

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

Report Period October 1 – October 31, 2016



PMOC Contract No. DTFT6014D00017

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

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Length of time on project: Nine 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. DTFT6014D00017, Task Order No. 002. Its purpose is to provide information and data to assist the FTA as it continually monitors the Grantee's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the Grantee continues to be ready to receive federal funds for further project development.

This report covers the project management activities on the East Side Access (ESA) Mega-Project managed by MTA Capital Construction (MTACC) with MTA as the Grantee and financed by the FTA FFGA. The PMOC notes that the FFGA Amendment was fully executed with MTA's sign-off of 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 Grantee cost and schedule data included in this report is based on the status date of September 1, 2016.

## **MONITORING REPORT**

### **1.0 PROJECT STATUS**

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

As of the end of August 2016 (September 1 data date), MTACC reported that the overall engineering effort was 99.6% complete, based on Earned Value for Design Deliverables, compared with a planned status of 100.0%. MTACC's Cost Report shows that 93.1% of the overall "EIS and Engineering" category has been invoiced and 93.3% of the "Design" category (including Design Settlement) has been invoiced.

On Contract CM015 (48<sup>th</sup> St. Entrance), the MTA Board had previously approved the design agreement with the building owner. The building owner, Rudin Management Corporation (RMC), agreed to provide the designs for the relocation of the existing interior utilities and to complete some limited structural design. MTA is continuing discussions with RMC and is nearing completion of the required easements and construction agreements. MTA and RMC have signed

the utility agreement, the construction contract has been awarded, and the work has commenced. The GEC completed the 100% design and submitted it on July 12, 2016. RMC and the VM015 contractor review comments were received on August 15, 2016. RMC has made additional comments on the entrance design. Proposed Change Order (PCO)-127 for the GEC involves revisions to the entrance façade and provision of fire-rated construction for future basement retail space. The shear wall design is now completed. Submittal will be made to the NYC Department of Buildings. Bid advertisement had been scheduled for September 27, 2016, was then revised to November 29, 2016, and is now forecast for January 2017. Delays through 2016 and into 2017 will be 5 months.

Contract CH058A will include construction of the Tunnel B/C Approach Structure. The 90% design submission was made on June 17, 2016, and the PMT/GEC team has received comments from the ESA Construction Manager and LIRR. The 90% package was sent to Amtrak on October 28, 2016. The PMOC notes that Amtrak advised MTACC that Amtrak had committed to reviewing the 90% CH058A package after they had completed their review of the FHA03 package. Hence the delayed review by Amtrak.

Contract CH058B will include construction of the East Bound Re-route. Final design has been awaiting the completion of a rail traffic simulation study for Harold Interlocking. The first part of the study, operations without Temporary Eastbound LIRR Passenger (TELP) Track, has been completed, and the results indicate minimal impact to Harold Interlocking under peak load conditions. Based on this result and the fact that construction of the TELP Track would have significant cost and schedule impacts to the planned CIL cutovers, the PMT has recommended to LIRR that the GEC complete the CH058B design without the TELP Track. The GEC and PMT have recommended that the tunnel be constructed using the cut-and-cover method. LIRR has agreed to the track outages required to support the cut-and-cover construction but has requested additional rail traffic simulations.

The Contract CQ033, Mid-Day Storage Yard Facility, bid package has been completed. Work continues on resolving remaining issues, listed here. Any resultant design or specification changes will be included, as required, in bid addenda.

- Regarding the Arch Street Yard tie-in, resolution is still required between MTACC and LIRR for final determination on the scope of LIRR Force Account (FA) work.
- MTACC continued working with Amtrak regarding coordination of catenary pole relocations with both Amtrak and with FDNY regarding the access road width. The access road provides joint use between LIRR and Amtrak for access to the High Speed Shop, Yard C, and the Penn Lead. FDNY attended a site visit in October 2016 and FDNY final approval is pending.
- ESA-PMT continues to work with LIRR on labor clearance for track and traction power work.
- The CQ033 package requires design variance approvals regarding LIRR track standards and clearances in order to provide sufficient yard capacity to store twenty-four 12-car train-sets. All track standard and clearance issues with LIRR were resolved in late May 2016, although a waiver is still required from NYSDOT to resolve the track vertical and horizontal clearance issues. In early July 2016, LIRR submitted a waiver request to NYSDOT regarding the substandard clearances required by the design. The NYSDOT response is pending.

- GEC has started work on the eight items in PCO-211 that include changes for cost savings as well as LIRR's request to revise the variance package for geometric alignment and vertical track clearance for underground pipelines.
- GEC completed work on drawings for approval from NYCT on overhead clearance beneath the No. 7 Line elevated structure over the proposed LIRR tracks. NYCT has provided preliminary approval. Finalization of document package is in progress for final approval by NYCT.
- Demolition of 1,300 LF of existing third-rail may be included as a contract option.

The PMOC notes that the previously forecast bid advertise dates of July 18, 2016, and August 18, 2016, were missed and the package was advertised in October 2016 with plans available for pick-up on October 24, 2016.

Contract CH57D, Harold Track Work, is a new package whose work scope is currently being finalized by the PMT and the CM. Labor clearance has been requested from LIRR.

Contract CS086, Systems Package 2 - Tunnel Systems, is a stand-alone package. The MOU with LIRR for inclusion of Positive Train Control (PTC) in this contract is being finalized. MTACC reports that the Proposed Change Order to the GEC for the addition of PTC was being issued and that the GEC has been meeting with the LIRR to confirm and finalize the PTC-related scope. Another PCO to finalize the package has been negotiated and is awaiting MTA approval. The scope of this change order includes a refresh of the package and changes operational control of Plaza Interlocking from Penn Station Control Center to the GCT Train Operations Center. The ESA-PMT advised that this change originated with LIRR operations acting through the ESA/LIRR Special Projects Group and that the change was approved by the Change Control Committee. The 90% design submission has been sent to LIRR for review. The bid advertisement date is now forecast for January 10, 2017, a delay of three months from the previously forecast date of October 11, 2016.

As noted in earlier reports, the backlog of submittal and RFI reviews was an area of focus for the Contract CS179 project team. At the end of October 2016, there were still 350 submittals out of a cumulative total of 6,627 submitted that required a response from MTACC. The contractor continues to assert that these overdue responses on design submittals and Requests for Information (RFIs) are impacting its ability to complete design work in accordance with the contract schedule. MTACC acknowledges that the response time on many submittals and RFIs has exceeded the 30-day turn-around time period stipulated in the contract. However, the contractor's assertion that this issue is causing overall contract delays cannot be evaluated until the contractor provides an accurate and comprehensive contract schedule that includes all contract modifications and an updated Integrated System Test Plan (ISTP). Despite an increased MTACC effort over the past several months to reduce the backlog of responses to overdue RFIs and design reviews and submittals, the number of overdue responses has not been significantly reduced. This issue remains as a significant concern to the ESA CS179 CM and the PMOC. The MTACC indicated in the Executive Summary of its August 2016 Monthly Progress Report (MPR) that the completion of the Control System Designs will occur in December 2016, nine months later than that shown in the baseline schedule. Information presented at the most recent monthly progress meeting indicates that seven (7) of the ten (10) Control System Final Design Review (FDR) meetings occurred by the end of October 2016. Two (2) of the remaining three (3) Control System FDR meetings are scheduled to occur in November 2016, and the last Control System (CCTV & SMS)

FDR meeting has yet to be scheduled. The contractor contends that the CCTV & SMS FDR is delayed due to outstanding responses from the design questions.

The PMOC believes that the December 2016 forecast date for completion of all 10 Control System Designs is achievable as long as the MTACC continues to aggressively pursue the closure of design questions. Additional information regarding specific System designs for the CS179 contract is provided later in Section 1.0c., under CS179.

The ESA CS084 CM continues to be concerned that it is taking far too long to obtain comments and responses to contractor submittals and RFIs; and, along with senior ESA management, has discussed the mitigation of this issue with senior LIRR management. The LIRR took action to reduce this backlog of responses by engaging a design consultant; and, as of the end of October 2016, there has been a slight improvement in turn-around durations for design reviews. However, the ESA CS084 CM indicates that additional improvement is still needed, as there are still 156 out of 1,590 submittal review responses that are overdue. The PMOC continues to recommend that the MTACC's senior management work with the LIRR's senior management to formalize a design review process that will enable the MTA to provide timely and productive comments on design documents.

As previously noted, the approval of critical facility designs and the GEC's completion of re-designs to address design issues identified in various locations continue to be items the contractor cites as critical schedule issues. Additionally, the extended length of time taken to approve substation layout and equipment designs, including clarification of SCADA requirements, has now enabled the contractor to assert that contract Milestone Nos. 1, 2, 3, 4, 6, and 7 are already delayed and will continue to be delayed on a day-to-day basis until the designs are approved and the clarifications are determined. The ESA CS084 project controls group will need to perform a detailed analysis of the contractor's schedule to determine the validity of the contractor's assertions. In its July 2016 report, the PMOC advised that the LIRR and MTACC reached an agreement on the required number of SCADA sensors and that the contractor would be requested to submit a cost proposal to modify the SCADA design accordingly. However, at the mid-October 2016 progress meeting, the ESA CS084 CM advised that the GEC has yet to provide a revised Scope of Work (SOW) to address this contract change. The revised SOW must be finalized before the contractor can submit a proposal for the work and, very importantly, give direction to its substation fabricator regarding equipment requirements.

## **b. Procurement**

As of the end of August 2016, the ESA Cost Report showed that total procurement activity for the project was 83.4% complete, with \$8.48 billion awarded out of the \$10.178 billion current projected budget.

Contract CQ033, Mid-Day Storage Yard Facility, was advertised during October 2016 with bid sets available starting October 24, 2016. The Pre-Bid conference/site tour is scheduled for November 11, 2016. The last addendum will be issued no later than December 15, 2016, and bids are due on December 22, 2016. This contract will be an IFB procurement. Total bid advertisement delay since January 1, 2016 is six months.

MTACC received bids for Contract CH061A, Tunnel A Approach Structure, on August 2, 2016, and subsequently identified an apparent low bidder. MTACC deferred the Notice of Award and Notice to Proceed, however, based on the planned availability for construction site access and

protection by limited railroad force account resources. MTACC now forecasts that it will issue the Notice of Award November 15, 2016, and the NTP on February 1, 2017, a three month delay from the previously forecast date of October 28, 2016. Total Notice to Proceed delay since January 1, 2016, is eight months.

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

- CM015, 48<sup>th</sup> Street Entrance – Advertise January 5, 2017; Bids due on March 14, 2017, an additional delay of one month from the September 2016 forecast. Total bid advertisement delay since January 1, 2016, is four months.
- CS086, Systems Package 2-Tunnel Systems – Advertise January 10, 2017; Bids due March 10, 2017. Total bid advertisement delay since January 1, 2016, is nine months.

### c. Construction

The PMT reported in its August 2016 Progress Report that total construction progress reached 65.1% complete versus 68.6% planned.

**CM005 - Manhattan South Structures:** MTACC had retroactively declared Substantial Completion (SC) for April 22, 2016.

Construction Progress: ESA has stated that the contractor continued punchlist work activity in October 2016. The contractor received door hardware and commenced pressure door installation this month. The project site was turned over to the CM007 contract in early October 2016. The contractor also continued work at the 37<sup>th</sup> St. Air Plenum at street level with utilities and sidewalk concrete.

**CM006 – Manhattan North Structures:** As of September 1, 2016, MTACC increased its Forecast at Completion for CM006 to \$359,319,541. The MTACC forecast for Substantial Completion remained at June 1, 2017. Actual construction progress for August 2016 was 3.4% versus 5.8% planned. Cumulative progress through September 1, 2016, was 83.7% actual versus 86.1% planned. ESA continued review of the new CPM schedule which is reported as the current baseline and is being used to track construction progress.

Construction Progress: During October 2016, the CM006 contractor continued rehabilitation/remediation work at the 63<sup>rd</sup> St. Tunnels and Structures and expects to finish work here by the end of November 2016. The contractor continued arch construction at GCT 3 West Wye and GCT Crossover. Duct bench construction was completed in tunnel EB4. Arch concrete construction continued for Tunnel WB3. The contractor continued stair case and miscellaneous BOH (Back of House) construction in the East and Westbound Caverns. The contractor also continued arch concrete construction at the 55<sup>th</sup> St. Vent Facility and continued grouting at GCT 4 East and GCT 5 West.

**CM007 - GCT Station Caverns and Track:** As of September 1, 2016, MTACC Forecast at Completion for CM007 remained \$712,311,733. The MTACC forecast for Substantial Completion remained at January 28, 2020. Actual versus planned monthly progress and cumulative progress will be reported when available from MTACC.

Construction Progress: During October 2016, the contractor continued to mobilize, prepare contract and other submittals, revise the baseline schedule, and prepare LIRR Amityville Yard in Queens for material staging and storage. MTA and the GEC will continue to inspect prototype pre-

cast concrete elements (for new GCT station construction in the East and Westbound Caverns) at the upstate NY precast manufacturer's facility. Production casting of short beams and panels started in October 2016. Other activities included: preparation of the Mock Demonstration Track, replacement/repair of rebar couplers in the East and Westbound Caverns, the start of continuous welded rail (CWR) pulling into the tunnels in Queens, drainage cleaning and preparation of the arch/wall pneumatically applied concrete (PAC) mockup, and continued site inspection for takeover systems (systems constructed by previous ESA contractors). The fourth monthly Construction Progress Meeting was held on October 13, 2016.

**CM014A – Concourse and Facilities Fit-Out Early Work:** MTACC reports that, through October 1, 2016, the project forecast cost at completion has been reduced to \$57,717,875 from the previous \$58,128,537. MTACC continues to report in their August 2016 Monthly Report that Substantial Completion will be November 1, 2015. The MTACC Project Office has advised the PMOC that this retroactive date is the result of negotiations with the contractor and their bonding company. However, in its August 2016 report, MTACC states that this substantial completion date has not been agreed upon by both parties. No additional information is provided. Cumulative construction progress remained 97.0% versus 100.0% planned. This has remained the same throughout late 2Q2016 and into 3Q2016, and indicates that there has been very little progress since June 2016.

Construction Progress: Through October 31, 2016, progress in completing the remaining equipment testing continued to be very slow. This includes SCADA testing, which is only partially complete. Training of LIRR personnel in the SCADA system is scheduled to take place November 15 – 17, 2016. Through October 2016, the B30 Substation for this project has not been turned over to the follow-on CM014B contractor yet, pending completion of testing. The F6 Breaker in the B30 equipment is designated for temporary/permanent power in the Caverns (CM007). The CM014A contractor must provide 2 electricians, 24/7, to man this feed in case there is a trip in the breaker. This is a change order to the contract and will remain in effect until the substation is turned over to CM014B. Another change order is being completed for the CM014A contractor to provide and maintain temporary air conditioning units in the equipment rooms to address the large heat buildup in the rooms from the energized equipment. This issue will be permanently resolved once the CM014B HVAC system is operational. As of October 31, 2016, no date for when the HVAC system would be operational had been established.

**CM014B – Concourse and Facilities Fit-Out:** MTACC reports that, through September 1, 2016, the final forecast cost at completion is reduced to \$463,617,500 from the previous \$477,913,666. The Substantial Completion date remains January 21, 2019. Ongoing delays from the original August 18, 2018, Substantial Completion date were primarily due to late critical structural steel submittals and late removal of existing obstructions by MNR. Actual construction progress for August 2016, was 1.6% versus 3.9% planned. Cumulative progress through September 1, 2016, was 22.6% actual versus 31.7% planned.

Construction Progress: Through October 31, 2016, Surveying in the Concourse continued and will be on-going throughout this contract.

Milestone #1 (Complete Terminal Management Center, Communication Room C-2 & Communication Closet C-5) – Architectural work is complete, along with punch list work. FM200 work still remains to be completed. The FM200 annunciator panel must be supplied, and the mechanical purge system must be designed and installed.



Milestone #2 (50th St Room CR102, Tunnel Fan Room, Electrical Room #126 & ICC Room), June 4, 2016; now April 2017 – The Elevator #9 shaft corrective work, which is delaying this milestone, has begun. The affected room is the Tunnel Fan Control Room. Punch List work is complete in the Electrical Room and the ICC.

Milestone #3 (Comm. Closets CC-C1, CC-C2, CC-C6, MTAPD and BCS Conduit), August 4, 2016 – Construction of the rooms is complete. FM200 controls installation is complete in all rooms. Fire alarm, power, lighting conduit and wiring is complete. Punch list work is ongoing.

Milestone #5A (Completion of 48th St. Entrance) November 25, 2016 – This is being delayed until April 2017 (previously March) due to delays in demolition of the MTA Building in the Concourse and transfer of personnel to the new 52<sup>nd</sup> St. Entrance. The personnel transfer is complete and the 48th St. construction access will close on October 24, 2016. Some structural beam work is underway, which is being done for MNR.

Concourse (Madison Yard): Stantec Repairs (repairs to privately owned building columns in Madison Yard) continue throughout. 3rd Party Inspections continue for concrete, shotcrete, rebar, masonry, bolting, welding, and firestops. Electricians continue to remove concrete encasement on existing columns in order to weld grounding cables to steel columns. Grounding can only be made to MNR columns in GCT but not to any privately owned building columns in GCT. Placement of CLSM (Controlled Low Strength Material) backfill continues throughout in various areas. Electricians completed rough-in work at CMU walls in Zone #1.

The contractor began installation of overhead plumbing in the East Corridor and overhead fire standpipe. The contractor completed installation of 4” and 6” sprinkler mains in Service Corridors A3033 & A3040 and began installation of branch lines and heads. Header work continues in Zones 3-5. Placement of the final concrete slab invert was approximately 75% complete throughout the Concourse.

3118 Chiller Plant, 3128 Heating Plant: The contractor resumed installation of 12” and 8” continuous welded pipe (CW) in the Chiller Plant.

Biltmore Connection: MNR continues to remove existing conduit that is blocking the work on day and night shifts. The Project Office reports that this work is proceeding faster than anticipated.

Wellways: Pull Box installation and wire pulling is underway in Wellways #1 and #2. Unistrut installation continues in Wellways #3 and #4.

Dining Concourse Connection: Relocations required to be made by MNR continue. Installation of permanent steel is forecast to begin November 1, 2016.

Elevator T-01: Installation of permanent structural steel takes place intermittently at night.

East 48<sup>th</sup> St. Entrance: Rock excavation is complete on the street side. Placement of the west half of the concrete roof was completed to Beam #10.

44<sup>th</sup> St. Vent Building: Installation of conduit at the 1st Basement Level and stairway is ongoing.

East 50<sup>th</sup> St. Vent Building: Demolition of the Elevator #9 shaft CMU wall nears completion. This out of alignment wall was built by the CM013 contractor. Installation of communication conduit continues from the Concourse Level to the Shaft.

North Transfer Station: Work began to excavate for utilities/footings.

## **Systems Contracts:**

**CS084 – Traction Power Substations:** In its August 2016 Monthly Progress Report (MPR), MTACC reports that the Budget and Forecast for the CS084 contract remained at the \$79,717,772 level previously reported. The MTACC's August 2016 MPR continues to show a Substantial Completion (SC) date of July 2020, as previously reported. MTACC contends that this SC date is linked to the CS179 Systems Package 1 SC date and that any further adjustments to the CS179 schedule will also result in corresponding adjustments to the CS084 schedule. As of the mid-October 2016 monthly progress meeting, it was noted that some of the design issues continue to remain unresolved and the impact that any additional delay in resolving these design issues will have on the contract SC date is yet to be determined.

In its 2Q2016 QPR, MTACC shows a progress curve for the CS084 contract that presents actual cumulative contract progress as 11.0% versus a planned 52.5%; numbers that are based on actual versus projected costs, not physical construction efforts. The contractor contends that funds have not been expended as originally projected due to the delays in approving and moving forward with the substation designs and equipment. Thus, the variance in the actual versus projected costs. An analysis of the status of the work activities shown on the approved baseline schedule is necessary to determine the status of the progress of physical work on this contract.

Design Progress: The contractor continued with the transmission of contractual submittals and its design development of the substations. As noted in previous PMOC reports, the contractor continues to assert that previous delays in receiving comments back from the MTACC on the C05 facility switchgear, the number of SCADA point sensors, and the general C08 substation design impacted its ability to meet its own original design, procurement, fabrication, and installation schedules. The ESA CS084 CM previously acknowledged that these comments were taking too long to process and met with LIRR senior management and the General Engineering Consultant (GEC) to focus on the priority of these designs. The LIRR took action to reduce this backlog of responses by engaging a design consultant; and, as of the end of October 2016, there has been a slight improvement in turn-around durations for design reviews. However, the ESA CS084 CM indicates that additional improvement is still needed, as there are still 156 out of 1,590 submittal review responses that are overdue by more than 30 days. The PMOC previously reported that the LIRR and MTACC reached an agreement on the required number of SCADA sensors and that the contractor would be requested to submit a cost proposal to modify the SCADA design accordingly. However, at the mid-October 2016 progress meeting, the ESA CS084 CM advised that the GEC has yet to provide a revised Scope of Work (SOW) to address this contract change to finalize the SCADA points. The revised SOW must be finalized and provided to the contractor before the contractor can submit a proposal for the work; and, very importantly, give direction to its substation fabricator regarding equipment requirements. The GEC continues to work on design changes to address the penetration to the track level and room beam height issues at the Vernon (C05) facility. Implementation of these design changes must be negotiated with the CS179 contractor and progressed before the CS084 contractor begins work in the C05 facility; however, as of October 31, 2016, these design efforts remained as on-going. One other previously reported design issue that needs timely resolution is the routing of DC cables at the Vernon (C05) substation facility. The identification of this issue was made several months ago, but the GEC has still not produced a re-design to remedy the problems. Exacerbating this issue is the fact that, once a revised design is approved by all parties, MTACC will need to determine who – the CS179 or the CS084 contractor – will implement the re-design effort so that the CS084 contractor can install the

DC cables. The PMOC continues to have concerns about the various design issues being identified and the length of time it is taking to provide responses and designs to resolve the various issues. MTACC needs to prioritize with the GEC the process to provide timely submittal responses and designs so as to preclude any further delays to the contract.

Construction Progress: At the mid-October 2016 monthly progress meeting, MTACC advised that the extra L3 electrical service work, including additional work related to grounding and testing of transformers and electrical distribution panels, was complete. However, it was also noted at the meeting that two design issues, not related to the L3 electrical service contract modification, needed to be addressed before energization of the L3 electrical service to the signal huts takes place. As of the end of October 2016, two of the signal huts (Nos. 2 and 5) are energized, while two more (Nos. 1 and 6) must have the design issues addressed before they can be energized. As noted in previous reports, the contractor continued to advise the CS084 ESA CM that the water infiltration issue at the Vernon facility needs to be permanently mitigated before any equipment is installed. The contractor contends that the continuing water infiltration issue is precluding the commencement of any physical work in the affected substation facilities. MTACC advised the contractor that, although water infiltration remediation efforts were underway at the Vernon facility, the contractor's access to the affected room would be delayed another two months from December 2016 to February 2017. This notification immediately drew a response from the contractor, who asserted that this action would cause further delays to the already impacted contract schedule. The PMOC requested an update on an issue raised in an earlier monthly progress meeting regarding the contractor's inability to perform "dynamic" testing of the C08 substation because the conduit and manhole from the C08 substation to the track would not be installed by another ESA contractor in time for the testing to occur. The ESA CM indicated that, while this was still under investigation, several options were being considered and the GEC would be tasked to prepare a recommendation.

**CS179 – Systems Package 1:** In its August 2016 Monthly Progress Report, MTACC shows a Budget and Forecast for the CS179 contract of \$606,983,540. MTACC shows a progress curve for the CS179 contract that presents actual contract progress as 25.0% versus a planned 50.0%; numbers that are based on actual versus projected costs, not physical construction efforts. As presented, these progress numbers continue to imply that the contract is significantly behind schedule. MTACC is continuing its evaluation of the contractor's monthly schedule updates to determine if the schedule includes major changes to the contract schedule precipitated by the approval of CS179 contract Modification No. 18 and the changes to the CM006 contract and the award of the CM007 contracts. In the August 2016 progress meeting, MTACC requested that the contractor expedite its submission of an updated Integrated System Test Plan (ISTP) so that a comprehensive evaluation of the contract schedule can be performed. As of the end of October 2016, the submission of a complete and comprehensive draft ISTP remains as an open item; and, the contractor advises that it will be submitted by mid-November 2016. As noted in previous PMOC reports, Modification No. 18 to this contract revised the original Milestone, access restraint, Option exercise, and Substantial Completion (SC) dates. The new SC date was established as July 1, 2020; an approximate seven-month delay from the original November 19, 2019, date. In its August 2016 MPR, MTACC advises that, while the contractor is showing a December 2020 SC date on whatever monthly schedule update is being referenced, MTACC has stated that it is confident that the July 2020 SC can still be met. The discussion of any potential delay to the established July 2020 SC date has not taken place at any of the monthly progress meetings attended

by the PMOC. The PMOC will follow up on this item with MTACC's CS179 contract staff. In its August 2016 MPR, MTACC indicates that the CS084 contract progress is dependent on the completion of Milestones in the CS179 contract, and the forecasted substantial completion date for the CS084 contract coincides with the CS179 SC date. As of the end of October 2016, all but two Contract Options (Option Nos. 4 and 5) were exercised. The ESA CS179 CM indicates that these remaining two contract Options will be exercised in 2017 as per the schedule identified in Contract Modification No. 18. MTACC advised that, as of the end of October 2016, the MTA finalized, and sent to the FTA, a letter requesting a waiver from the Buy/Ship America requirements in the contract for the Split System HVAC units proposed for this contract. The finalization of any Buy/Ship America waiver request for the Main Display Panel Monitors proposed for this contract remains as an uncompleted open item that, in the PMOC's opinion, poses a significant risk to the successful and timely completion of this contract. MTACC advised the contractor that MTA Legal staff required additional information from the contractor regarding any Buy/Ship America waiver request for the proposed display panel monitors. As of October 31, 2016, MTACC was not able to forecast a date for when the MTA Legal staff will finalize the completion of a waiver request letter for the Main Display Panel Monitors.

Design Progress: MTACC indicated in the Executive Summary of its August 2016 Monthly Progress Report (MPR) that the completion of the Control System Designs will occur in December 2016, nine months later than that shown in the baseline schedule. Information presented at the most recent monthly progress meeting indicates that seven (7) of the ten (10) Control System Final Design Review (FDR) meetings occurred by the end of October 2016. Two (2) of the remaining three (3) Control System FDR meetings are scheduled to occur in November 2016, and the last Control System (CCTV & SMS) FDR meeting has yet to be scheduled. The contractor contends that the CCTV & SMS FDR is delayed due to outstanding responses from the design questions. The PMOC believes that the December 2016 forecast date for completion of all 10 Control System Designs is achievable as long as MTACC continues to aggressively pursue the closure of design questions. The contractor continues to assert that the backlog of comments from the MTA on design submittals and Requests for Information (RFIs), as well as the extended time being taken to address facility design issues, is causing delays to the timely progression of the contract. MTACC will need to evaluate these assertions against an updated contract schedule that includes both the revised Milestone dates developed as part of contract Modification No. 18 and a complete and comprehensive draft Integrated System Test Plan.

Construction Progress: The contractor continued various elements of work (concrete work, installation of conduit, cable, fire standpipe installations, fire stopping, equipment racks, etc.) at the B10; Roosevelt; Vernon; 12<sup>th</sup> St.; 39<sup>th</sup> St.; Queens Plaza; and 63<sup>rd</sup> St. facilities. The contractor indicated that cable splicing activities are underway in Tunnel Tracks A, B/C, D, and LL and that it will start installing columns in the 2<sup>nd</sup> Avenue facility and axial fans in the Vernon facility in November 2016. The contractor reported that water infiltration remediation work was continuing at the Vernon facility and that water infiltration remediation work would be complete at the 23<sup>rd</sup> Street and 29<sup>th</sup> Street facilities by mid-November 2016. MTACC advised that it would, on a bi-monthly basis and after every major rainfall, inspect the various locations where water infiltration remediation work was performed to determine if the remediation efforts were effective.

There are five Stop Work Orders (SWOs) on this contract. With regard to two of the SWOs, one is related to the requirement for an Undercar Deluge System at GCT and the other is related to the requirement for a transformer at 43rd Street. These two original work scope items will be deleted

from the CS179 contract via a contract modification. The other three SWOs, all of which need to be resolved by MTACC, are comprised of water infiltration issues in the 29th Street Facility Power Room, the Fire Stand pipe installation in the Vernon facility, and condenser pipes and drainage issues at the 2nd Avenue facility.

**Contract VS086, Systems Package 3, Signal Equipment Procurement:** The GEC design was completed but is now being revised to incorporate the requirements of Positive Train Control (PTC). Additional issues requiring resolution are as follows:

- Change from incandescent to LED technology for signal unit display.
- Changes to the ATT-20 track circuits in the diamond crossovers.

### **Queens Contracts:**

**CQ032 – Plaza Substation and Queens Structures:** As of September 1, 2016, MTACC increased its Forecast at Completion for CQ032 to \$263,913,767. The MTACC Forecast for Substantial Completion (SC) slipped to November 7, 2016, and reports that the contractor has been notified to submit a recovery schedule. At the end of October 2016, ESA advised that the SC has slipped further into December 2016. Actual construction progress for August 2016 was 0.5% versus 0.4% planned. Cumulative progress through September 1, 2016, was reported to be 101.0% actual versus 98.1% planned, figures that are based on actual versus projected costs, not physical construction completion.

Construction Progress: During October 2016, the CQ032 contractor continued punch list work in the Yard Services Building and that the new gas and water utilities remain to be tested. The contractor also continued punch list work activity at the Plaza Vent Structure (PVS). Con Edison relocation of the gas main at 23<sup>rd</sup> St. was completed. ESA continued contract de-scoping activity to transfer remaining vent shaft work and water infiltration remediation work at the 23<sup>rd</sup> St. facility to contract CS179. The CQ032 contractor continued water infiltration repairs in Plaza Substation and preparation of as-built/closeout documentation.

### **Harold Interlocking Contracts:**

**CH057 – Harold Structures Part III:** MTACC’s Forecast at Completion for the CH057 contract increased to \$91,818,885 during August 2016. The MTACC forecast for Substantial Completion date for the base contract was extended by 9 weeks to October 10, 2017. There are 15 contract options that, if exercised, could extend the Substantial Completion date even further. Actual construction progress for August 2016 was 9.0% versus 14.7% planned. Cumulative progress through August 31, 2016, was 53.8% actual versus 68.7% planned.

Construction Progress: During October 2016, the CH057 contractor continued to place sidewall concrete and shotcrete in the TBM reception pit area of the Tunnel D East Approach Structure, sidewall shotcrete and roof slab concrete in the soldier pile area of the Approach Structure, and completed excavation in the secant pile area of the Approach Structure under 39<sup>th</sup> St. Additionally, the contractor placed waterproofing on the deck of the new LIRR ML2 Track bridge over 48<sup>th</sup> St. in Queens, completed installation of soldier piles and lagging for the 48-S2 retaining wall and began to construct a new trackbed adjacent to the retaining wall, completed installation of pre-cast concrete “H” piles and panels for the 39-S6 retaining wall, and installed the B-911-3/4 catenary pole.

**CH057A – Part 3 Westbound Bypass:** MTACC’s Forecast at Completion for the CH057A contract increased to \$156,982,212 during August 2016. The MTACC forecast for Substantial Completion was extended by 5 weeks to November 8, 2017. Actual construction progress for August 2016 was 2.0% versus 1.7% planned. Cumulative progress through August 31, 2016, was 38.6% actual versus 38.3% planned. The PMOC notes that in July 2016, MTACC began to report cumulative actual construction progress equal to planned progress, although there had been a large discrepancy between the two figures as previously reported by MTACC during 2Q2016.

Construction Progress: The “jacked box” tunnel shield resumed excavation of the Westbound Bypass (WB) Tunnel on October 17, 2016, and almost immediately encountered a catenary pole foundation that was supposed to have been removed by a previous ESA contractor. Additionally, the contractor was able to determine that the modifications that it had made to stiffen the frame against which the box is pushed were not sufficient to allow the excavation box to stay on its proper course, i.e. the frame was being uplifted, causing the box to veer off course. As a result, excavation of the WB Tunnel was again stopped for the remainder of October 2016 and will not resume until a solution is implemented. Nonetheless, the contractor was able to excavate approximately 5 additional feet of tunnel (for approximately 60’ to date). In the West Approach Structure, the contractor continued to place re-bar and form and pour concrete for the base slab and began to place re-bar for sidewall construction. In the East Approach Structure, the contractor completed excavation and tie-back installation of the south wall of the structure between the “H3” location and the east portal of the WB Tunnel.

**Railroad Force Account Contracts:**

**FHA01 – Harold Stage 1 Amtrak:** MTACC’s Forecast at Completion for FHA01 remained at \$18,824,861 during August 2016. The MTACC forecast for Substantial Completion was extended by 3 days to January 6, 2017. Actual construction progress for August 2016 was 0.0% versus 0.0% planned. Cumulative progress through August 31, 2016, was 98.8% actual versus 100.0% planned.

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

**FHA02 – Harold Stage 2 Amtrak:** MTACC’s Forecast at Completion for FHA02 remained at \$60,150,231 during August 2016. The MTACC forecast for Substantial Completion was shortened by 6 months to May 20, 2018. Actual construction progress for August 2016 was 0.3% versus 5.7% planned. Cumulative progress through August 31, 2016, was 84.6% actual versus 81.0% planned.

Construction Progress: During October 2016, Amtrak Electric Traction (ET) personnel completed construction of the new F11 Full Tension Air Break (FTAB) on Line 1 and began construction of the new H22 FTAB on Line 2 in Harold Interlocking.

**FQA65 – Loop Interlocking Amtrak:** MTACC’s Forecast at Completion for FQA65 remained at \$33,287,863 during August 2016. The MTACC forecast for Substantial Completion was shortened by 10 weeks to July 16, 2023. Actual construction progress for August 2016 was 0.0% versus 0.3% planned. Cumulative progress through August 31, 2016, was 19.8% versus 56.5% planned (the PMOC is not concerned about this discrepancy due to the extended Substantial Completion date coupled with the MTACC reporting of construction progress based on cost rather than actual construction).

Construction Progress: Amtrak Communications and Signal (C&S) personnel resumed signal cable trough relocation at the B927 catenary pole along Loop 2 during October 2016.

**FHL01 – Harold Stage 1 LIRR:** MTACC’s Forecast at Completion for FHL01 remained at \$24,379,363 during August 2016. The MTACC forecast for Substantial Completion was extended by 6 weeks to August 8, 2017. Actual construction progress for August 2016 was 0.3% versus 0.0% planned. Cumulative progress through August 31, 2016, was 87.7% actual versus 100.0% planned.

Construction Progress: LIRR Third Rail personnel resumed installation of trough, conduits, manholes, and 3<sup>rd</sup> Rail cables into the new G02 Substation during October 2016.

**FHL02 – Harold Stage 2 LIRR:** MTACC’s Forecast at Completion remained at \$92,932,559 during August 2016. The MTACC forecast for Substantial Completion was extended by approximately 5 months to April 15, 2020. Actual construction progress for August 2016 was 1.4% versus 1.0% planned. Cumulative progress through August 31, 2016, was 93.5% actual versus 96.7% planned.

Construction Progress: During October 2016, LIRR Signal personnel completed the signal cutover of the new RPR Track in Harold Interlocking, continued to pull and terminate signal cables between the “H1” and “H2” CILs and their respective signal cases, continued to wire circuits for new Signal Bridge #23, continued to make “ESA501” (GEC designation) signal revisions at the Harold and Location 30 CILs, and relocated signal cables at existing Signal Bridge #22. LIRR Communications personnel continued to pull, identify, and terminate fiber optic communications cables at the “H1”, “H2”, “H3”, “H5”, and Harold CILs. LIRR Third Rail personnel began installation of 3<sup>rd</sup> rail cables for the new #4195 and #4187 traction power knife switches at the new G02 Substation.

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

**ESA Quality Staff:** The PMOC remains concerned about the adequacy of the ESA quality staff. A new Quality Assurance Manager has been hired and began his assignment in October 2016. The Deputy Quality Assurance Manager will be going on a six-week leave of absence in mid-November 2016, effectively leaving the staff with two fewer individuals than it had one year ago. ESA is actively recruiting qualified individuals to fill the one vacant position. This new hire will preferably have railroad systems experience.

**GEC Quality:** The former ESA Quality Manager conducted an audit of the GEC’s Quality System on June 21, 2016. Before the Quality Manager resigned, he identified the following issues: the GEC’s Quality Program has not been signed by GEC’s management; there is no internal audit schedule; GEC management is not allocating sufficient time for the GEC Quality Manager to perform his duties; and the GEC is delinquent in providing updated revisions of their quality procedures. The ESA Deputy Quality Manager met with the GEC Quality Manager on September 28, 2016, to discuss the quality issues that were identified during the audit. They agreed on a course of action to close all findings. All findings should be closed by the end of 2016. An internal audit of the GEC will be conducted on November 10, 2016.

**CM013:** A closeout audit on this contract was held to determine whether any quality issues will prevent this contract from closing. The nonconformance report (NCR) for pipes fabricated in China has been resolved.

**CM005:** Punchlist work continues at a slow rate. Approximately fifteen (15) NCRs remain open.

**CM007:** The contractor completed construction of track mock-up in the Amityville Yard. The mock-up demonstrates the actual track and track support system to be used, as well as installation procedures. The final mock-up will be inspected and approved by ESA and LIRR.

**CH057A:** Removal of the track slab interference was completed; however, additional problems subsequently arose which prevented further production. A more detailed explanation of this situation is provided in the “Construction Progress” section of the CH057A contract status, above.

**CS084:** Contractor development of quality work plans continues.

**Quarterly Quality Oversight (QO):** Between October 14, 2016 and November 1, 2016, 3Q2016 QO audits were conducted for the eight (8) active ESA third-party contracts. The ESA Quality staff was also well prepared, conducted professional QOs, and provided the contractors with detailed feedback during the exit meetings. There were no major findings.





below, shows the current IPS critical path of work through Harold contracts has changed somewhat since the previous update. The changes are described in further detail below the table.

**Table 2-2: September 1, 2016 IPS Critical Path**

<b>Contract &amp; General Activities</b>	<b>Duration (CDs)</b>	<b>Start</b>	<b>Finish</b>
FHL02: Transformer Installation, and Cut-Over Sequencing & Testing	626	01-Sep-16	20-May-18
CH057D: NE Quadrant Outage	116	21-May-18	14-Sep-18
FHL04: Switch Installation & Removals	48	15-Sep-18	02-Nov-18
<b>CH058A/CH058: Track B/C Approach Work</b>	662	02-Nov-18	<b>25-Aug-20</b>
FHL04: Testing & Cutover of 4C	46	26-Aug-20	<b>11-Oct-20</b>
Train Contract Staffs LIRR Prior to 3 Months Period	30	14-Oct-20	<b>13-Nov-20</b>
<b>LIRR 3 Month Period</b>	90	13-Nov-20	<b>11-Feb-21</b>
<b>Target Revenue Service Date</b>			<b>11-Feb-21</b>
<b>[REDACTED]</b>	<b>[REDACTED]</b>	<b>[REDACTED]</b>	<b>[REDACTED]</b>
<b>Late Revenue Service Date</b>			<b>13-Dec-22</b>

Note: The PMT no longer tracks an Early RSD milestone.

The PMOC has identified the following changes to critical forecasted work at Harold contained in the September 1, 2016 IPS compared to the previous month's update:

- FHL02-30200: Fabricate Hatch – By contractor through CH057 was allowed to begin before its predecessor activity FHL02-30230: Issue PO to Selco by CH057 completed. In the previous IPS update, this was a Finish-to-Start (FS) relationship and it is now a Start-to-Start (SS) relationship.
- The duration of FHL02-CSR300: Pre-Cutover testing – H1/H2/H5/H6/Loc 30 has increased by 41 calendar days, from a duration of 309 calendar days in the previous update, to a duration of 350 calendar days in the September 1, 2016 IPS. This delayed the forecasted completion of the H1/H2/H5/H6/Loc30 Pre-cutover testing from March 12, 2018 to May 18, 2018.
- The planned start of critical FHL04 related work was delayed approximately one month, from August 13, 2018, to September 15, 2018.
- In the previous IPS update, critical work during 2019 and most of 2020 was controlled by CH058. In the current IPS update, the critical work for this time period is now controlled by CH058A. This delayed the forecasted start of FHL04-1300: Testing for Cutover 4C, by approximately 82 calendar days, from June 5, 2020, to August 26, 2020, [REDACTED].

Table 2-3, below, shows important 90 day Look-Ahead milestone dates reported in the September 1, 2016 IPS.

**Table 2-3: Critical Milestones 90 Day Look-Ahead (from ESA IPS #83)**

Activity ID	Activity Name	Start	Finish	Total Float
<b>CH053: Harold Structures Part 1 &amp; G.O.2 Substation / FHL02: Harold Stage 1 – LIRR F/A</b>				
CH053-2080 / FHL02-3260	LIRR Cutover Signal Power Separation and MG Set / LIRR Cutover MG SPS (SPS Complete) w/o EO Control		1-Dec-16	0

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

The PMT's September 1, 2016 IPS Progress Report noted a change in the Manhattan/Systems longest path of work related to controlling work. The controlling work for these areas is now led by Special Track Work (STW) submissions and continues through the STW fabrication and delivery. Previously, the Manhattan/Systems longest path of work was controlled by East Cavern GCT work fabrication and erection of precast concrete elements. Both of these longest paths are through the CM007 contract, but the area of critical work has changed. This change does not appear to have affected the longest path of the Manhattan/Systems work, as the forecasted completion of CS179 [REDACTED].

**Upcoming Contract Procurements:**

Table 2-4, below, shows the status of current and upcoming Contract procurements, as reported in the September 1, 2016 IPS Progress Report.

**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>CH061A Tunnel A</b>	5/23/2016 (A)	08/2/2016 (A)	01/27/2017	16 Months	05/29/2018
<b>CQ033 Mid-Day Storage Yard</b>	10/13/2016	12/30/2016	02/22/2017	40 Months	06/22/2020
<b>CM015 48<sup>th</sup> Street Entrance</b>	01/05/2017	03/14/2017	05/01/2017	30 Months	10/18/2019
<b>CS086 Systems Package 2: Signal Installation</b>	01/10/2017	03/10/2017	05/08/2017	38 Months	07/01/2020

The Bid Date for CH061A: Tunnel A occurred as previously planned on August 2, 2016, and the PMT forecasts NTP for this Contract to now be January 27, 2017, an improvement of five calendar days since the previous IPS update. The PMT stated in its last IPS Progress Report that the delay to the planned PMT was done in an effort to manage the demand of Amtrak Access and Protection Force Account resources with other ongoing and planned future contracts.

The Advertise Date for CQ033: Mid-Day Storage Yard continues to slip from month to month. The August 1, 2016 IPS showed the CQ033 Advertise Date planned for September 8, 2016, and the current IPS shows a forecasted date of October 13, 2016, a delay of 35 calendar days. It appears that the delay related to the Advertise Date is planned to be mitigated by decreasing the time between the Advertise and Bid Dates by approximately two weeks and the time between the Bid Date and NTP by approximately a week and a half. The PMT also revised the estimated duration of CQ033 by shortening it a month, from 41 months to 40 months. This kept the previously forecasted Substantial Completion Date of mid-June 2020 approximately the same. In its September 1, 2016 IPS Progress Report, the PMT noted that the “contract is being finalized,” but did not state why it was delayed over a month from the previous forecast or why it reduced the planned duration of the contract by one month.

The current CM015 planned Advertise and Bid Dates were delayed approximately five weeks since last month’s IPS Progress Report. The PMT has stated that this “is due to owner requirements for structural reinforcement for future overbuild.” The PMT has kept the same forecasted NTP date over the update period of May 1, 2017, and the same expected project duration of 30 months. Therefore, the scheduled Substantial Completion date for CM015 of October 18, 2019, has remained unchanged since the previous IPS update. However, the PMOC notes that the

planned Substantial Completion date for CM015 was January 3, 2019, three IPS updates ago, meaning this date has slipped approximately ten and a half months over the last quarter.

Regarding the forecasted dates for the procurement of future contract CS086: Systems Package 2, Signal Installation, all milestone dates and Project Period dates remained the same since the previous IPS update.

### **PMOC Concerns:**

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

1. The PMOC continues to be concerned about the open ends contained within the CPM Schedule network of the IPS. While the PMT has been making progress in logically connecting these activities to predecessors and/or successors, there continue to be activities with open ends. Based on the ESA September 1, 2016 IPS Progress Report, there are still 38 in-progress activities with open ends (compared to 51 in the previous update) and 146 activities not yet started with open ends (compared to 183 in the previous update).
2. The PMOC has noted a trend in Force Account Work not being completed as scheduled, due to a lack of LIRR and Amtrak resource personnel needed to perform the work. Due to the concern that this work may continue to have an adverse impact on the Project, the PMOC has been tracking this work and is planning to incorporate an analysis of any noted delays in future reports.
3. The PMOC continues to be concerned with changes to forecasted durations and logical relationships related to critical Harold activities and activities in general within the IPS. For example, in this September 1, 2016 IPS, the duration for critical pre-cutover testing for H1/H2/H5/H6/Loc 30 increased by 41 calendar days. This is a very long-duration activity (almost one year) that controls the Program's critical path and major changes like this without adequate support is not recommended.

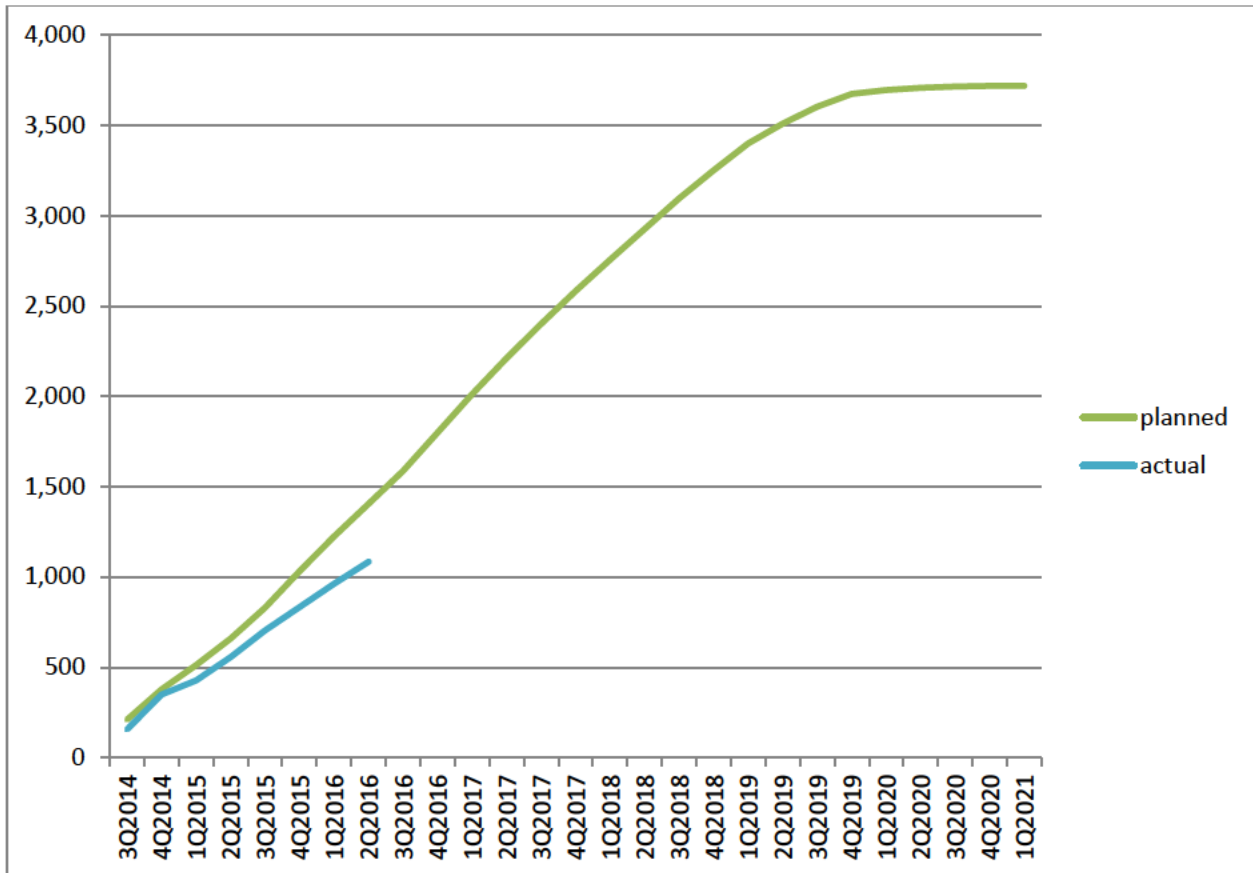
### 3.0 COST DATA

**Funding:** The approval of the 2015 – 2019 Capital Plan has eliminated the cost uncertainty associated with funding interruptions, at least in the near term. ESA indicates that it will request further amendments to the MTA Capital Plans (both 2010 to 2014 and 2015 to 2019), seeking funding for the OCIP and Force Account related overruns and other project scope additions.

**Budget/Cost:** The ESA August 2016 Progress Report (September 1 data date) shows that the actual total project progress was 65.4% versus 67.6% planned against the Current Baseline Budget (CBB) of \$10.178 billion. Total actual construction progress was 65.1% versus 68.6% planned based on the total invoiced amount of construction (details of project budget and expenditures are shown in Appendix B, Tables 2 and 3). A PMOC review of the ESA Planned Cash Flow Chart shows that it is based on a February 2021 completion date. This now aligns with the Target Revenue Service date resulting from the July 1, 2016, data date of the IPS. Since the 2014 re-baseline, the actual cumulative construction amount spent is 91.4% of the planned construction spending through 2Q2016. As shown in Table 3-1, the divergence between plan and actual spending is increasing, suggesting a worsening trend. As a result of its inability to achieve the planned construction spending, and the increase in construction budget from the 2014 re-baselining to current, MTACC is no longer striving to achieve the Early Revenue Service Date. This spending trend and future projections are shown in Tables 3-1 and 3-2 below.

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

The "planned" curve shows construction cash flow that was planned by ESA at the 2014 re-baselining in order to reach revenue service by the 1Q 2021. The vertical axis is \$million, starting at \$0 at the time of the re-baselining. The "actual" curve, up to the 2Q2016, shows actual construction spending as reported by ESA.



**Construction Cash Flow at 2Q2016 – Starting at 2014 Rebaseline**





[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Current contract delays, and potential future delays, may result in cost increases on the following contracts:
  - CS179 – Late completion of final design and resulting schedule compression to hold start of Integrated Systems Testing.
  - CS086 – Incorporation of Positive Train Control into ESA signal system.

**Change Orders/Budget Adjustments:** The PMT reported that, during August 2016, two (2) construction Change Orders greater than \$100,000 were executed for a total of \$208,000 credit. These were scope changes to Contract CS179.



to commence LIRR service into GCT. Amtrak's decision will, however, impact Contract CH058B, Harold Structures – Part 3B, Eastbound Re-Route. The ESA-PMT has indicated that there is no work-around plan for this situation, during which ERT Line 1 would have to be taken out of service in order to construct the Eastbound Re-Route.

## 5.0 ELPEP COMPLIANCE SUMMARY

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

- **Technical Capacity and Capability (TCC):** The FTA requested MTACC to update its TCC Plan in response to the FTA/PMOC comments that were generated in November 2013 as a result of significant changes in key ESA upper management level positions. The MTACC submitted its revised Technical Capacity and Capability Plan (ESA and SAS) on April 13, 2015. The PMOC returned comments to the FTA on May 7, 2015. The MTACC submitted a revised TCC Plan in response to FTA/PMOC comments on June 12, 2015. In August 2015, the PMOC provided the FTA with its evaluation of the MTACC responses to the PMOC review comments and recommended a meeting with MTACC to resolve remaining issues. The FTA subsequently provided MTACC with the evaluation. MTACC responded with a reply on September 24, 2015.
- **Continuing ELPEP Compliance:** The following ELPEP components continue to need improvement: Management Decision; Design Development; Change Control Committee (CCC) Process and Results; Stakeholder Management; Procurement; and Risk-Informed Decision Making. The PMOC has noted progress in two previously identified areas – Issues Management and Timely Decision Making, particularly when responding to new issues arising with the railroads’ Force Account resource availability, track outages, and other issues regarding the remaining work in the Harold Interlocking. The ESA Risk Manager has worked to re-establish risk management as one of the key inputs to the decision-making process. The PMOC anticipates continued improvements in the risk management area. To assist MTACC with focusing efforts on improving ELPEP compliance in the remaining areas, the PMOC plans to re-evaluate the ELPEP compliance situation during 4Q2016 based on the current revisions of the PMP, CMP, SMP, and RMP.
- **Project Management Plan:** The PMOC completed its review and evaluation of MTACC’s revisions and responses and submitted its findings to FTA-RII in 4Q2014. MTACC subsequently submitted a revised Rev. 10 on March 13, 2015, that included updated information on the Change Control Committee. The revised Rev. 10 of the PMP was reviewed by the PMOC against the PMOC’s evaluation in 4Q2014. The PMOC continues to coordinate with MTACC, arranging working meetings with ESA chapter authors and the corresponding PMOC reviewers to resolve the remaining outstanding FTA/PMOC evaluation comments. Several working meetings have been held since June 2015 and continued through December 2015. MTACC and the PMOC are working to schedule the few remaining meetings with ESA chapter authors required to complete this process. MTACC submitted the next revision to the PMP in June 2016 that reflects ESA organizational changes along with some additional updates and revisions to certain sections. The PMOC is currently reviewing these changes and expects to provide its evaluation in November 2016.

- [REDACTED]

[REDACTED]

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

- **Schedule Management Plan (SMP):** The ESA project remains partially non-compliant with requirements for Integrated Project Schedule (IPS) Updating, Forecasting, [REDACTED] against a current baseline schedule. The revised SMP was submitted in 4Q2015 and the PMOC completed its review in June 2016. Review comments were forwarded to MTACC on July 15, 2016, and a working meeting was held on August 25, 2016, to review, discuss, and resolve the comments. MTACC has followed up with the agreed upon revisions to the SMP and has completed their responses in the review comment matrix. During October 2016, MTACC submitted the completed review comment matrix and a revised SMP, both currently under review by the PMOC.
- **Cost Management Plan (CMP):** The ESA project remains partially non-compliant with requirements for Project Level EAC Forecasting, Project Level EAC Forecast Validation, [REDACTED] and Secondary Mitigation. The PMOC has noted some improvement in a number of areas, but more work is needed in other areas. After progressing with resolution of many PMOC comments, the PMOC met with MTACC in November 2015 to focus on the remaining issues. MTACC continued working on additional agreed upon revisions and evaluated the PMOC's recommendations in six areas. MTACC provided an initial draft of the revised CMP on December 15, 2015, and the PMOC completed its review in early June 2016. MTACC and the PMOC met on June 22, 2016, to review the PMOC comments. During October 2016, MTACC submitted the completed review comment matrix and a revised CMP, both currently under review by the PMOC.

**Revisions to the ELPEP Document:** [REDACTED]

[REDACTED]

[REDACTED] The PMOC continues work on a draft revision to the ELPEP document that reflects these agreements.

## 6.0 SAFETY AND SECURITY

Table 6-1, below, shows the PMOC Calculated and ESA Reported Lost Time and Recordable injury ratios through September 30, 2016. The PMOC developed this table to demonstrate the effectiveness of ESA's most recent safety efforts rather than its cumulative safety record, which ESA uses to report in each of its monthly reports. The PMOC believes that this provides a more accurate measure of ESA's current safety performance than its cumulative record does.

**Table 6-1: ESA 2016 Lost Time and Recordable Injury Ratios**

	Lost Time Ratio	Recordable Ratio
2016 BLS Ratios (used by OSHA)	1.7	3.0
PMOC Calculated ESA September 2016 Ratios	2.02	3.03
PMOC Calculated ESA CY2016 Ratios	0.63	2.30
ESA Reported Ratio (Cumulative since beginning of project as of August 31, 2016)	1.87	ESA does not report cumulative Recordable Injury Rates

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

## 7.0 ISSUES AND RECOMMENDATIONS

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

Also, the PMOC has observed the following:

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

The PMOC recommends that the PMT engage the upper level management of stakeholders involved to assist in resolution of the more serious issues. The GEC is challenged to meet the schedule requirements for review of design submittals from the CS084 and CS179 contractors. The PMT needs to address this continuing problem and to also better coordinate the associated LIRR reviews. These shortcomings point to insufficient technical capacity and capability in the particular design support areas. The PMOC acknowledges the recent efforts by senior management to resolve these issues.

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

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

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

The PMO remains concerned about the long-term effectiveness of the water infiltration remediation efforts currently being undertaken at the Vernon, 23<sup>rd</sup> Street, and 29<sup>th</sup> Street facilities. To determine the effectiveness of the remediation efforts, MTACC plans to inspect the affected facilities on a bi-monthly basis and after each significant rainfall. The PMOC believes that this is a positive approach.

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

**Contract CS084:** The PMOC remains concerned about the numerous water infiltration issues in the equipment rooms and the solutions that need to be implemented to provide permanent mitigation in rooms with electronic equipment. The GEC proposed a possible remediation methodology, and its implementation has started at several locations. The successful mitigation of the water infiltration problem can only be validated after remediation work is complete.

If this proposed mitigation methodology 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 this and other contracts.

The PMOC continues to have concerns about the length of time it is taking to provide responses and designs to mitigate the various issues and approve substation and equipment designs that the contractor continues to assert are delaying the completion of contract Milestones. Lastly, ESA, the GEC, and LIRR need to continue to aggressively reduce the backlog of contractor design submittals under review.

[REDACTED]

**Project Schedule:** The PMOC is still concerned that, as stated by the PMT, Amtrak is not providing enough resources to support the ESA's scheduled critical work. The PMT has stated that it will continue to meet with Amtrak and has obtained clearances to transfer Amtrak work to 3<sup>rd</sup> parties to try to partially mitigate schedule delays. The PMOC is also concerned about LIRR's requirement to have all CIL cutover software approved prior to any of the pretesting required for the cutovers, as these lengthy pretesting durations are currently on the Program critical path. However, the PMOC wishes to note that the PMT has worked through a special task force to address this issue and has proposed a resequencing solution that appears to have mitigated the impact. The PMOC primary concerns include: 184 in-progress and future IPS activities lacking succeeding logic ties; continued delay trending on force account work completion; and changes to duration and logic ties on IPS critical path activities without justification



## **Risk Management:**

This segmentation of construction packages has created multiple inter-contract interfaces and milestones. In the PMOC's opinion, the probability of successfully achieving all of them is low, and leads to the possibility of a ripple effect of delays and coordination difficulties between contracts. There is very limited opportunity, at best, for the contractors to make up any of the time lost to interface delays due to work site time and access constraints, especially because the majority of the work is underground. Should delays start to accumulate, recovery will likely not be possible. The PMOC is particularly concerned about delays to the completion of final systems designs on both Contracts CS179 and CS084. Managing inter-contract handoffs and interfaces will be challenging and represents significant MTACC-retained risks. The PMOC has recognized the PMT's efforts to mitigate some of the potential cost exposure by negotiating adjustments to schedule constraints across the four ESA contracts currently held by the same contractor (CM006, CM007, CS179, and CQ032). These mitigations, however, are not necessarily effective in solving the productivity challenges presented by the CM007 schedule that the PMOC considers very aggressive.

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

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

- Successful execution of multiple hand-off interfaces across several contracts;
- Contractor access and work area coordination in Manhattan;
- Duration of integrated systems testing;
- Continued availability of adequate Amtrak and LIRR force account resources [increasing risk trend noted from 3Q2015 through October 2016];
- Continued availability of required track outages in Harold Interlocking. [Starting in September 2016, fewer priority weekend track outages will be available]; and,
- Maintaining adequate schedule performance of the remaining work in Harold Interlocking, now the ESA program critical path, that is dependent on a very high level of planning and coordination between third-party contractors and the LIRR and Amtrak force account management for both access and protection and direct labor work.

Although MTACC continues to actively engage Amtrak to develop some specific mitigations for certain risks and work on strategies for mitigating many of the other identified risks, the PMOC notes that continued shortcomings in provision of adequate force account resources continues to adversely impact the current Harold schedule and have caused the remaining Harold work to become the ESA program schedule critical path. Many external stakeholder issues with Amtrak and LIRR will remain beyond MTACC's direct control, however, and are likely to complicate development and acceptance of the specific problem resolutions that are essential to completion of the ESA project. Although MTACC and ESA have been proactive in dealing with these issues as they arise, the PMOC believes that most of these issues require resolution at the executive management level.

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

- [REDACTED]
- [REDACTED]
- The Harold critical path has now become the ESA Program Critical Path and leads the secondary Manhattan/Systems critical path by approximately three months;
- Amtrak’s decision to take ERT Line 2 out of service first for an extended outage of one year or more will not support the current ESA planning to complete all of the remaining Harold work, including the High Speed Rail work, by 2020. The PMOC does note, however, that MTACC believes that Amtrak’s decision about ERT Line 2 will not impact the remaining work in Harold Interlocking required to provide LIRR service to Grand Central Terminal;
- Amtrak plans to commence total track replacement in ERT Lines 3 and 4 structures during 4Q2016 in preparation for the extended outages for ERT Lines 1 and 2 starting in 2019; this situation may adversely impact the availability of force account resources for the remaining ESA work; and,
- Recent developments during 3Q2016 involving less availability of future priority weekend track outages and increasing demand for track foremen to provide access and protection to the third-party construction contractors.

Beginning in 3Q2016 and into October 2016, ESA continued to experience problems due to insufficient Amtrak Force Account personnel, predominately Electric Traction (ET), to properly support its 3<sup>rd</sup> Party Contracts CH057 and CH057A currently working in Harold Interlocking. Additionally, the ESA PMT has reported that it does not receive all the track outages it requires to do the work that it schedules. The ESA PMT has stated that both of these conditions have been major factors for why Harold construction recently became the critical path of the ESA Project. The PMOC recognizes ESA’s efforts to re-baseline the remaining work in the Harold Interlocking to reflect more realistic expectations of Amtrak support. However, the situation has not improved and the PMOC recommends that the PMT actively engage executive management in MTACC and MTA to assist with resolution of this problem.

During 3Q2016, the PMOC was advised of new situations that will likely result in additional delays and costs for completion of the remaining work in the Harold Interlocking:

- ESA has been pursuing labor clearance agreements with Amtrak to allow third-party contractors to do work that is normally claimed by various Amtrak unions. The demands on force account resources are currently so high that Amtrak will be unable to provide access and protection for third-party contractors to perform work for which labor clearance has been granted.

- Amtrak has advised MTA that ESA should limit the number of critical weekend outages.
- Amtrak is now requiring that each Amtrak track foreman be assigned to cover only a single construction operation. Previously, a single track foreman was permitted to cover more than one operation provided that the work locations were contiguous and all required safety measures could be properly employed. This change now significantly increases the demand for Amtrak track foreman and has impacted the schedule of work in the Harold Interlocking

## APPENDIX A - ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
BLS	Bureau of Labor Statistics
BOH	Back of House
BAFO	Best and Final Offer
C&S	Communication and Signals
CCC	Change Control Committee
CCM	Consultant Construction Manager
CIL	Central Instrument Location
CLSM	Controlled Low Strength Material
CM	ESA Construction Manager assigned to each contract
CMP	Cost Management Plan
CMU	Concrete Masonry Unit
ConEd	Consolidate Edison Company
CPOC	Capital Program Oversight Committee
CPP	Contract Packaging Plan
CPR	Contractor Proposal Request
CPRB	Capital Program Review Board
ELPEP	Enterprise Level Project Execution Plan
ERT	East River Tunnel
ESA	East Side Access
ET	Electric Traction
FA	Force Account
FDR	Final Design Review
FFGA	Full Funding Grant Agreement
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCT	Grand Central Terminal
GEC	General Engineering Consultant
HSR	High Speed Rail
IEC	Independent Engineering Consultant (to MTA)

IFB	Invitation for Bid
IPS	Integrated Project Schedule
IST	Integrated System Testing
ISTP	Integrated System Test Plan
LIRR	Long Island Rail Road
MNR	Metro-North Railroad
MOD	Contract Modification
MPR	Monthly Progress Report
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority Capital Construction
N/A	Not Applicable
NTP	Notice to Proceed
NYAR	New York and Atlantic Railroad
NYCT	New York City Transit
PAC	Pneumatically Applied Concrete
PCO	Proposed Change Order
PDR	Preliminary Design Review
PEP	Project Execution Plan
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PMT	ESA Project Management Team
PQM	Project Quality Manual
PVS	Plaza Vent Structure
PWE	Project Working Estimate
QA	Quality Assurance
QPR	Quarterly Progress Report
RAMP	Real Estate Acquisition Management Plan
RFI	Request for Information
RFP	Request for Proposal
RMC	Rudin Management Corporation
RMP	Risk Management Plan
ROD	Revenue Operations Date

ROW	Right of Way
RPR	Relocated Primary Route
RSD	Revenue Service Date
RTU	Remote Terminal Unit
SC	Substantial Completion
SCADA	Supervisory Control and Data Acquisition
SCC	Standard Cost Category
SDR	Second Design Review
SMP	Schedule Management Plan
SMU	Snow Melter Unit
SOE	Support of Excavation
SSMP	Safety and Security Management Plan
SWO	Stop Work Order
TCC	Technical Capacity and Capability
TELP	Temporary Eastbound LIRR Passenger
WBY	Westbound Bypass Tunnel
YSB	Yard Services Building

**APPENDIX B – TABLES**

**Table 1: Summary of Critical Dates**

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

\* Source – Grantee forecast Revenue Operations Date per information presented to the MTA CPOC in June 2014.

\*\*Source –Based on PMOC 2014 schedule trending analysis representing a medium degree of mitigation.

**Table 2: Project Budget/Cost Table**

	FFGA				MTA's Current Baseline Budget CBB		Expenditures Aug 31 2016	
	Original FFGA (Millions)	Amended FFGA (Millions)	(% of Grand Total Cost)	Obligated	(Millions)	(% of Grand Total Cost)	(Millions)	(% of CBB)
Grand Total Cost	\$7,386	\$12,038	100.00%	\$4,724	\$ 11,214	100.00%	\$ 7,127.8	63.56%
Financing Cost	\$1,036		14.00%	\$617	\$ 1,036	9.24%	\$ 617.6	59.61%
Financing Cost		\$1,116	9.27%					
Total Project Cost	\$6,350		86.00%	\$4,107	\$ 10,178	90.76%	\$ 6,510.2	63.96%
Total Project Cost		\$10,922	90.73%					
Federal Share	\$2,683		36.30%	\$1,148	\$ 2,699	24.07%	\$ 2,694.4	99.83%
Federal Share		\$2,683	22.29%					
5309 New Starts share	\$2,632		35.60%	\$1,098	\$ 2,437	21.73%	\$ 2,432.3	99.82%
5309 New Starts share		\$2,632	21.86%					
Non New Starts grants	\$51		0.70%	\$50	\$ 67	0.60%	\$ 66.7	99.55%
Non New Starts grants		\$51	0.42%					
ARRA	0	0	0.00%	0	\$ 195	1.74%	\$ 195.4	100.00%
Local Share	\$3,667		49.60%	\$2,959	\$ 7,479	66.69%	\$ 3,815.8	51.02%
Local Share		\$8,239	68.44%					

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

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (August 2016)	Actual Awards (August 2016)	Paid to Date (August 2016)	Actual % Budget Paid
Construction	\$7,379,296,706	\$ 7,490,547,527	\$ 6,524,298,355	\$ 4,733,282,021	63.19%
<b>Soft Costs Subtotal</b>	<b>\$2,798,474,304</b>	<b>\$2,687,223,483</b>	<b>\$1,960,494,752</b>	<b>\$1,776,882,139</b>	<b>66.12%</b>
Engineering	\$720,615,810	\$723,521,828	\$698,361,854	\$675,075,371	93.30%
OCIP	\$282,613,620	\$282,613,620	\$282,613,620	\$266,114,391	94.16%
Project Mgmt.	\$972,168,644	\$972,168,644	\$862,052,609	\$719,786,138	74.04%
Real Estate	\$182,076,230	\$178,049,776	\$117,466,669	\$115,906,239	65.10%
Rolling Stock	\$202,000,000	\$202,000,000	\$0	\$0	0.00%
██████████	██████████	██████████	█	█	██████████
██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████

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



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

Standard Cost Category (SCC) No.	FFGA SCC baseline (YOES) M	Amended FFGA SCC baseline (YOES) M	June, 2014 Re-Plan (YOES)	3Q 2015	4Q 2015	1Q 2016	2Q 2016	August 2016	CBB Variance from FFGA %	CBB Variance from Amended FFGA %
10	1,989	3,353	3,405	3,421	3,420	3,443	3,467	3,471	74.51%	3.52%
20	1,169	2,327	2,238	2,339	2,338	2,314	2,326	2,325	98.89%	-0.09%
30	356	451	474	473	472	472	473	473	32.87%	4.88%
40	205	562	611	593	593	594	594	597	191.22%	6.23%
50	619	628	606	565	566	569	568	579	-6.46%	-7.80%
60	165	192	220	219	218	216	215	216	30.91%	12.50%
70	494	880	210	210	210	210	210	210	-57.49%	-76.14%
80	1,184	1,809	1,975	1,975	1,976	1,977	1,978	1,978	67.06%	9.34%
100	1,036	1,116	1,036	1,036	1,036	1,036	1,036	1,036	0.00%	-7.17%

**Table 5: Quarterly ESA Planned Cash Flow- Actuals to Date and Actuals Remaining (as of 2Q2016)**

Quarter/year	Construction \$(000)	Engineering \$(000)	OCIP \$(000)	Project Mgmt. \$(000)	Real Estate \$(000)	Rolling Stock \$(000)
<b>Paid To Date</b>	<b>3,660,194,771</b>	<b>646,377,892</b>	<b>155,604,955</b>	<b>580,041,291</b>	<b>112,634,547</b>	<b>0</b>
<b>Remaining</b>	<b>3,719,144,273</b>	<b>74,237,918</b>	<b>127,008,665</b>	<b>392,127,353</b>	<b>69,441,683</b>	<b>202,000,000</b>
3Q2014	209,340,620	-3,311,163	4,774,951	16,667,454	0	0
4Q2014	168,280,817	-3,290,689	4,774,951	16,667,454	75,948	0
1Q2015	134,568,200	-3,183,384	4,619,246	16,123,950	4,506,241	0
2Q2015	147,357,357	-3,290,689	4,774,951	16,667,454	4,658,137	0
3Q2015	169,688,509	-3,290,689	4,774,951	16,667,454	4,658,137	0
4Q2015	201,239,698	-3,290,689	4,774,951	16,667,454	4,658,137	0
1Q2016	193,275,933	-3,219,153	4,671,147	16,305,118	4,556,873	0
2Q2016	180,854,738	-3,290,689	4,774,951	16,667,454	4,658,137	8,666,545
<b>Remaining Planned</b>	<b>2,314,538,401</b>	<b>100,405,063</b>	<b>98,618,468</b>	<b>293,028,469</b>	<b>50,986,347</b>	<b>202,000,000</b>
<b>Remaining Actual</b>	<b>2,843,385,371</b>	<b>53,989,734</b>	<b>24,565,098</b>	<b>267,142,100</b>	<b>62,250,091</b>	<b>202,000,000</b>
3Q2016	181,988,455	-1,983,850	4,774,951	16,652,320	4,658,137	13,070,855
4Q2016	214,173,807	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2017	210,556,624	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2017	199,737,103	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2017	189,382,506	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
4Q2017	182,084,699	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2018	174,210,593	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2018	170,524,739	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2018	168,497,619	6,728,414	4,774,951	15,971,281	4,658,137	14,014,767
4Q2018	155,245,094	6,728,414	4,774,951	15,971,281	50,632	14,014,767
1Q2019	148,441,548	6,509,009	4,619,246	15,450,479	0	13,557,764
2Q2019	110,893,994	6,728,414	4,774,951	15,971,281	0	14,014,767
3Q2019	93,559,944	6,728,414	4,774,951	15,971,281	0	14,014,767
4Q2019	71,649,848	6,728,414	4,774,951	15,971,281	0	14,014,767
1Q2020	20,704,406	6,582,144	4,671,147	15,624,080	0	5,043,553
2Q2020	11,682,057	6,728,414	4,774,951	15,971,281	0	943,912
3Q2020	7,573,078	2,267,183	4,947,825	5,381,627	0	0
4Q2020	2,750,374	0	5,035,679	0	0	0
1Q2021	881,913	0	3,256,771	0	0	0
2Q2021	0	0	0	0	0	0

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

**\$1,000s**

Standardized Cost Category	FFGA	Amended FFGA	May 2012 Re-Baseline	June 2014 Re-Plan	Awarded Value (August 2016)	Paid To Date (August 2016)
10- Guideway & Track Elements	\$1,988,742	\$3,353,399	\$2,943,165	\$3,405,463	\$3,165,200	\$2,447,963
20- Stations, Stops, Terminals, Intermodal	\$1,168,655	\$2,326,752	\$1,513,998	\$2,238,235	\$2,161,442	\$1,245,884
30- Support Facilities, Yards, Shops, Admin Buildings	\$356,264	\$450,757	\$384,583	\$474,177	\$230,321	\$209,836
40- Site Works and Special Conditions	\$205,105	\$562,461	\$491,341	\$610,570	\$479,757	\$468,755
50- Systems	\$619,343	\$627,657	\$698,296	\$605,592	\$442,419	\$317,973
60-ROW, Land, Existing Improvements	\$165,280	\$192,225	\$203,639	\$219,397	\$154,788	\$153,227
70- Vehicles	\$493,982	\$879,530	\$674,372	\$209,938	\$7,838	\$5,549
80- Professional Services	\$1,184,000	\$1,808,989	\$1,648,606	\$1,975,398	\$1,843,028	\$1,660,976
90- ██████████	██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████	██████████
██████████	██████████	██████████	██████████	██████████	██████████	██████████
Estimated Financing Cost	\$1,036,100	\$1,116,454	\$1,116,000	\$1,036,000	\$617,607	\$617,607
██████████	██████████	██████████	██████████	██████████	██████████	██████████

**Table 7: ESA Core Accountability Items**

Project Status:		Original at FFGA	Amended FFGA	Current*	ELPEP **
<b>Cost</b>	Cost Estimate	\$7.386 B	\$10,922 B	\$10.178 B	\$8.119 B
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<b>Schedule</b>	RSD	December 31, 2013	December 31, 2023	December 2022	April 30, 2018
<b>Total Project Percent Complete</b>		Based on Invoiced Amount		65.4% actual vs 67.6% planned (ESA Figure)	
<b>Project Performance Rate(Since 2014 ESA "Re-Plan")</b>		Based on Earned Value ±		91.4% (PMOC Calculation of construction spending at 2Q2016 planned vs actual since re-baselining)	
<b>Major Issue</b>	<b>Status</b>			<b>Comments</b>	
[REDACTED]	[REDACTED]			[REDACTED]	
Harold Re-planning	Based on continuing issues with inadequate railroad force account support, ESA completed a Harold schedule re-sequencing in December 2014 ("ESA First"), that advances work elements required for the new LIRR service to GCT and delays the FRA funded High Speed Rail Work beyond 2017. The 2015 Harold Re-Sequenced schedule advanced completion of ESA elements but did not achieve goals due to insufficient Amtrak force account support. The schedule has again been re-evaluated and the ESA Program Critical Path now passes through the remaining work in the Harold Interlocking.			Work in Harold Interlocking is subject to influences outside of the control of ESA. Continuing issues with the level of Amtrak force account support, for the "ESA First" schedule, has further delayed completion of the Harold Interlocking work and has forced it onto the ESA Program Critical Path. New issues include: reduced priority weekend track outages; increased demand for track foremen to provide access and protection; Lines 3 and 4 prior to extended outages for ERT Lines 1 and 2 beginning in 2019.	

\*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.