this 3/8 inch depression. The CS084 contractor advised MTACC that if MTACC wanted the CS084 contractor to provide that depression, it would be “extra” work requiring a contract modification. In discussions between MTACC and the contractor, MTACC previously indicated that a transfer of construction work scope from this contract to either the CH058A or the CS179 contract was being considered to address the installation of positive and negative DC traction power cabling for the C08 substation. The CS084 contract calls for this cabling, which is necessary to perform the testing of the C08 substation and the integrated and dynamic testing of all the CS084 substations, to be installed in MTA-provided ductwork between the C08 substation and the track. The contractor’s survey of the area revealed that this ductwork is not installed. Further, because procurement efforts on other ESA contracts were delayed, the CS084 contract schedule shows the testing to be performed, and the CS084 contract’s Substantial Completion to occur, before the track is installed under any other contract; thus, the consideration to transfer the cable installation and substation testing to another contract that will still be active once the ductwork and track are

installed. The PMOC notes that should the “live load” (dynamic) testing of the C08 substation and, consequently, the contractually required integrated live load testing of all the CS084 substations be transferred to another contract, work performance accountability issues could arise if test results are other than satisfactory. As of the August 2017 monthly progress meeting on the CS084 contract, there was no further information on the direction that MTACC will take to resolve this issue. This concern and a recommendation on addressing the concern are noted in Section No. 7 of this report.

**CS179 – Systems Package 1 – Facilities Systems:** The information presented for this CS179 contract comes from discussions at an early September 2017 Progress Meeting that reviewed contract progress up thru the end of August 2017, and from the ESA 2Q2017 Progress Report.

Status: MTACC notes that the contract forecast exceeds the current contract Budget, with the Forecast at \$607,149,181, versus a \$606,938,540 Budget. MTACC indicates that this \$0.2M variance is mainly driven by the potential contract modifications for water infiltration mitigation, as well as trough cover procurement and installation efforts. MTACC shows a progress curve for the CS179 contract that presents actual contract progress as 54.5% versus a planned 73.70%; numbers that are based on actual versus projected costs, not physical construction efforts. These progress numbers continue to imply that the contract is significantly behind schedule. MTACC indicates that the Substantial Completion (SC) date for this contract has slipped from July 1, 2020, to October 1, 2020; a three-month slippage that MTACC attributes to adverse impacts from the CM007 and CS086 contracts. This is an approximate 11 month delay from the original November 19, 2019, SC date. MTACC continues to report that the two remaining required Contract Options (Option Nos. 4 and 5) will be exercised, as scheduled, in 2017. The two previously reported Buy/Ship America issues that pose schedule risks to the successful and timely completion of this contract (incidents

units and video monitor display panels) remain as unresolved items and one additional potential Buy/Ship America issue (public address system speakers) remains under investigation. The waiver request letter for the video monitor display panels continues to remain under review by MTA Legal staff with no forecasted completion date for when the MTA Legal staff will complete its review. The contractor continues to note that there are 48 open Notices of Change (NOCs) for which MTACC agreed to provide Change Proposal Request (CPRs) to the contractor, but has yet to issue the CPRs. The lack of closure on many of these CPRs is causing delays on contract work, particularly finalization of designs.

Design Progress: In its ESA 2Q2017 Progress Report, MTACC again asserts that all ten of the Control System final designs are approved. The PMOC continues to question the validity of this assertion, as in the last three CS179 Monthly Progress meetings, one of which discussed work through the end of August 2017, both the contractor and MTACC acknowledged that the final design review meeting for the CCTV and SMS Control System had yet to occur because the final design is incomplete. Further, the contractor indicates that the final designs for several other Control Systems are incomplete, awaiting responses from the MTA on design questions. It is the PMOC’s opinion that completion of all of the 10 Control System final designs has yet to be achieved; and is, as of the end of August 2017, 18 months late. MTACC did receive formal approval from the LIRR of the final designs of 4 of the 10 Control Systems. MTACC continues to request formal approval of the remaining Control System final designs from the LIRR; but, as of the end of August 2017, these approvals remain as an open item. 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 contractor is also responsible for the design, installation, and testing of 19 “Non-Control” systems. In its previous Monthly Progress Reports (MPRs), MTACC noted that the contractor’s progress on several of these non-control system designs was falling behind schedule and would cause delays to the fabrication of equipment racks. MTACC makes no mention of the status of these 19 Non-Control Systems in its ESA 2Q2017 Progress Report; and, because no updated schedule showing the status of these systems’ designs was available at the most recent Monthly Progress meeting for discussion or comparison to a baseline schedule, it is unclear as to what impact, if any, there might be on the continued fabrication of equipment racks.

Construction Progress: During August 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. During 2Q2017, the contractor has significantly increased productivity as reflected in the MTACC’s reporting that 14.1% actual progress was achieved versus 6.5% planned. As noted in previous PMOC reports, numerous water infiltration issues at various facilities have severely impacted the progression of work on this and another Systems’ contract. Water infiltration remediation work was performed at the Vernon, 23<sup>rd</sup> St., and 29<sup>th</sup> St. facilities. MTACC previously reported that the water infiltration related to the floor of the TPSS room at the Vernon facility was successfully mitigated. However, a subsequent “turnover” inspection by the CS084 contractor found numerous deficiencies, including continuing water infiltration, that it contended precluded it from entering the room to perform CS084 contract work. The CS179 CM indicated in the early-September 2017 Progress meeting that the TPSS room is dry enough for the CS084 contractor to begin its work. Initially, the remediation work for the 23<sup>rd</sup> and 29<sup>th</sup> Street facilities appeared to be effective. However, new water infiltration areas in the 23<sup>rd</sup> Street and 29<sup>th</sup> Street facilities are apparent. As previously reported, the subcontractor responsible for system designs and equipment fabrication, assembly, and testing advised that it continues to move forward on the procurement of Control Systems equipment based on the Control System final designs presented at the various Final Design Review (FDR) meetings. As a result, assembly of equipment racks in the subcontractor’s off-site facility continues. Currently, there are a number of Stop Work Orders (SWOs) on this contract.

**Contract VS086, Systems Package 3, Signal Equipment Procurement:** The information presented below for the VS086 contract comes from discussions at a mid-August 2017 progress meeting that reviewed contract progress up to August 17, 2017, and from the ESA 2Q2017 Progress Report.

Status: MTACC indicates a Forecast cost of \$22,035,060 and Budget of \$21,835,022 for this contract. MTACC is now showing a November 11, 2019, SC date, one month later than the October 2019 date shown in its previous MPR. In terms of relationship to the original contract dates, the contractor’s schedule shows delays in five of the six contract milestone dates; anywhere from 596 to 829 days. However, these five interim milestone dates are the subject of a contract modification that, pending execution by MTACC, will re-align the interim milestones to reflect the current status of the contract. The PMOC, as it did in previous reports, notes that there are several other significant issues, ones that could potentially impact the contract completion date, that are not included in the modified contract milestones. While the re-baselined schedule can be theoretically used by MTACC to more effectively manage the contract, the absence of activities that have the potential to further impact the contract schedule results in an incomplete schedule and a diminished ability for effective managerial control by MTACC.

Design Progress: As has been observed on other ESA Systems contracts being managed by MTACC, the contractor continues to raise concerns over the timeliness of responses from the MTA on design submittals and inquiries and asserts that this lack of timely responses caused, and continues to cause, 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 require a resolution or direction from the MTA. As previously reported, the LIRR requested that the contractor replace the incandescent lights in the tunnel signal units with Light Emitting Diodes (LEDs); a change to designs already underway. The contractor based its design on the use of standard incandescent bulbs in the tunnel signal lighting units and a decision requiring the use of LED lighting for the tunnel signal lighting will require re-design efforts. To date, the LIRR has not issued a corporate decision regarding which type of lighting will be required. Additionally, the PMOC previously reported that another different type of track circuit equipment was proposed to conform to FRA standards. This type of track circuit equipment, designated as TRU-III, has not been used before for this specific application on the LIRR and the LIRR indicated that, before it could approve the use of this type of track circuit equipment, it needed to ensure that it worked properly and seamlessly on its right of way (ROW). To accommodate these approval requirements, the contractor provided the LIRR with some of the TRU-III equipment. The LIRR was to use that equipment to perform a bench test and then field test the equipment by installing the equipment on its ROW for some undetermined amount of time before deciding on its acceptability for LIRR use. LIRR previously advised that field testing of this equipment was underway and would last for a minimum of six months. However, at the mid-August 2017 Progress meeting, the LIRR advised that it was still looking for a location on LIRR property where this track circuit equipment could be field tested. As a result, it is apparent that field testing has not started, as was previously reported. Additionally, the duration of the testing remains undefined. Once the results of the field testing are analyzed, the LIRR will make a decision regarding the use of this type of track circuit equipment on this contract. The PMOC continues to note that even though it could pose a significant schedule risk to the completion of the contract, this entire activity is not incorporated into any VS086 contract schedule. Further, there are several other design issues that require a timely resolution or direction from the MTA, the most significant being the inclusion of a Positive Train Control (PTC) design in the overall Signal design and the implementation of ATT-20 track circuit equipment. In its ESA April 2017 Progress Report, MTACC indicated that, if the current direction (not specified) of the PTC design was changed per the MOU, it would impact the design, equipment, and schedule of the VS086 contract. The contractor previously advised that the addition of the ATT-20 track circuit may impact the agreed upon revised contract milestone dates related to the delivery of equipment; a risk the PMOC noted in previous reports. The finalization of a contract modification to address the addition of this track circuit design and equipment remains under review by MTACC's Legal department. The potential for a schedule impact related to this modification remains; however, the extent of any impact, should there be one, can't be quantified until the modification is finalized and issued to the contractor for approval. The contractor also notes that there are many open change orders that could impact the contract schedule. While MTACC expressed the opinion that the contract milestone re-adjustment modification should address most of the issues identified in the open change orders, the contractor contends that there are still numerous decisions related to the change orders that must still be addressed.

### **Queens Contracts:**

**CQ032 – Plaza Substation and Queens Structures:** As of July 1, 2017, MTACC reported that the Forecast at Completion for CQ032 remained at \$263,176,200. MTACC reports the Forecast for Substantial Completion (SC) changed from June 16, 2017, last month to September 5, 2017. ESA reported SC remains dependent on the contractor completing contract work items, and the contractor preparation of a detailed current punch list and list of all open commercial issues. Actual construction progress for June 2017 was 0.3% versus 0.0% planned. Cumulative progress through July 1, 2017, remained 99.1% actual versus 100.0% planned.

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

**CQ033 – Mid-Day Storage Yard Facility:** As of July 1, 2017, MTACC reported the Forecast at Completion for CQ033 increased to \$308,045,850. The MTACC Forecast for Milestones shows that MS#1 and MS#2 slipped by two months to August 10, 2017, and August 7, 2017, respectively, due to a lack of Amtrak permit to enter (MS#1) and insufficient Amtrak Force Account support (MS#2). The Forecast for Substantial Completion remained at August 10, 2020. MTACC has not established a progress curve for CQ033 yet, so no monthly or cumulative progress is available.

Construction Progress: During August 2017, the CQ033 contractor continued installation of caissons for Midday Storage Yard (MDSY) lighting, continued test pit excavation to locate underground utilities, and continued to mobilize and prepare submittals and permit applications.

### **Harold Interlocking Contracts:**

**CH057 – Harold Structures Part III:** MTACC's Forecast at Completion for the CH057 contract decreased to \$85,939,332 during June 2017 due to continued scope deletions. ESA declared Substantial Completion for the CH057 contract on June 30, 2017, and the contractor has continued punchlist repairs since then. Actual construction progress for June 2017 was 1.3% versus 3.4% planned. Cumulative progress through June 30, 2017, was 88.2% actual versus 94.0% planned (based on cost incurred rather than actual construction progress).

Construction Progress: During August 2017, the CH057 contractor completed paving the area around the Tunnel D headhouse, began installation of high security right of way (ROW) fencing between the headhouse area and the 43-S2 retaining wall, completed installation of bolts on the B931EB catenary truss, continued to grade and install signal trough along the Loop 1AE track bed, and continued miscellaneous electric punchlist repairs at various project work sites.

**CH057A – Part 3 Westbound Bypass:** MTACC's Forecast at Completion for the CH057A contract decreased slightly during June 2017 to \$162,728,166 due to execution of contract modifications. The MTACC Forecast for Substantial Completion was extended by one month to October 24, 2018. Actual construction progress for June 2017 was 1.1% versus 7.6% planned. Cumulative progress through June 30, 2017, was 54.0% actual versus 88.4% planned (based on cost incurred rather than actual construction). The PMOC notes that this contract provides Regional Investment work scope in Harold Interlocking and is considered having independent utility that is not specifically required to provide the connection for LIRR service to GCT that is

part of the FFGA scope of work. Contract CH057A does, however, impact the FFGA efforts because it places additional demands on scarce Amtrak and LIRR force account resources.

Construction Progress: During August 2017, the CH057A contractor continued construction of the Westbound Bypass West Approach Structure and its walkway at the west end of the structure. The contractor also continued to install temporary tie-backs in the East Approach Structure between the Honeywell Avenue overhead bridge and the Bypass Tunnel.

On July 18, 2017, the ESA PMT directed the contractor to resume Westbound Bypass Tunnel mining within the next 10 days. At that time, the deadline to do so was July 28, 2017. The PMT subsequently extended this deadline to August 11, 2017, in order to give the PMT and the contractor's senior management time to consider possible alternatives to the contractor's mining method. This deadline was, in turn, extended by the PMT on a week-to-week basis through August 31, 2017, without resolution, although both parties continued discussions. As of August 31, 2017, total delay to the resumption of tunnel mining is 13 months.

**CH061A – Track A Cut and Cover Structure:** MTACC's Forecast at Completion for the CH061A contract increased to \$42,354,870 during June 2017 due to execution of a contract modification. The MTACC Forecast for Substantial Completion remained at May 28, 2018. MTACC's newly developed progress curve indicates that 2Q2017 actual construction progress was 11.4% versus 31.9% planned. Cumulative progress through June 30, 2017, was 12.2% actual versus 40.7% planned. This discrepancy is largely due to an approximate 4 month delay to the beginning of secant pile installation under the 39<sup>th</sup> St. overhead bridge. The project had originally received NYCDOT approval to install the secant piles, but the contractor and the ESA PMT later determined that the bridge needed to be underpinned due to prevailing soil conditions before secant pile installation could begin. The underpinning required re-approval by NYCDOT and the delay was incurred as the engineering and administrative details for this were worked out. Once the secant pile drilling started, however, it went smoothly and the contractor was able to recover approximately one month of its lost schedule time.

Construction Progress: During August 2017, the CH061A contractor continued to excavate the west end of the Tunnel A Approach Structure, continued to excavate, lag, and install support of excavation (SOE) immediately west of the 39<sup>th</sup> St. overhead bridge, continued to install secant piles under the 39<sup>th</sup> St. bridge, continued to excavate for catenary foundations needed for the Montauk Cutoff demolition, and began to pour concrete catenary pole foundations along LIRR's Port Washington #2 Track.

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

**FHA01 – Harold Stage 1 Amtrak:** MTACC's Forecast at Completion for FHA01 remained at \$18,824,861 during June 2017. The MTACC Forecast for Substantial Completion was extended by one month to July 7, 2018. Actual construction progress for June 2017 was 0.0% versus 0.0% planned. Cumulative progress through June 30, 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 August 2017.

**FHA02 – Harold Stage 2 Amtrak:** MTACC’s Forecast at Completion for FHA02 remained at \$66,440,848 during June 2017. The MTACC Forecast for Substantial Completion was extended by 2 weeks to July 7, 2018. Actual construction progress for June 2017 was 1.0% versus 5.7% planned. Cumulative progress through June 30, 2017, was 88.9% actual versus 86.7% planned (based on cost incurred rather than actual construction).

Construction Progress: During August 2017, Amtrak Electric Traction personnel continued catenary reconfiguration at the west end of Sunnyside Yard in support of the CQ033 contractor’s future demolition of the Montauk Cutoff Bridge. Amtrak C&S personnel continued limited signal cable installation along the New Haven tracks in support of LIRR’s CIL cutovers scheduled for 2018.

**FQA65 – Loop Interlocking Amtrak:** MTACC’s Forecast at Completion for FQA65 remained at \$33,287,863 during June 2017. The MTACC Forecast for Substantial Completion was extended by one month to August 12, 2023. Actual construction progress for June 2017 was 1.4% versus 0.3% planned. Cumulative progress through June 30, 2017, was 19.1% actual versus 85.9% planned (based on cost incurred rather than actual construction). The PMOC is not concerned about this large discrepancy due the current forecast Substantial Completion date. The PMOC notes that this package provides Regional Investment work scope in Harold Interlocking and is considered having independent utility that is not specifically required to provide the connection for LIRR service to GCT that is part of the FFGA scope of work. Contract CH057A does, however, impact the FFGA efforts because it places additional demands on scarce Amtrak and LIRR force account resources.

Construction Progress: Amtrak did not perform any significant FQA65 construction during August 2017.

**FHL01 – Harold Stage 1 LIRR:** MTACC’s Forecast at Completion for FHL01 remained at \$24,379,364 during June 2017. The MTACC Forecast for Substantial Completion was extended by one week to March 26, 2018. Actual construction progress for June 2017 was 0.2% versus 0.0% planned. Cumulative progress through June 30, 2017, was 98.0% actual versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During August 2017, LIRR 3<sup>rd</sup> Rail personnel resumed installation of 3<sup>rd</sup> rail cables from the main line tracks to the new G02 substation.

**FHL02 – Harold Stage 2 LIRR:** MTACC’s Forecast at Completion for FHL02 increased slightly during June 2017 to \$84,564,345. The MTACC Forecast for Substantial Completion remained at July 1, 2020. Actual construction progress for June 2017 was 0.0% versus 0.0% planned. Cumulative progress through June 30, 2017, was 98.7% actual versus 100.0% planned (based on cost incurred rather than actual construction).

Construction Progress: During August 2017, LIRR Electric Traction personnel completed the preliminary cutover of the new signal power separation system. This allowed LIRR to become independent of Amtrak’s signal power in Harold Interlocking for the first time. LIRR Signal personnel continued TSR (Train and Signal Route) testing at the new “H1”, “H2”, “H5”, “H6”, and Location 30 CILs and continued to make 904 signal revisions (GEC designation) at Location

30 CIL. LIRR 3<sup>rd</sup> Rail personnel continued to install 3<sup>rd</sup> rail cables between main line tracks and the new G02 Substation.

**d. Quality Assurance and Quality Control**

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

**Table 1-1: 1Q2017 Quality Audit Results**

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

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

**Table 1-2: NCR Aging Summary**

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

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



**Program Critical Path-Harold Interlocking:**

ESA reported in its July 1, 2017 IPS that the Program critical path remains 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 continued to be the H1/H2/H5/H6/30 TSR Pre-cutover testing, part of the CIL pre-cutover process. Table 2.2, below, shows the current IPS critical path of work through Harold contracts and has not changed significantly since the previous update. The progress made through the update period and any major changes made to the IPS are described in further detail below the table:

**Table 2-2: July 1, 2017 IPS Critical Path**

<b>Contract &amp; General Activities</b>	<b>Duration (CDs)</b>	<b>Start</b>	<b>Finish</b>
FHL02: CIL Cutovers Pre-Testing and Cutovers	323	1-Jul-17	20-May-18
CH057D/FHL03/FHL04: NE Quadrant Preparatory Work, Outage, and B/C Approach Preparatory Work, Switch Work	160	21-May-18	28-Oct-18
FHL02: Retire Harold CIL	28	29-Oct-18	26-Nov-18
CH058A: Track B/C Approach Work & Catenary Structures	634	26-Nov-18	21-Aug-20
FHL04: Testing & Cutover of 4C	49	24-Aug-20	12-Oct-20
Train Contract Staffs LIRR Prior to 3 Months Period	29	15-Oct-20	13-Nov-20
LIRR 3 Month Period	89	14-Nov-20	11-Feb-21
<b>Target Revenue Service Date</b>			<b>11-Feb-21</b>
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<b>Late Revenue Service Date</b>			<b>13-Dec-22</b>

**Discussion of Progress along the Critical Path:**

The July 1, 2017 IPS update reported that FHL02-CSR1230: H1/H2/H5/H6/30 TSR Pre-cutover testing was controlling the Harold critical path. This activity was reported to have made expected progress over the update period, and was originally forecasted to be complete on July 28, 2017, but was not completed until August 25, 2017. ESA does not expect this delay to negatively impact the start of CIL cutovers scheduled for May 2018. Following the completion of the H1/H2/H5/H6/Loc30 TSR Pre-cutover testing, H5/H6/30 South Pre-cutover testing will begin and is expected to be complete by October 9, 2017.

**Discussion of Changes to the Critical Path:**

There were no major changes to the Harold longest path over the update period.

**90-Day Look-Ahead of Program Critical Activities & 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 July 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 July 1, 2017 IPS)**

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

**Sub Program Longest Path – Manhattan/Systems:** The July 1, 2017 IPS contained substantial updates to the Manhattan/Systems Sub-program, which caused the critical path to shift back to CM007 trackwork [REDACTED]

[REDACTED]. The July 1, 2017 IPS Report notes that this approximately four-month delay is due to the identification of the need for qualification testing for Special Trackwork (STW) Resilient Tie Blocks (RTBs) and the addition of that activity into the IPS. In addition, the forecasted completion date for the controlling activity along the Manhattan/Systems path, Submittals for the RTBs, continues to be delayed.

The IPS Report notes that delays shown in the CM007 Contractor’s schedule were acknowledged by ESA and incorporated into the July 1, 2017 IPS and that logic between CM007 and CS086 was revised. ESA noted that the net result of these delays and changes was a three-month delay to the forecasted Substantial Completion date of CS179. ESA notes that this is an unmitigated delay and anticipates an adjustment to this date once a CM007 recovery schedule is submitted and accepted. Another result of the changes made to the July 1, 2017 IPS is that now the longest path of Manhattan/Systems goes through CS086 work after the completion of CM007 work, instead of CS084 as was shown in the May 1, 2017 IPS.

**Sub Program Longest Path – Queens:** The July 1, 2017 IPS contained a change to the initial longest path for the Queens sub program, [REDACTED]

[REDACTED]. The longest path changed from being controlled by VQ033 CIL procurement, delivery, and installation and local testing to the substation submittal, approvals, fabrication, and installation. The longest path remains the same after the “CIL Installations Complete” milestone (No. 3), which is forecasted to occur in January 2020. The substantial completion date for CQ033: Mid-Day Storage Yard remains the same over the update period, and continues to be planned for August 10, 2020.

**Upcoming Contract Procurements:**

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

**Table 2-4: Future Procurement Schedule**

<b>Contract Description</b>	<b>Advertise Date</b>	<b>Bid Date</b>	<b>NTP</b>	<b>Project Period</b>	<b>Substantial Completion</b>
<b>CM015 48<sup>th</sup> Street Entrance**</b>	TBD	TBD	8/22/2017*	TBD	5/22/2020*
<b>CS086 Systems Package 2: Signal Installation</b>	8/10/2017	10/20/2017	1/2/2018	33 Months	10/2/2020
<b>CH058A: B/C Tunnel</b>	1/4/2018	4/17/2018	6/18/2018	26 Months	8/21/2020
<b>CH057D: Harold Trackwork</b>	10/26/2017	1/29/2018	2/28/2018	15 Months	6/2/2019

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

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

The procurement process for CM015: 48<sup>th</sup> Street Entrance continues to be on hold. The July 1, 2017 IPS Report notes ongoing discussions with the building owner at that location regarding zoning changes and that an advertisement date and procurement schedule will be provided once negotiations are complete. The forecasted NTP date in the July 1, 2017 IPS was delayed approximately one month over the update period, from August 22, 2017, to September 21, 2017. The forecasted Substantial Completion date for CM015 was also delayed accordingly over the update period, from May 22, 2020, to June 23, 2020. [REDACTED]

[REDACTED] Therefore, this can be considered a sub-critical program and the PMOC notes that if delays continue along this path, it could begin to overtake other Manhattan/Systems work in criticality. Compounding these issues, the PMT notified that as of June 2017, the design work for CM015 has been suspended, pending MTACC management decisions regarding the additional scope requested by the building owner.

The procurement process schedule for CS086: Systems Package 2: Signal Installation has been finalized and was advertised on August 10, 2017. Two IPS updates ago, in the May 1, 2017 IPS, the expected Substantial Completion date was July 1, 2020. The July 1, 2017 IPS shows a planned Substantial Completion date of October 1, 2020, or a delay of three months. It appears that these delays to the CS086 procurement schedule have impacted the Manhattan/Systems Sub-program, as CS086 now occupies the later part of this longest path.



The forecasted procurement dates for CH058A: B/C Tunnel remained relatively unchanged. There was a one-month delay to the forecasted bid advertisement date, which changed from December 6, 2017, to January 4, 2018. All remaining dates for the procurement of this contract remained the same.

The forecasted procurement dates for CH057D: Harold Trackwork, all remained relatively unchanged over the IPS update period.

Future contract QMP-2: Lighting/CCTV Security has been cancelled.

**PMOC Concerns:**

The following summarizes the PMOC's schedule concerns:

1. [REDACTED]  
[REDACTED]  
[REDACTED] The RTB issue for CM007 continues to forecast impacts to the CM007 completion dates and follow-on interface with CS086. The PMOC is concerned that these delays will continue and that this work will overtake criticality along the Program from work at Harold. While it is noted that the CM007 Contractor anticipates submitting a recovery schedule, it is unclear how much time, if any, this will save.
2. The PMOC continues to be concerned with CS084. There are many issues related to this contract that the PMOC believes will negatively impact the program if not resolved in a timely manner. One major issue is the lack of agency-provided conduit and manholes between the C08 substation and the track and how the CS084 contractor will be able to install traction power cables and perform C08 substation local testing and integrated live-load testing of all the substations. It was also noted in progress meetings that a survey of all the substation areas was to be performed to determine the availability of conduit between substation locations and the track; however, no update has been given in some months and the PMOC questions the status of this important work. While ESA has stated that it hopes to achieve an improved fabrication schedule once all equipment is approved, the PMOC is concerned that the CS084 contractor will not be able to achieve any substantial schedule recovery. At the August 22, 2017 Cost and Schedule meeting, ESA noted that a modification to the CS084 contract milestones will occur once the major equipment fabrication schedule is finalized. ESA also noted that the contractor's latest schedule update shows a three-month improvement to the equipment fabrication time. Although ESA said that the contractor has committed to concurrent TPSS installations, the PMOC believes that access constraints and logistic challenges, crew size limitations and coordination issues will challenge this commitment. As a result, the PMOC is concerned that further delays are likely to occur during installation and that continuing delays to the forecasted Substantial Completion of CS084 may begin to control the Manhattan/Systems schedule path. The PMOC believes that [REDACTED]  
[REDACTED] it is likely that there will be additional delays.

3. The procurement process for CM015: 48<sup>th</sup> Street Entrance continues to be on hold, pending negotiations with the building owner at that location about the impact of zoning changes at 415 Madison. ESA is developing and evaluating an alternative entrance approach to replace CM015. The delay to CM015 procurement continues from month to month and does not appear to be resolving quickly.
4. While the procurement process for CS086: Systems Package 2: Signal Installation has been taken off hold, there has been a delay to the forecasted NTP and Substantial Completion dates. [REDACTED]  
[REDACTED] The PMOC recommends that ESA continue its efforts to identify critical work overlaps between this contract and CM007 and CS179 in order to have the IPS be as accurate as possible for these important future interfaces.
5. The PMOC is concerned about the major risk identified during 2Q2017 regarding the decision that there will be no stand-alone ESA amendment to the 2015-2019 Capital Plan for funding projected cost overruns. This represents a potential funding constraint that may put the program budget at risk and this might impact the program schedule. It is unclear what the specific schedule impacts will be, if any, until ESA completes its re-evaluation of the current budget and schedule, the details of which are not expected before September 2017.

**3.0 COST DATA**

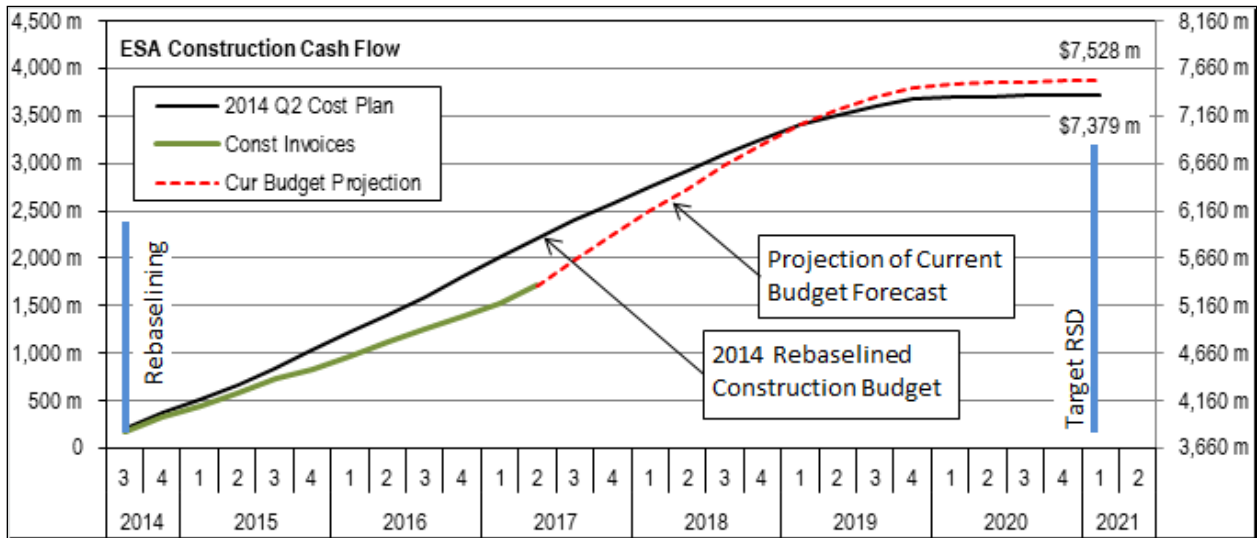
**Funding:** In July 2017, MTACC set aside plans to fund forecast cost overruns through amendments to the current MTA 2015-2019 Capital Plan and instead is investigating ways to utilize existing funds until they can be supplemented in the 2020–2024 Capital Plan. [REDACTED]

[REDACTED]

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

**Budget/Cost:** MTACC reported in the ESA 2Q2017 Progress Report that the actual total project progress was 71.6% compared with planned progress of 75.4% against the Current Baseline Budget (CBB) of \$10.178 billion. The ESA 2Q2017 Progress Report total also shows that actual construction progress has reached 71.4% of the 2014 re-baselined construction budget compared with planned progress of 76.6%, based on construction invoices. (Details of the project budget and expenditures are shown in Appendix B, Tables 2 and 3.)

**Table 3-1: Planned vs Actual Construction Cash Flow**



The ESA construction cash flow plan, shown from the time of the 2014 cost and schedule re-baselining, was prepared to support the Target Revenue Service Date in the first quarter of 2021. Actual invoiced construction costs through the second quarter of 2017 are plotted on the chart to monitor progress. The cash flow chart reveals a growing divergence between planned and actual construction spending. The PMOC simple cost projection for the current construction budget is also plotted for comparison. The cost projection picks up from the end of the invoice plot and proportionately models the current construction budget on the 2014 Rebaseline through to the Target RSD. In addition to the construction spending lagging behind the plan, the current construction budget, \$7.528 billion, is larger than the 2014 re-baselined budget of \$7.231 billion.

[REDACTED]

[REDACTED] The PMOC is concerned that 1) continued inability to achieve the construction spending as planned and, 2) the budget increases, may impact the timely achievement of the Target Revenue Service Date.

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). 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.

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

[REDACTED]

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

Several cost/budget items were discussed at the August 22, 2017 Cost and Schedule Review meeting:

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

- [REDACTED]

[REDACTED]

[REDACTED]

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

**PMOC Concerns:**

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

1. [REDACTED]  
[REDACTED]  
 This has become a critical issue now that MTACC has decided that ESA will need to wait for the 2020-2024 Capital Plan for additional funding, rather than pursue an amendment to the current 2015-19 Capital Plan. This funding constraint is a major risk.
2. Current contract delays, and potential future delays, may result in cost increases on the following contracts:
  - CS179 – Schedule compression needed to hold the start date of Integrated Systems Testing due to the late completion of final design.
  - CS084 – Late completion of final design has delayed fabrication of some traction power equipment.
  - VS086 and CS086 – Incorporation of Positive Train Control into the ESA signal system; technology issues.
3. The ESA program has not yet incorporated additional amounts for either Force Account or OCIP in their budget forecasts, indicating that MTACC approval for the forecast change has yet to occur. The PMOC believes that these are known costs that will be incurred and, therefore, should be included in the budget forecasts.
4. The divergence between planned and actual construction spending has not appreciably improved, which may impact ESA’s ability to achieve the Target Revenue Service Date.
5. It is anticipated that there will be additional cost overruns for the PM/CM, CCM, and GEC budgets to provide continued technical support under these agreements through the Target RSD in February 2021. The PMOC is concerned about the cost exposure and estimates that the total cost overrun could approach \$100 million or more.

**Change Orders/Budget Adjustments:**

The PMT reported that, during June 2017, six construction Change Orders having a magnitude greater than \$100,000 were executed. These include:

▪ CM007 – GCT Caverns – Mod. 12	\$429,325
▪ CM014B – GCT Concourse/Facilities Fit-Out – Mod. 77	\$119,949
▪ CS084 – Traction Power Systems Package 4 – Mod. 3	\$195,000
▪ CS179 – Systems Facility Package No. 1 – Mod. 37	\$155,000
▪ CS179 – Systems Facility Package No. 1 – Mod. 41	\$4,900,000
▪ General Engineering Contractor – Mod. 143	\$360,508

## **4.0 RISK MANAGEMENT**

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

### **Harold Interlocking Risk Review**

During 2Q2017, the ESA Risk Manager, working with the consultant risk assessment facilitator, conducted a comprehensive risk review of the remaining work in the Harold Interlocking required to provide LIRR service into the new LIRR rail station at Grand Central Terminal. Work includes all third-party construction contractor work as well as all Amtrak and LIRR direct force account construction work. Also considered was Amtrak and LIRR force account provision of required access and protection in support of all of the remaining contract construction work. ESA held a preparation meeting to review the cost and schedule risk models. 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. The risk assessment facilitator's draft Risk Report has been under MTACC review and is now expected to be available in September 2017.

### **Harold Interlocking – ESA Risk**

#### Harold Re-Sequencing Plan (“ESA First”)

With regard to the “ESA First” Harold Re-sequencing Plan developed in December 2014 and implemented in 2015, the PMOC has noted that, during 2015 and into 2016, the PMT had been reporting that Amtrak has not been able to provide even the reduced level of force account resources that had been planned in support of the ESA schedule. The Harold Schedule Plan was re-evaluated and further adjusted in early 2016 to account for the recent experience of the project, making work package changes to accommodate the railroad force account resource constraints. The impacts caused by the insufficient Amtrak support have been reduced but not yet eliminated and this situation continues to be a challenge for MTACC.

#### Amtrak Preparation for Extended East River Tunnel Outages

The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to harden East River Tunnel (ERT) Lines 3 and 4 in preparation for extended outages for ERT Lines 1 and 2 to complete Hurricane Sandy damage-related reconstruction work, now planned for 2019. Earlier this year, MTACC advised the PMOC that Amtrak hardening work on Line 3 was complete. The PMOC noted at the time that the Line 3 work had minimal impact on East Side Access construction during the period that it was underway. There is also concern that track outages required for the remaining hardening work in ERT Lines 1 and 4 may conflict with ESA needs to support completion of the planned Harold work through 2017 and 2018. However, no noticeable impacts to availability of Amtrak force account resources through August 2017 were observed attributable to any known work in the ERT Lines 1 and 4.

#### Amtrak 2017 Accelerated New York Penn Station Track Work

A new risk earlier in 2017 involving Amtrak's ability to provide sufficient force account resources to support the planned ESA work in the Harold Interlocking based on Amtrak plans to advance and accelerate a project for extensive reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels. This new risk has been realized based on ESA reporting that the Amtrak force account resource availability for the ESA Harold Interlocking work dropped noticeably during May 2017 and continued through the third week in August 2017. The PMOC was not certain how Amtrak planned to balance this new need with



## 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):** Several years ago, the FTA requested MTACC to update its TCC Plan in response to the FTA/PMOC comments that were generated as a result of significant changes in key ESA upper management level positions that were made at that time. 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. MTACC has indicated that it will review the TCC Plan and propose revisions, if required, to reflect the current status of the Program.
- **Continuing ELPEP Compliance:** The ESA project should continue to make additional improvements in the following areas: Management Decision; Design Development; Change Control Committee (CCC) Process and Results; Stakeholder Management; Procurement; and Risk-Informed Decision Making. The PMOC has noted progress in two previously identified areas – Issues Management and Timely Decision Making, particularly when responding to new issues arising with the railroads' Force Account resource availability, track outages, and other issues regarding the remaining work in the Harold Interlocking.
- **Project Management Plan:** The PMOC completed its evaluation of the current version of the PMP, Rev. 10, concluded that it is acceptable, and provided the FTA with comment close-out details earlier this year. The FTA subsequently notified MTACC that the FTA accepts Revision 10 of the ESA PMP.
- [REDACTED]

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

- **Schedule Management Plan (SMP):** The ESA project should continue to make additional improvements in the following areas: Integrated Project Schedule (IPS) Updating, Forecasting, [REDACTED] against a current baseline schedule. The PMOC completed its final evaluation of the current revision of the SMP, concluded that the SMP is acceptable, and provided the FTA with comment close-out details earlier this year. The FTA subsequently notified MTACC that the FTA has accepted the current revision of the SMP.
- **Cost Management Plan (CMP):** The ESA project should continue to make additional improvements in the following areas: Project Level EAC Forecasting, Project Level EAC Forecast Validation, and MTACC Cost Contingency Management and Secondary Mitigation. The PMOC completed its final evaluation,



concluded that the CMP is acceptable, and provided the FTA with the comment close-out details late last year. The FTA subsequently notified MTACC that the FTA has accepted the current revision of the CMP.

**Revisions to the ELPEP Document:**

[REDACTED]

[REDACTED] The PMOC continues work on a draft revision to the ELPEP document that reflects these agreements and will coordinate its work with MTACC's efforts to develop recommended revisions.

## 6.0 SAFETY AND SECURITY

Table 6-1, below, shows the PMOC calculated and ESA Reported Lost Time and Recordable injury ratios through July 31, 2017. The PMOC developed this table to demonstrate the effectiveness of ESA's most recent safety efforts rather than its cumulative safety record, which ESA uses in each of its monthly reports. The PMOC believes that this provides a more accurate measure of ESA's current safety performance than its cumulative record does.

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

	Lost Time Ratio	Recordable Ratio
2017 BLS Ratios (used by OSHA)	1.7	2.8
PMOC Calculated ESA July 2017 Ratios	0.0	0.0
PMOC Calculated ESA CY2017 Ratios	0.27	0.96
ESA Reported Ratio (Cumulative since beginning of project as of June 30, 2017)	1.79	ESA does not report cumulative Recordable Injury Rates

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

## 7.0 ISSUES AND RECOMMENDATIONS

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

Also, the PMOC has observed the following:

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

The above factors have contributed to the continuing delays in completing the bid documents for several contract procurements over the last 2 years. This situation has already adversely impacted the program schedule 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 significant issues.

Both the GEC and LIRR continue to be challenged to meet the schedule requirements for review of design and equipment submittals from the CS084, CS179, and VS086 contractors. The PMT needs to continue to monitor this situation and to also better coordinate the associated LIRR reviews. These shortcomings point to insufficient technical capacity and capability in the particular design support areas. The PMOC acknowledges the efforts by senior management to resolve these issues and recognizes that some short-term improvements were achieved, but notes that more sustained effort is needed.

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

**Water Infiltration Concerns Regarding Systems Contracts CS179 and CS084:** The PMOC remains concerned about the numerous water infiltration issues in the equipment rooms and the remediation efforts that need to be (and are currently being) implemented to provide permanent water infiltration mitigation in rooms with electrical and electronic equipment. The GEC's proposed remediation methodologies for the various locations should, in theory, mitigate the water infiltration issues; however, as was already experienced, theoretical solutions do not always work under actual field conditions. The successful mitigation of the water infiltration problem can only be validated after remediation work is complete. Further, if, after implementation, one of the water infiltration remediation methodologies is not entirely successful in preventing water infiltration, it may be necessary to develop another strategy; which could further impact the design and construction processes on the Systems contracts.

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

**Contract CS179:** The PMOC remains concerned regarding the timely delivery and discussion of the contractor's monthly schedule updates. Additionally, the PMOC has significant concerns regarding the timely preparation and submission of any Buy/Ship America waiver requests for potentially non-compliant material or equipment on the CS179 contract. Extended delays in providing compliant material or equipment could have a significant impact on the timely completion of this work. The PMOC continues to have concerns about the water infiltration issues in the equipment rooms that are identified and whether proposed mitigation remedies will prove to be successful. The PMOC is also concerned about the recent comments from the contractor regarding the significant number of Notice of Change (NOC) submissions and CPRs that remain as open items impacting the timely progression of the contract work. The PMOC believes that MTACC needs to focus on addressing those CPRs and NOCs and quickly issue contract modifications where appropriate. Lastly, the PMOC continues to be concerned about late completion of systems' design reviews and approvals, but acknowledges recent stepped-up efforts by MTACC's senior management to identify issues and implement corrective actions.

Additionally, the PMOC remains concerned that late completion of reviews of contractor design submittals by MTA has caused the design completion date for the last of the ten Control Systems to slip over 18 months, which could potentially impact the timely completion of this contract. The ESA-PMT, working with the GEC and LIRR, needs to effectively manage the design review process to obtain the requisite design approvals and prevent any further schedule slippage. The PMOC notes that the problems with the timely completion of design reviews and approvals have delayed completion of designs on both the 10 Control Systems and the 19 Non-Control Systems.

**Contract CS084:** The PMOC is encouraged that MTACC's senior management continues to work with LIRR's senior management to ensure the timely completion of design reviews and approvals to prevent potential delays to the completion of the contract work. MTACC should prioritize the delivery of requested design information related to the PLCs, the approval of substation designs, and the execution of SCADA-related contract modifications so as to preclude any further impact to substation design and fabrication. In regard to the "live load" (dynamic) testing of C08 substation and the integrated testing of all the CS084 substations, the PMOC is concerned that, if any of the testing produces unsatisfactory results once the current CS084 contractor is no longer active on the ESA project, then the project is subject to a "finger-pointing" exercise to determine which contractor is at fault for the unsatisfactory results. The PMOC previously suggested to the ESA CS084 CM that the MTA might want to consider transferring the installation of the ductwork to another contractor, while leaving the requirement for the installation and testing of the cable and substations under the CS084 contract. This could be accomplished by temporarily "de-mobilizing" the CS084 contract for a short period of time and then "re-mobilizing" the CS084 contractor to perform all the testing. That way, any issues or problems that might surface during the testing period are still the responsibility of the CS084 contractor; eliminating any "finger-pointing" between multiple contractors.

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

**Project Funding:** During the second quarter of 2017, a potentially significant new risk developed based on MTACC's decision not to pursue an amendment to the 2015-2019 Capital Plan, that would have provided additional funding for ESA forecast cost overruns for OCIP, railroad force account, CM014B OICs, and continuation of professional services under the PM/CM, CCM, and GEC contracts. This presents a new risk of funding constraint that may significantly impact the project. The PMOC is concerned about the potentially significant impacts to the program budget and schedule, as well as the Target Revenue Service Date. The specific cost, budget, and schedule impacts will not be known until ESA completes its re-evaluation of the current budget and schedule. Details are not expected before September 2017.

[REDACTED]

**Project Schedule:** The PMOC continues to be concerned with the CM007 RTB testing and approval that continues to impact the longest path of the Manhattan/Systems Sub-Program and may cause this work to overtake the Harold area in criticality to the Program. It is likely that this contract will continue to experience up-front delays to its longest path due to the RTB approval issues, and if the CM007 contractor cannot produce an achievable and realistic recovery schedule, these delays may not be able to be mitigated.

The PMOC also continues to be concerned with delays related to procurement of future contracts CM015 and CS086. CM015 continues to be delayed month to month due to negotiation issues with the building owner. Additionally, design work on CM015 has been suspended, pending decisions by MTACC management regarding additional scope requested by the building owner. The suspension of design may impact the schedule, delaying the completion of design and procurement process. The addition of scope also carries schedule risk associated with the planned construction duration, which may have to be lengthened to account for more work. Contract CS086 has now entered the procurement phase, but the bid advertisement date has been delayed 15 months.

**Risk Management:** The segmentation of construction packages has created multiple inter-contract interfaces and milestones. In the PMOC's opinion, the probability of successfully achieving all of them is low and leads to the possibility of a ripple effect of delays and coordination difficulties between contracts. There is very limited opportunity, at best, for the contractors to make up any of the time lost to interface delays due to the worksite time and access constraints, as well as the characteristics of underground construction work that limit productivity improvements. The Program has already experienced significant delays across multiple contracts and the PMOC believes that any meaningful schedule recovery will be difficult, at best. The PMOC is particularly concerned about delays to the completion of final systems designs on Contracts CS179, CS084, and VS086, and the potential schedule and cost impacts as well as the construction delays on CM014B. Managing inter-contract handoffs and interfaces is very challenging and represents a significant MTACC-retained risk. The PMOC has recognized the PMT's efforts to mitigate some of the potential cost exposure by negotiating adjustments to schedule constraints across the four ESA contracts currently held by the same contractor (CM006, CM007, CS179, and CQ032). These mitigations, however, are not necessarily effective in solving either the productivity challenges presented by the CM007 schedule, that the PMOC considers very aggressive, or the coordination challenges with the active CM014B and CS084 contracts held by other contractors and the future CS086 contract.

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

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

- a) Program Funding – 2015-19 Capital Plan issue resolved in May 2016; current forecast cost growth funding had been expected to rely on Capital Plan amendment and other sources; now major risk of funding constraint due to 2Q2017 decision that there will be no stand-alone ESA amendment to the 2015-2019 Capital Plan;
- b) Recovery of lost time due to significant schedule delays on Contracts CM014B, CS179, and CS084 [PMOC notes improved productivity on CS179 during 2Q2017];
- c) Successful execution of multiple hand-off interfaces across several contracts;
- d) Contractor access and work area coordination in Manhattan;
- e) Duration of integrated systems testing;
- f) Continued availability of adequate Amtrak and LIRR force account resources for both railroad direct construction and third-party contractor support in Harold Interlocking (increasing risk trend noted in 4Q2015 through July 2017);
- g) Continued availability of required track outages in Harold Interlocking - Starting one year ago, fewer priority weekend track outages have been available; now the eight scheduled weekend outages in 2017 had to be

rescheduled for later in 2017 due to Amtrak's accelerated project for extensive reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels;

- h) Maintaining adequate schedule performance of the remaining work in Harold Interlocking, now the ESA program critical path, that is dependent on a very high level of planning and coordination between third-party contractors and the LIRR and Amtrak force account management for both access and protection and direct labor work (increasing risk trend noted in 3Q2016 through August 2017);

The comprehensive Harold risk review conducted during 2Q2017 identified a number of potentially significant risks that could delay completion of the critical work in Harold Interlocking planned for 2017-18 and cause a significant delay to the Revenue Service Date. These risks include the following:

A. Major Risks included in the Risk Assessment

1. Positive Train Control: Installation, testing, and activation of Positive Train Control by LIRR in Harold Interlocking to meet the December 31, 2018, FRA mandated deadline. Risk is not well defined because scope and schedule details have not been finalized. Possible mitigation: LIRR had planned, in August 2017, to formally request the FRA for a waiver to extend the requirement to have PTC operational in the Harold Interlocking beyond the deadline of by December 31, 2018, based on the interlocking's status as an active construction area. As of August 31, 2017, LIRR has not yet submitted the formal waiver request to the FRA.
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, 3<sup>rd</sup> 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 track work in the Northeast Quadrant in Harold Interlocking, in accordance with the current ESA schedule plan, on a very tight schedule involving major Amtrak and LIRR track outages. Preparation work includes obtaining all required track turnouts and necessary track materials for the planned work.
4. LIRR CIL Cutovers: Ability of LIRR to complete the pre-testing and final cutovers of CILs H1/H2/H5/H6/Loc 30 in accordance with the current ESA schedule plan.
5. Contract CH058A Preparation Work: Ability of Amtrak and LIRR force account resources to complete, in accordance with the current ESA schedule plan, all track, catenary, and third-rail work required prior to NTP for CH058A.

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

1. **ESA Project funding constraints (Now realized in 2Q2017);**

2. Ongoing and future “Regional Projects” requiring extensive support from Amtrak including: NYPS 2017-18 Track Rehabilitation (**Now realized in 2Q2017; moderate impact except for delay to 2017 priority weekend track outages**); Moynihan Station; Gateway; MNR to NYPS;
3. Amtrak program to reconstruct existing ERT Lines 1 and 2, starting with Line 2 in 2019. Risk is not well defined because Amtrak scope and schedule details have not been finalized and presented to MTA-LIRR.

The PMOC recognizes MTACC’s efforts to actively engage Amtrak to develop some specific mitigations for certain risks and work on strategies for mitigating many of the other identified risks. The PMOC also notes that MTACC has successfully engaged a consultant to develop a resource loaded schedule of Amtrak’s force account resources’ commitments to regional Amtrak projects, including ESA, to assist with both short-term and long-term resource allocation decisions. However, continued shortcomings in provision of adequate force account resources continues to impact the current Harold schedule and has caused the remaining Harold work to become the ESA program schedule critical path last year. 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 remains very challenging and the PMOC recommends that the PMT continue to actively engage executive management in MTACC and MTA to assist with resolution of this problem.

Through August 2017, the Moynihan Station project has been Amtrak’s top priority for assignment of the local division force account resources. The PMOC’s position had been that this situation needs to change in order for Amtrak to be able to provide the required force account resources and track outages required to support ESA’s schedule for completion of the remaining 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 in 2Q2017, as discussed in the following paragraph.

A new risk emerged in early 2Q2017 involving Amtrak’s ability to provide sufficient force account resources to support the planned ESA work in Harold Interlocking based on Amtrak plans to advance and accelerate its project for reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels. This new risk was realized based on ESA reporting that the Amtrak force account resource availability for the ESA Harold Interlocking work dropped noticeably and continued through August 2017. The PMOC was not certain how Amtrak planned to balance this new need with the standing commitment to the Moynihan Station project. The most significant impact is the delay of the eight priority weekend track outages originally planned for July, August, and September 2017. ESA has been able to reorganize the planned work so that only six outages are required. ESA worked with Amtrak to reschedule the outages for September 15 and 29, 2017, and for all four weekends in October 2017. The risk remains that Amtrak may not be able to provide the needed track outages. The PMOC does note, however, that other impacts to date have been moderate and Amtrak has reportedly completed the scheduled work in NY Penn Station two weeks earlier than the planned completion date of September 1, 2017.



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

## APPENDIX A - ACRONYMS

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

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

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

**.0APPENDIX 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 July 1, 2017	
	Original FFGA	Amended FFGA	Pct. Of FFGA	Obligated	CBB	Pct. Of Total CBB	Expenditures	Pct. Of CBB
Grand Total Cost	\$7,386 m	\$12,038 m	100.00%	\$4,724 m	\$11,214 m	100.00%	\$7,710 m	68.76%
Financing Cost	\$1,036 m		14.03%	\$617 m	\$1,036 m	9.24%	\$617 m	59.61%
		\$1,116 m	9.27%					
Total Project Cost	\$6,350 m		85.97%	\$4,107 m	\$10,178 m	90.76%	\$7,093 m	69.69%
		\$10,922 m	90.73%					
Federal Share	\$2,683 m		36.33%	\$1,148 m	\$2,699 m	24.07%	\$2,452 m	90.87%
		\$2,683 m	22.29%					
5309 New Starts share	\$2,632 m		35.63%	\$1,098 m	\$2,437 m	21.73%	\$2,190 m	89.88%
		\$2,632 m	21.86%					
Non New Starts share	\$51 m		0.69%	\$50 m	\$67 m	0.60%	\$66 m	99.55%
		\$51 m	0.42%					
ARRA	\$-	\$-	0.00%	\$-	\$195 m	1.74%	\$195 m	100.21%
Local Share	\$3,667 m		49.65%	\$2,959 m	\$7,479 m	66.69%	\$4,640 m	62.05%
		\$8,239 m	68.44%					

**Table 3: Project Budget and Invoice Status**

Elements	Baseline Total Budget June 2014	Current Budget June 2017	Actual Awards June 2017	Paid to Date June 2017	Actual Pct. Budget Paid
Construction	\$7,379.3 m	\$7,527.6 m	\$6,948.4 m	\$5,192.3 m	68.98%
<b>Soft Costs Subtotal</b>	<b>\$2,798.5 m</b>	<b>\$2,650.2 m</b>	<b>\$2,013.5 m</b>	<b>\$1,900.8 m</b>	<b>71.72%</b>
Engineering	\$720.6 m	\$732.7 m	\$730.8 m	\$705.0 m	96.22%
OCIP	\$282.6 m	\$307.6 m	\$300.8 m	\$299.7 m	97.42%
Project Mgmt.	\$972.2 m	\$972.2 m	\$862.7 m	\$778.9 m	80.12%
Real Estate	\$182.1 m	\$178.0 m	\$119.2 m	\$117.3 m	65.86%
Rolling Stock	\$202.0 m	\$202.0 m	\$0.0 m	--	--
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██████████	██████████	██████████	██████████	██████████	██████████

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

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

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	Dec 2016 CBB	Mar 2017 CBB	June 2017 CBB	CBB / FFGA Variance	CBB / Amended FFGA Variance
10 - Guideway & Track Elements	\$1,989m	\$3,405m	\$3,353m	\$3,486m	\$3,486m	\$3,504m	76.21%	4.50%
20 - Stations, Stops, Terminals, Intermodal	\$1,169m	\$2,238m	\$2,327m	\$2,328m	\$2,328m	\$2,327m	99.08%	-0.01%
30 - Support Facilities (Yards, Shops, Admin)	\$356m	\$474m	\$451m	\$472m	\$472m	\$506m	42.06%	12.28%
40 - Site Work and Special Conditions	\$205m	\$611m	\$562m	\$588m	\$588m	\$568m	176.83%	0.95%
50 - Systems	\$619m	\$606m	\$628m	\$580m	\$580m	\$578m	-6.76%	-7.99%
60 - ROW, Land, Existing Improvements	\$165m	\$219m	\$192m	\$215m	\$215m	\$215m	30.31%	12.04%
70 - Vehicles	\$494m	\$210m	\$880m	\$210m	\$210m	\$210m	-57.50%	-76.13%
80 - Professional Services	\$1,184m	\$1,975m	\$1,809m	\$2,003m	\$2,003m	\$2,013m	69.98%	11.25%
██████████	██████	██████	██████	██████	██████	██████	██████	██████
██████████	██████	██████	██████	██████	██████	██████	██████	██████
██████████	██████	██████	██████	██████	██████	██████	██████	██████
100 - Financing Cost	\$1,036m	\$1,036m	\$1,116m	\$1,036m	\$1,036m	\$1,036m	0.00%	-7.20%
██████	██████	██████	██████	██████	██████	██████	██████	██████

**Table 5: Quarterly Planned Cash Flow - Actuals Cost to Date and Remaining**

<b>Year - Quarter</b>	<b>Construction</b>	<b>Engineering</b>	<b>OCIP</b>	<b>Project Management</b>	<b>Real Estate</b>	<b>Rolling Stock</b>
<b>Prior Payments</b>	<b>3,660.2 m</b>	<b>646.4 m</b>	<b>155.6 m</b>	<b>580.0 m</b>	<b>112.6 m</b>	<b>--</b>
<b>Remaining</b>	<b>3,719.1 m</b>	<b>74.2 m</b>	<b>127.0 m</b>	<b>392.1 m</b>	<b>69.4 m</b>	<b>202.0 m</b>
3Q2014	209.3 m	(-3.3 m)	4.8 m	16.7 m	--	--
4Q2014	168.3 m	(-3.3 m)	4.8 m	16.7 m	0.1 m	--
1Q2015	134.6 m	(-3.2 m)	4.6 m	16.1 m	4.5 m	--
2Q2015	147.4 m	(-3.3 m)	4.8 m	16.7 m	4.7 m	--
3Q2015	169.7 m	(-3.3 m)	4.8 m	16.7 m	4.7 m	--
4Q2015	201.2 m	(-3.3 m)	4.8 m	16.7 m	4.7 m	--
1Q2016	193.3 m	(-3.2 m)	4.7 m	16.3 m	4.6 m	--
2Q2016	180.9 m	(-3.3 m)	4.8 m	16.7 m	4.7 m	8.7 m
3Q2016	182.0 m	(-2.0 m)	4.8 m	16.7 m	4.7 m	13.1 m
4Q2016	214.2 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
1Q2017	210.6 m	6.5 m	4.6 m	15.5 m	4.5 m	12.6 m
2Q2017	199.7 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
<b>Remaining Planned</b>	<b>1,508.1 m</b>	<b>82.4 m</b>	<b>70.1 m</b>	<b>195.6 m</b>	<b>23.2 m</b>	<b>141.5 m</b>
<b>Remaining Actual</b>	<b>2,150.5 m</b>	<b>27.5 m</b>	<b>7.9 m</b>	<b>189.0 m</b>	<b>60.8 m</b>	<b>202.0 m</b>
3Q2017	189.4 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
4Q2017	182.1 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
1Q2018	174.2 m	6.5 m	4.6 m	15.5 m	4.5 m	12.6 m
2Q2018	170.5 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
3Q2018	168.5 m	6.7 m	4.8 m	16.0 m	4.7 m	14.0 m
4Q2018	155.2 m	6.7 m	4.8 m	16.0 m	0.1 m	14.0 m
1Q2019	148.4 m	6.5 m	4.6 m	15.5 m	--	13.6 m
2Q2019	110.9 m	6.7 m	4.8 m	16.0 m	--	14.0 m
3Q2019	93.6 m	6.7 m	4.8 m	16.0 m	--	14.0 m
4Q2019	71.6 m	6.7 m	4.8 m	16.0 m	--	14.0 m
1Q2020	20.7 m	6.6 m	4.7 m	15.6 m	--	5.0 m
2Q2020	11.7 m	6.7 m	4.8 m	16.0 m	--	0.9 m
3Q2020	7.6 m	2.3 m	4.9 m	5.4 m	--	--
4Q2020	2.8 m	--	5.0 m	--	--	--
1Q2021	0.9 m	--	3.3 m	--	--	--
2Q2021	--	--	--	--	--	--
3Q2021	--	--	--	--	--	--
4Q2021	--	--	--	--	--	--



**Table 6: ESA Project Summary by FTA Standard Cost Categories  
2014 Re-plan**

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	MPR July 1, 2017		
				Current Budget	Awarded Value	Paid to Date
10 - Guideway & Track Elements	\$1,989m	\$3,405m	\$3,353m	\$3,504m	\$3,272m	\$2,710m
20 - Stations, Stops, Terminals, Intermodal	\$1,169m	\$2,238m	\$2,327m	\$2,327m	\$2,181m	\$1,394m
30 - Support Facilities (Yards, Shops, Admin)	\$356m	\$474m	\$451m	\$506m	\$490m	\$216m
40 - Site Work and Special Conditions	\$205m	\$611m	\$562m	\$568m	\$490m	\$478m
50 - Systems	\$619m	\$606m	\$628m	\$578m	\$470m	\$351m
60 - ROW, Land, Existing Improvements	\$165m	\$219m	\$192m	\$215m	\$156m	\$155m
70 - Vehicles	\$494m	\$210m	\$880m	\$210m	\$8m	\$6m
80 - Professional Services	\$1,184m	\$1,975m	\$1,809m	\$2,013m	\$1,894m	\$1,784m
100 - Financing Cost	\$1,036m	\$1,036m	\$1,116m	\$1,036m		

**Table 7: ESA Core Accountability Items**

Project Status:		Original at FFGA	Amended FFGA	Current*	ELPEP **
Cost	Cost Estimate	\$7.386 b	\$10.922 b	\$10.178 b	\$8.119 b
█	█	█	█	█	█
	█	█	█	█	█
	█	█	█	█	█
Schedule	RSD	Dec. 31, 2013	Dec. 31, 2023	Dec. 2022	April 30, 2018
Total Project Percent Complete		Based on Invoiced Amount		71.6% actual vs. 75.4% planned (ESA Calculation)	
Project Performance Rate (Since 2014 ESA "Re-Plan")		Based on Earned Value*** ±		77.6% (PMOC calculation of construction spending at July 1 planned vs. actual since re-baselining). Actual cumulative construction amount invoiced since project start is 100.0% of original plan.	
Major Issue	Status			Comments	
█	█			█	
█	█			█	
█	█			█	
Project Cost	MTACC has identified significant forecast cost overruns: <ul style="list-style-type: none"> <li>OCIP - \$190 million</li> <li>Railroad Force Account - \$110 million</li> <li>AWO, OICs for Contract CM014B - \$65 million</li> <li>PM/CM, CCM, GEC Services – (TBD)</li> </ul> Any schedule delays due to funding constraints (see above) will cause additional escalation costs. Review of forecast cost overruns based on new funding constraint continued during August 2017.			ESA-PMT is currently evaluating cost of continued PM/CM, CCM, and GEC Services to target RSD. Evaluation continued through August 2017. Recent funding issues (see above) may delay completion of current contracts, award of remaining contracts, and completion of railroad force account work. The resulting added cost escalation could be significant.	
█	█			█	
█	█			█	
█	█			█	
█	█			█	
█	█			█	
█	█			█	
Harold Schedule	The schedule for the remaining ESA work in Harold Interlocking has been revised several times since the June 2014 Program Schedule re-baseline; December 2014 ("ESA First"); 2015 ("Harold Re-Sequencing"); 1Q2016 schedule adjustment resulting in the Program critical path passing through the Harold work. Primary cause for all the revisions is continuing inadequate railroad force account support due to other higher priority Amtrak projects in the region. This issue has continued to challenge ESA through August 2017. During 2Q2017, a new risk emerged due to Amtrak's accelerated project to complete extensive reconstruction of the NEC track turnout area between New York Penn Station and the existing Amtrak Hudson River tunnels.			Primary impacts due to Amtrak's NY Penn Station Project include: <ul style="list-style-type: none"> <li>Eight scheduled priority weekend track outages in 2017 for support of pre-testing of schedule critical Harold CIL cutovers in May 2018 are at risk; ESA trying to reschedule a minimum of six priority track outages to end of October 2017.</li> <li>Current Amtrak support to ongoing Harold work: impact through 2Q2017 into August 2017 is moderate; Amtrak has completed its current plan ahead of the September 1, 2017 planned completion.</li> </ul>	

\*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.