

PMOC MONTHLY REPORT

East Side Access (MTACC-ESA) Project

Metropolitan Transportation Authority

New York, New York

Report Period February 1 - February 29, 2016



PMOC Contract No. DTFT6014D00017

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

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

TABLE OF CONTENTS

THIRD PARTY DISCLAIMER.....	3
REPORT FORMAT AND FOCUS.....	3
MONITORING REPORT	3
1.0 PROJECT STATUS	3
a. Engineering Design and Construction Phase Service.....	3
b. Procurement	5
c. Construction.....	5
d. Quality Assurance and Quality Control (QA/QC).....	13
2.0 SCHEDULE DATA	14
3.0 COST DATA	19
4.0 RISK MANAGEMENT.....	21
5.0 ELPEP COMPLIANCE SUMMARY.....	22
6.0 SAFETY AND SECURITY	24
7.0 ISSUES AND RECOMMENDATIONS	25

APPENDICES

APPENDIX A – ACRONYMS

APPENDIX B – TABLES

Table 1 – Summary of Critical Dates

Table 2 – Project Budget/Cost Table

Table 3 – Project Budget and Invoices as of January 31, 2016

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

Table 5 – Quarterly ESA Planned Cash Flow - Actuals to Date and Actuals Remaining

Table 6 – MTA ESA Project Summary By FTA Standardized Cost Categories 2014 Re-plan

Table 7 – ESA Core Accountability Items

THIRD PARTY DISCLAIMER

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 FTA or the project sponsor, in accordance with the purposes as described below.

For projects funded through FTA Full Funding Grant Agreements (FFGAs) program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a project sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a sponsor may develop for project execution. Therefore, the information in the monthly reports will change from month to month, based on relevant factors for the month and/or previous months.

SPECIAL NOTE: For this report covering the period of February 1, 2016 through February 29, 2016, the PMOC's review and analysis is based only on draft information from MTACC regarding the East Side Access Project. The final MTA report to the FTA and the monthly draft IPS were received too late for the PMOC to fully review and incorporate into this report. The cause of this delay is attributed to the ESA's computer system failure that occurred on March 7, 2016, and resulted in an extended system outage that significantly impacted ESA's ability to issue these documents to the PMOC.

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.

MONITORING REPORT

1.0 PROJECT STATUS

a. Engineering Design and Construction Phase Services

As of the end of January 2016, MTACC reported that the overall engineering effort was 99% complete, based on Earned Value for Design Deliverables, compared with a planned status of 100.0%. MTACC's Cost Report shows that 91.53% of the overall "EIS and Engineering" category has been invoiced and 91.61% of the "Design" category (including Design Settlement) has been invoiced.

Design work on the new, stand-alone CH061A package (completion of Queens Tunnel "A") continued. The 100% review submission has been accepted and the CCC has approved the

required budget adjustments to provide funding. Contract advertisement had been scheduled for December 14, 2015, but the current forecast is March 1, 2016.

On Contract CM015 (48th St. Entrance), the MTA Board had previously approved the design agreement with the building owner. The building owner agreed to provide the designs for the relocation of the existing interior utilities and to complete some limited structural design. The contract package will be revised and finalized based on the agreements reached during negotiations between the building owners and MTACC. MTACC is continuing discussions with the building owner and is nearing completion of the required easements and construction agreements. The GEC's 60% design was submitted, as scheduled, for MTACC and building owner review on February 8, 2016. The GEC is accelerating work to advance the 100% design submittal one month from the contractual date June 9, 2016 to May 9, 2016.

The work scope for Contract CH058 has been divided and repackaged into two separate contracts: CH058A will include construction of the Tunnel B/C Approach Structure and the Loop Box structure (transferred from CH059; CH058B will include construction of the East Bound Re-route. Current Forecast dates for CH058A include: advertise July 17, 2017; bids due September 13, 2017; NTP November 13, 2017. These revised dates represent a three month delay from the dates reported in January 2016. Design work for this package is currently on hold pending approval of the GEC Proposed Change Order for which negotiations have been completed. Additionally, the final design for package CH058B is awaiting the completion of a rail traffic simulation study for Harold Interlocking, which was not completed by February 29, 2016. The study is only partially complete: the first part of the study, operations without Temporary Eastbound LIRR Passenger Track (TELP), has been completed; the second part of the study, operations with TELP, has not yet been completed. Based on the results of the study, LIRR will then make the final decision on building the TELP track.

Final resolution has been reached on the west end of the Mid-Day Storage Yard (CQ033) regarding what work is to be performed by Amtrak (track and signals) to tie into the ERT (East River Tunnels) and what work will be performed by the CQ033 contractor. Scope changes have included the addition of the Sub 4 to Line 2 connection, approved by Amtrak, and the deletion of the Sub 3 to Line 4 connection. GEC's Proposed Change Orders (PCOs) 182 and 183 have been completed. PCO 176 was completed on February 29, 2016. Work is progressing on PCO 161. Work on PCO 193 is advancing based on the direction letter; ESA-PMT issued the RFP on February 11, 2016. The package requires design variance approvals regarding LIRR track standards and clearances. Presentations to LIRR were made on: January 19, 2016; January 21, 2016; and February 16, 2016. GEC plans to respond to LIRR questions and requests for additional information. GEC noted that there are a large number of variances being requested, but is confident that the necessary approvals will be obtained. The advertise date for CQ033 is currently forecast for April 5, 2016.

Contract CS284 (GEC CS086), Tunnel Signal Installation, is a stand-alone package. The MOU with LIRR for inclusion of Positive Train Control (PTC) in this contract is being finalized. The GEC Proposed Change Order for the addition of PTC is being developed. The bid advertisement date is currently forecast for April 1, 2016.

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

The ESA CS179 CM earlier advised that the backlog of submittal and RFI reviews continued to be an area of focus for the CS179 project team. The ESA CS179 CM advised that the GEC now has the equivalent of 29 full-time personnel focusing on this area and that the CS179 PMT will continue to work with the GEC to reduce the overdue backlog even further. Additional details regarding specific System design for the CS 179 contract are provided later in Section 1.0c. under CS179.

The ESA CS084 CM recently raised a concern that it is taking far too long to obtain comments on and responses to contractor submittals and RFIs. Additionally, various facility design issues, identified over the past several months, are still in the re-design stage with the GEC. The extended length of time being taken to complete these re-designs and produce clarification of design issues by the GEC has already enabled the contractor to assert that it is being delayed.

b. Procurement

As of the end of January 2016, the ESA Cost Report showed that total procurement activity for the project was 71.8% complete, with \$7.31 billion awarded out of the \$10.178 billion current projected budget.

Final presentations by the proposers for the CM007 contract were completed in January 2016. MTACC was able to complete the negotiations and the contract was approved by the MTA Board on January 27, 2016. Award is pending completion of negotiations on the Best and Final Offer (BAFO) schedule and acceptance of the final contract price and schedule. Delay to program critical path is now expected to be three months.

c. Construction

The PMT reported in its January 2016 Monthly Progress Report that total construction progress reached 60.9% complete versus 62.9% planned.

CM004 – 44th Street Demolition and Fan Plant Structure - 245 Park Ave. Entrance: The CM004 contract was demobilized in 3Q2014 and MTACC established a Substantial Completion date of September 9, 2014. At the end of January 2016, MTACC upper management signed the Substantial Completion Documents. There are several outstanding items, such as: delivery of Simms' HVAC As-Built Drawings, patching structural steel fireproofing and surveying of the elevator and vestibule leaks. All of these are in various stages of completion. The PMOC had previously reported that delivery of the remaining limestone facing for the Vent Building, as well as acceptance of the material by the CM014B contractor, remains an issue that prevents CM004 from entering the closeout phase of the contract. Through February 2016 the CCM, contractor, and GEC finally did an inventory of the remaining limestone in the B/N Yard in Queens. The CCM has reported to the PMOC that, fortunately for all concerned parties, the damage to the stone appears to be on the backs and sides of the stone pieces, and repairable. The finish faces must be cleaned. The GEC is preparing a report for MTACC management review. With the apparent closure of this outstanding issue, the PMOC will no longer report on the outstanding issues with the CM004 contract.

CM005 - Manhattan South Structures: The MTACC Forecast at Completion for CM005 increased slightly in January 2016 to \$242,693,233. The MTACC forecast for Substantial Completion (SC) slipped by almost two months from February 8, 2016 to March 31, 2016. ESA reports that the slip beyond the contract SC date is due to remaining work volume and

contractor's production rate. Actual construction progress for January 2016 was 1.4% versus 1.6% planned. Cumulative progress through January 31, 2016, was 96.3% actual versus 97.0% planned.

Construction Progress: During February 2016, the contractor continued arch pneumatically applied concrete (PAC) for the interior walls upper level GCT 1 & 2 East & West Wyes, and for the upper level TT1. At the 37th St. upper vent facility, the contractor continued working through utility issues, sidewalk, and grading. The contractor continued duct bench construction in the lower and upper level north connector tunnels. The contractor continued contact grouting in the tunnels. The contractor continued punch list work. The contractor plans to complete most work including punch list activity in March 2016.

CM006 – Manhattan North Structures: The MTACC Forecast at Completion for CM006 increased to \$360,582,618 in January 2016. The MTACC forecast for Substantial Completion slipped four months to June 1, 2017. Actual construction progress for January 2016 was 3.4% versus 4.5% planned. Cumulative progress through January 31, 2016, was 56.5% actual versus 80.5% planned. ESA reports that as part of CM007 contract negotiations, a CM006 contract modification will be formalized in March 2016 to delete Milestone #2 and extend Milestone #3 and Substantial Completion, to align the milestones with CM007 contract access requirements.

Construction Progress: During February 2016, the CM006 contractor continued lead abatement, asbestos removal, and duct bench construction at the 63rd St. tunnels and structures. At the 55th St. Vent facility, the contractor resumed waterproofing installation. The contractor continued arch construction with pneumatically applied concrete (PAC) at GCT 5 West Wye, the Cross Flue, and Tunnel WB1. Rebar installation and PAC continued at the 50th St. Air Plenum. The contractor continued construction in Tunnels 301, 302, 303, and 304. Construction continued at Cross Passage 8. The contractor continued duct bench construction at Tunnel WB1. Contact grouting started at Tunnel EB2. Work at the north end of the Eastbound Cavern Back of House (BOH) is basically complete, and the contractor is demobilizing from that area. During February 2016, the contractor continued Westbound Cavern BOH construction of upper level slab at the north end of cavern. The contractor continues to work three shifts, but is not meeting the recovery schedule milestones. ESA must complete review of a second recovery schedule to achieve a realistic revised schedule.

CM014A – Concourse and Facilities Fit-Out Early Work: MTACC reports that, through January 31, 2016, the Forecast at Completion \$58,222,843, slightly reduced from the previous \$58,414,993. MTACC reports in their January 2016 Monthly Report that the forecast date for Substantial Completion is February 1, 2016. However, in their Quarterly Monthly Report ending December 31, 2015, it was reported that the forecast substantial completion date as February 29, 2016. Regardless, the Project Office has advised the PMOC that substantial completion will be based on completion of energization of all six feeds. The PMOC projects this to be complete in March 2016. MTACC reports there was zero actual construction progress for January 2016 with no progress planned. Cumulative progress through January 2016, remained 93.4% versus 100.0% planned. MTACC reported planned versus actual percent complete has been inconsistent throughout 2015, with no explanations given in the respective MTACC reports.

Construction Progress: During February 2016, although the MTACC January 2016 Monthly Report says that the South (BP30) Substation was energized on February 29, 2016, the ConEd energized feeders remained at three of the total six feeds. Training of the CM014B electrical

contractor so that the contract can take over operation and maintenance of the BP30 substation and the temporary switchgear for construction, was completed. The Project Office has advised that through January 31, 2016, there were approximately 150 items on its list of contractor's Open Items, down from the previous 212. The contractor has completed cleaning of three of the transformer shutters. There are six transformers and all of the shutters must be cleaned. This is a big issue because one feed goes down Shaft #2 to the Caverns and another goes to a separate substation on 2nd Ave. The remaining feeds must be energized because the shutters can't be cleaned on an energized transformer. SCADA testing will not be done until all 6 feeds are energized.

CM014B – Concourse and Facilities Fit-Out: MTACC reports that, through January 31, 2016, the Forecast at completion forecast decreased slightly to \$461,057,357 from the previous \$461,967,500. The Substantial Completion date remains August 18, 2018. Actual construction progress for January 2016 was 1.5% versus 1.7% planned. Cumulative progress through January 2016, was 12.2% actual versus 8.9% planned.

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

Concourse (Madison Yard): Installation of underslab utilities is approximately 70% complete. The contractor continues to repair, upgrade and maintain temporary utilities such as the vent system, emergency and temporary lighting. Waterproofing, rebar, forming and placement of cast-in-place concrete manholes continue throughout. Work began with the placement of final concrete slab, and grounding for the new BP-20 north substation. The injection of foam insulation into the CMU east UA walls along Track 115 was completed and the contractor continued placing PAC (Pneumatically Applied Concrete) headers over those same walls in Zone #1.

Demolition (Hog Houses & MTA Building): Demolition has been delayed by MTACC. Relocation of personnel will be to the new trailer park on E. 52nd St., which is not completed. The MTA CCU has advised that demolition permits must be issued for this work.

Milestone #1 (Complete TMC Room, CC-C5, C2 Comm. Room & F/O Backbone Route): Wall stud framing is complete. Installation of drywall continues and overhead ductwork installation was completed. Raised data floor installation and below floor electrical cable trays installation was completed. Issues with compatibility between the CM014B and CS179 design drawings, as well as overall coordination and information flow between contracts have also affected the CM014B contractor's ability to achieve this milestone by its scheduled date. Accordingly, the original Milestone #1 date of March 6, 2016, was extended to April 15, 2016, and is now forecast for May 16, 2016.

Biltmore Connection: This work is temporarily on hold while structural steel shop drawings for structural steel and Construction Work Plans (CWP) are approved.

Wellways: Installation of rebar and formwork, and concrete placement was completed in Wellway #4. Placement of final sub-floor slab is complete at all wellway perimeters (4).

Dining Concourse Connection: Structural steel shop drawings for the framing for the escalator opening at the Dining Concourse Level continues to be under review.

East 48th St. Entrance: Continuing with mechanical excavation and hanging utilities below the street decking. The contractor reports that the rock excavation is advancing smoothly and there is a chance that they may not have to use blasting to complete the work. Milestone #5A to complete this work is November 25, 2016.

East 50th St. Vent Plant: There is a 12” raised data floor in the ICC (Information Command Center) Room. The sprinkler piping has been completed in the ICC. This room is a part of Milestone #2, due on June 4, 2016. There are three chillers that have been set in place on the 300 Park Ave adjacent building roof. Block wall erection has begun. A change order has been developed for CM014B to perform the Elevator #9 shaft alignment corrective work that was previously installed by the CM013 contract.

Systems Contracts:

CS084 – Traction Power Substations: MTACC reports that, while the Budget for the CS084 contract remained at the \$79,717,772 level reported in its December 2015 report, the Forecast increased by \$226.4K to the budgeted amount during January 2016. No explanation was given by MTACC for why the Forecast value increased. The MTACC’s and contractor’s forecasts for Substantial Completion are both December 2019. In its January 2016 Monthly Report, MTACC shows a progress curve for the CS084 contract that presents actual contract progress as 3.9% versus a planned 8.9%; numbers that are based on actual versus projected costs, not physical construction efforts. An analysis of the status of the work activities shown on the approved baseline schedule is necessary to determine the status of the progress of physical work on this contract. To accomplish this the PMOC has requested a copy of the CS084 approved baseline schedule in Primavera format for analysis.

Design Progress: The contractor continued with the transmission of contractual submittals and its design development of the substations. The contractor asserts that delays in receiving comments back from the MTA on the C05 facility switchgear and the general C08 substation design are impacting its ability to meet its own design, fabrication, and installation schedules. The ESA CS084 CM acknowledged that these comments are taking too long to process and indicated that the CS084 project management team (PMT) would press all MTA parties and the GEC to prioritize these responses. The contractor advised that a clarification on the ingress/egress requirement to an equipment vault, which has been going on for many months, is holding up the completion of the substation design and will impact its ability to achieve Milestone #1 on the schedule. As previously reported, the General Engineering Consultant (GEC) is still making changes to the C05 substation (Vernon) design to address the interference issue between a ventilation duct and the equipment hatch. The GEC also continues to work on design changes to address the penetration to the track level and room beam height issues at this facility. Implementation of the design changes must be negotiated with the CS179 contractor and progressed before the CS084 contractor begins work in the C05 facility. The ESA CS084 CM acknowledged that these design efforts were taking too long to complete and need to be accelerated to preclude schedule slippage. One other 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 design fix so that the CS084 contractor can install the DC cables.

Construction Progress: As of mid-February 2016, the only field construction effort, other than surveying field locations, acted upon by the CS084 contractor was the installation of the property line box that will serve as the interface between the electrical feeders from Consolidated Edison and the L3 signal power feeds for locations in Harold interlocking. The execution of this work was made feasible when, in mid-December 2015, the contractor was directed by MTACC to proceed with extra work associated with the installation of the line box for the L3 service work. A \$527,000 retroactive contract modification was scheduled to be fully executed in early January 2016 so that the contractor could both continue with the modification work that was scheduled to start on January 20th and get paid for progressing the work. However, as of mid-February 2016, the modification was not executed and the remaining L3 Service work did not start. The contractor continues to advise the CS084 ESA PMT that the water infiltration issue at the Vernon facility needs to be permanently mitigated before any equipment is installed. It was noted that the grouting effort tried in this location by the CS179 contractor did not mitigate the problem. More investigation and identification of alternative methods to mitigate the condition needs to be undertaken by the GEC.

CS179 – Systems Package 1: As of the end of January 2016, MTACC’s Budget and forecast for CS179 remained at \$606,938,540. In its January 2016 Monthly Report, MTACC shows a progress curve for the CS179 contract that presents actual contract progress as 16.9% versus a planned 18.8%; numbers that are based on actual versus projected costs, not physical construction efforts. As presented, these progress numbers imply that the contract is moving further behind schedule from previous reports. In the Milestones chart of its January Monthly Progress Report for this CS179 contract, MTACC continues to show the November 2019 forecasted substantial completion (SC) date. However, in the narrative under the “Mitigation” section for this CS179 contract a revised substantial completion (SC) date of January 20, 2020, that was negotiated with the contractor to address schedule risks and the Integrated System Testing schedule is identified. This revised SC date represents a 56 day delay and, as noted in the discussion, is dependent upon the work progress and schedule of Contract CM007; a contract that, while approved for award in January 2016 by the MTA Board, has yet to be awarded and to have a Notice to Proceed issued. Further, CS179 contract Milestone #1, the completion of work in a portion of the Vernon substation facility, is already 291 days behind schedule and will be further delayed until the water infiltration issue at this facility is successfully resolved. The delay in the completion of this Milestone #1 is also causing a schedule impact to the CS084 contract. To enable it to perform an assessment of contract progress, the PMOC has requested a copy of the contractor’s monthly schedule updates and MTACC comments on those updates. Several CS179 contract options, or parts thereof, have been exercised to date as a result of the appropriate funding becoming available. As noted in an earlier PMOC report, the Options exercised in November 2015 are Option Nos. 2A, 6, and 7. The other portion of the original Option No. 2, now designated “No. 2B - Manhattan Work”, must still be exercised, contingent upon funding availability. The other portion of the original Option No. 3 now identified as Option No. 3B – GCT Concourse 2, is also awaiting funding availability before it is exercised. As the systems designs have progressed, several potential Buy/Ship America compliance issues with contract material and systems equipment have been identified. These potential issues include CCTV equipment, Heating Ventilation and Air Conditioning (HVAC) units, variable frequency drives for motors, door hardware for pressurized doors and DC transfer switches. All

of these potential Buy/Ship America compliance issues are currently under review by MTA to determine if the items are non-compliant and if waiver requests are required.

Design Progress: As of the end of February 2016, there are still two of the required Preliminary Design Review (PDRs) that need to be held. Several Second Design Reviews (SDRs) packages were submitted and meetings to discuss the designs are held as needed. Once each SDR package is approved or commented on, the contractor will progress that system design to the Final Design (FD) stage. As noted in previous reports, the reduction of the backlog of submittal and RFI reviews continues to be an area of focus for the CS179 project team; a problem acknowledged by MTACC. In a continuing effort to mitigate this problem, the ESA CS179 CM advised that the backlog of submittal and RFI reviews continues to be an area of focus for the CS179 project team. The ESA CS179 CM advised that the GEC now has the equivalent of 29 full-time personnel focusing on this area and that the CS179 PMT will continue to work with the GEC to reduce the backlog even further. One additional design problem identified over the past several months is that various facility design issues, are still in the re-design stage with the GEC. The extended length of time being taken to complete these re-designs to produce clarification of design issues by the GEC has already enabled the contractor to assert that it is being delayed.

Construction Progress: During February 2016, the CS179 contractor continued various elements of work (conduit installations, concrete work, temporary power installations, etc.) at the 2nd Ave.; B10; Roosevelt; Vernon; Tunnels B/C and D; Yard Lead Tunnel; 29th St.; Queens Plaza; 39th St. and 63rd St. facilities. The two Stop Work Orders (SWOs) for work in the control rooms at the Vernon and B10 facilities are still in effect. As previously reported, these SWOs were issued because of the design conflict between the room sizes and equipment layouts in the control rooms. The GEC is still working on solutions to this issue and no date was given for the rescinding of the SWOs. Work at the 23rd Street facility remains on hold as a result of an issue with water infiltration through the concrete floor and discussions with the CQ032 contractor regarding this issue continue. No CS179 contract work is underway in Tunnel A, as a “hand-over” inspection from the CQ032 contractor is still required. New work that will start within the next six weeks includes the contract modification repair of concrete at the 2nd Avenue facility; the removal of non-hazardous muck at the Vernon facility; a concrete pad installation in the B10 facility; slab demolition in the Vernon facility; installation of power cable on the LL Track in the tunnels; and the demolition of the pump room in the 12th Street facility.

Queens Contracts:

CQ032 – Plaza Substation and Queens Structures: The MTACC Forecast at Completion for CQ032 increased in January 2016 to \$261,737,072. The MTACC Forecast for Substantial Completion changed to July 6, 2016, from August 23, 2016. ESA reports that contract modification alternatives are being assessed to mitigate schedule impacts due to the vent shaft issue at the 23rd St. Facility. Actual construction progress for January 2016 was 1.0% versus 0.9% planned. Cumulative progress through January 31, 2016, was 95.0% actual versus 95.3% planned.

Construction Progress: During the month of February 2016, the CQ032 contractor continued exterior brickface, interior architectural finishes, and overhead MEP work in the Yard Services Building (YSB). The contractor continued exterior metal cladding and roof work at the Plaza Vent Structure (PVS). The contractor continued Plaza site work, and completed removal of the underpinning supporting the BMT over Northern Blvd. that was installed by a preceding contract

(CQ039). The contractor continued to install fire standpipe in Tunnel A. The construction of duct benches in the Bellmouth continued. The contractor started exploratory excavation work for obstructions at the SW vent shaft of 23rd St. facility. ESA reports the later forecast Substantial Completion date noted above accommodates a project impact from re-design work at the 23rd St. facility.

Harold Interlocking Contracts:

CH053 Contract – Harold Structures Part 1 and G.0.2 Substation:

MTACC's Forecast at Completion for CH053 increased slightly during January 2016 to \$290,360,701 as the contract neared Substantial Completion. The MTACC's previous forecast of February 29, 2016, for Substantial Completion was realized as MTACC declared Substantial Completion on that date. Actual reported construction progress for January 2016 was 0.1% versus 0.0% planned (the project was supposed to be complete by now). Cumulative progress through January 31, 2016, was 96.0% actual versus 100.0% planned (MTACC offered no explanation of this discrepancy in its January 2016 Monthly Report, but the PMOC notes that MTACC reports construction progress on accumulated project cost rather than actual construction).

Construction Progress: During February 2016, the CH053 contractor successfully "cut-in" the C1 12kV electric traction feeder circuit, which Amtrak accepted, thus completing construction of all three traction power circuits. Additionally, the contractor completed construction of retaining walls 39-N2 and 43-N1 and electrical work at the new G02 Substation. As a result, MTACC declared "Substantial Completion" for the CH053 contract on February 29, 2016.

CH057 – Harold Structures Part III:

MTACC's Forecast at Completion for CH057 remained at \$87,870,844 during January 2016. The Substantial Completion date remained at June 19, 2017, for the base contract (this contract has several options which could extend the eventual Substantial Completion date). Actual construction progress for January 2016 was 0.0% versus 0.7% planned. Cumulative progress through January 31, 2016, was 2.0% actual versus 1.4% planned.

Construction Progress: During February 2016, the CH057 contractor mobilized equipment and began test pit excavation for the Tunnel D Approach Structure under the 39th St. Bridge in Harold Interlocking.

CH057A – Part 3 Westbound Bypass:

MTACC's Forecast at Completion for CH057A decreased slightly during January 2016 to \$148,224,988. MTACC extended its forecast for Substantial Completion by 5 days to April 24, 2017. Actual construction progress for January 2016 was 0.6% versus 7.2% planned. Cumulative progress through January 31, 2016, was 30.3% actual versus 94.8% planned.

Construction Progress: During February 2016, the CH057A contractor installed 7 secant piles in the East Approach Structure of the Westbound Bypass, thus completing installation of all 79 secant piles required in that portion of the construction. The contractor also installed 14 soldier piles in the East Approach, for a total of 45 (of 82 required), began excavation in the East Approach, and began to mobilize for excavation in the West Approach. The contractor has not yet been able to achieve the proper water-table drawdown from its de-watering efforts in the West Approach, however. As a result, it installed an additional 5 well points at the site of the

problem in February, but it is too early to determine the impact, if any. The contractor also installed Signal Bridge #16 (thus achieving its Milestone #2) and catenary pole B-929-3/4W during February.

CH057C – 48th St. Bridge and Retaining Wall:

MTACC's Forecast at Completion for CH057C decreased slightly during January 2016 to \$2,759,567. MTACC's forecast for Substantial Completion remained at February 18, 2016. Actual construction progress for January 2016 was 0.0% versus 1.6% planned. Cumulative progress through January 31, 2016, was 79.1% versus 100.0% planned.

Construction Progress: During February 2016, the CH057C contractor completed thermal adjustment of the continuous welded rail (CWR) it had installed in the RPR (Relocated Primary Route) Track and made miscellaneous punchlist repairs. As a result, MTACC declared "Substantial Completion" for the CH057C contract on February 18, 2016.

Railroad Force Account Contracts:

FHA01 – Harold Stage 1 Amtrak:

MTACC's Forecast at Completion for FHA01 remained at \$18,824,861 during January 2016. MTACC extended its forecast for Substantial Completion by one month to September 15, 2019. Actual construction progress for January 2016 was 0.0% versus 0.3% planned. Cumulative progress through January 31, 2016, was 98.8% actual versus 99.7% planned.

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

FHA02 – Harold Stage 2 Amtrak:

MTACC's Forecast at Completion for FHA02 remained at \$60,150,231 during January 2016. The MTACC forecast for Substantial Completion was reduced by two months to December 6, 2020. Actual construction progress for January 2016 was 0.0% versus 0.0% planned. Cumulative progress through January 31, 2016, was 100.0% actual versus 97.8% planned (MTACC did not offer an explanation for this discrepancy in its January 2016 Monthly Report, but the PMOC notes that it reports construction progress based on accumulated project cost rather than actual construction).

Construction Progress: During February 2016, Amtrak Electric Traction personnel continued to relocate wires and appurtenances at the new B-913 catenary pole and installed 3rd rail protection boards at new Signal Bridge 35.

FQA65 – Loop Interlocking Amtrak:

MTACC's Forecast at Completion for FQA65 remained at \$33,287,863 during January 2016. The MTACC forecast for Substantial Completion remained at December 12, 2022. Actual construction progress for January 2016 was 1.4% versus 0.6% planned. Cumulative progress through January 31, 2016, was 16.9% actual versus 57.4% planned.

Construction Progress: During February 2016, Amtrak Signal personnel completed construction of the retaining wall along Loop 2 Track and began to install signal trough behind it. Additionally, they installed cables at the "F2E" signal hut in "F" Interlocking.

FHL01 – Harold Stage 1 LIRR:

MTACC's Forecast at Completion for FHL01 remained at \$24,379,363 during January 2016. The MTACC forecast for Substantial Completion remained at September 19, 2016. Actual construction progress for January 2016 was 0.0% versus 0.0% planned. Cumulative progress through January 31, 2016, was 86.8% actual versus 100.0% planned.

Construction Progress: During February 2016, LIRR Signal personnel continued to install and test signal wires at the new "H1" CIL in Harold Interlocking.

FHL02 – Harold Stage 2 LIRR:

MTACC's Forecast at Completion for FHL02 remained at \$92,932,559 during January 2016. MTACC extended its forecast for Substantial Completion by one month to June 19, 2019. Actual construction progress for January 2016 was 0.8% versus 1.2% planned. Cumulative progress through January 31, 2016, was 83.2% actual versus 88.9% planned.

Construction Progress: During February 2016, LIRR Signal personnel continued to identify, organize, terminate, and make track circuit revisions at the new "H6" CIL and its signal cases in Harold Interlocking. Signal personnel also installed signal conduits at the new "H5" CIL and Signal Bridge 24. LIRR High Tension personnel continued to relocate aerial cables between poles T68 and T69 in preparation for removal of the existing high tension rack at Woodside.

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

ESA Quality Staff: The ESA Quality Manager is looking at all future contracts and reviewing needs against current staff levels. Within the next two months, he plans on determining whether additional quality resources are required.

GEC Quality: The GEC Quality Manager's last day on the project was September 4, 2015. The GEC Program Manager named a replacement in October 2015. The ESA Quality Manager requested that a formal request for approval of this replacement individual be submitted by the GEC. The replacement's resume was received in February 2016 and the ESA Quality Manager approved him. The PMOC has observed the GEC Quality Manager's presentations and actions at Monthly Quality Management Meetings and agrees with the ESA Quality Manager's approval.

CS179 (Systems Package 1 – Base Contract): On November 1, 2015, the ESA Quality Manager conditionally approved a new Quality Manager for the CS179 contractor for a period of 90 days. The new individual has performed satisfactorily and in February 2016, was approved as the contractor's permanent CS179 Quality Manager.

Conditional Assessment Inspections: Every six months, the ESA Quality Manager performs Conditional Assessment Inspections. The plan was to perform conditional assessment inspections on the CQ031 and CQ039 contracts in January 2016, but, other activities took priority. Conditional assessment inspections on both contracts were performed in February 2016. Based on experience gained in performing conditional assessment inspections during the past year, the process used is being reviewed and may be revised.

CM013: A closeout audit on this contract was held on January 12, 2016, to determine whether any quality issues will prevent this contract from closing. There are three (3) open nonconformance reports (NCRs), including one for pipes fabricated in China that were installed

and are now inaccessible. Closure of this NCR awaits resolution between MTACC Legal and the FTA. In addition to the three NCRs that are open, there are thirty (30) open submittals that the Contractor must submit for closure, four (4) contract modifications that must be closed, and Record As-Built drawings that must be resolved with the General Engineering Consultant (GEC). Based on the closeout audit, As-Built drawings will be given a further review and the contractor has been told that all open nonconformance reports must be closed prior to contract completion.

2.0 SCHEDULE DATA

SPECIAL NOTE: For this report covering the period of February 1, 2016 through February 29, 2016, the PMOC's was unable to update any of the information in Section 2.0, Schedule Data, from the previous report for January 2016. The final MTA report to the FTA and the monthly draft IPS were received too late for the PMOC to fully review and incorporate into this report. The cause of this delay is attributed to the ESA's computer system failure that occurred on March 7, 2016 and resulted in an extended system outage that significantly impacted ESA's ability to issue these documents to the PMOC.

ESA submitted its IPS #77, data date January 1, 2016, and its variance report to the PMOC.

ESA's IPS #77 continues to indicate that the Critical Path goes through the procurement of Contract CM007 and then to construction of the structure within GCT, the PMT has provided conflicting information regarding the NTP date and Project Period for CM007. In Section 1, IPS Narrative Analysis, of the IPS #77 under Upcoming Contract Procurement the PMT is listing a NTP of 2/25/16, a Project Period of 50 months and a Substantial Completion Date of 4/6/20. In contracts, in Section 2, CSSR, Table Contracts Status Summary Report, CM007 is being reported with a NTP of 2/16/16, a Project Period of 46 month and a Substantial Completion date of 12/3/19. It is not clear why these variances exist. Previously the PMT reported CM007 had a NTP of 2/3/16, with 43 months for Project Period and a Substantial Completion Date of 7/24/19. The PMT is stating the issuance of Addendum 30 for procurement of CM007 caused the significant change in extended Milestone 7 to an Early finish date of 4/6/20. The PMOC will perform a variance with next month's IPS submission.

The PMOC maintains its opinion that ESA's Manhattan Critical Path has 2 concurrent paths because of the delay in Contract CM006 and its logic tie with Contract CM007. ESA's IPS does not show the logic tie between completion of Milestone #2 in Contract CM006 (completion of all work in lower level of Westbound Cavern) and CM007 access to the lower level caverns. Contract CM006 is scheduled to complete work in the lower level tunnels by May 9, 2016, 99 days later than originally scheduled. It should be noted when the PMT was asked about its analysis of this milestone independent of contractor's opinion the date that was discussed was September 2016.

Additionally, it should be noted that there is another hand-off from CM006 (Milestone #6-Substantial Completion) to Contract CS179 scheduled for November 29, 2016.

After finishing Contract CM007, the ESA Critical Path shifts to Substantial Completion of CS179 work within the Train Operation Center (TOC) and finally through Integrated Systems Testing (IST), Starting, Commissioning and RSD. ESA has a significant number of contracts that are "near critical", which by definition are within 45 days of the Critical Path. These contracts are:

- CM006: Manhattan North Structures (West and Eastern Caverns)
- CH054A: Harold Structures – Part 2A (hand off to CH053);
- CH053: Harold Structures – Part 1 & G.O.2 Substation (hand off to CH057);
- CH057D: Harold Track Work: Cutover 3B (Track A) – Future Contract;
- FHA01/02/03/04: Harold Amtrak Force Account Work (integral with the CH contracts);
- FHL01/02/03/04: Harold LIRR Force Account Work; and
- CS179: System Facilities – Package 1 (IST) – Future Contract (hand off from CM007, via critical path);

Contract CS179, Systems Package 1 – Facilities Systems, also shows significant delays in 10 milestones so far. The PMOC believes that the PMT will need to manage the CS179 contract in a manner consistent with the outcome of the Contract CM007 negotiations based on a full understanding of the complex coordination between the two contracts.

Table 2-1, below shows ESA's upcoming contract procurement schedule:

Table 2-1¹: Future Procurement Schedule

Contract Description	Advertise Date	Bid Date	NTP	Project Contract Period	Substantial Completion
CM007 ² GCT Caverns	12/19/2014 (A)	Technical Proposal: 9/15/2015 (A)	2/16/2016	46 Months	12/3/2019
		Cost Proposal: 10/27/2015 (A)			
CM015 48 th Street Entrance- Rev #3	8/25/2016	10/20/2016	1/3/2017	24 Months	1/3/2019
CQ033 ³ Mid-Day Storage Yard	4/5/2016	6/2/2016	8/1/2016	40 Months	11/19/2019
VQ033 Mid-Day Storage Yard CIL Procurement	8/17/2015 (A)	10/30/2015 (A)	1/19/2016	46 Months	11/19/2019
CH057 48 th Street Bridge / D Pit and Approach Structure	4/7/2015 (A)	7/9/2015 (A)	12/3/2015	29 Months	5/26/2018
CH061A, Tunnel A	3/14/2016	4/22/2016	5/31/2016	16 Months	9/29/2017
VHA04 Procure Materials for Harold Stage 4 - Amtrak F/A (Buy America)	N/A	N/A	1/1/2016	75 Months	3/8/2022

¹ The PMOC notes that the PMT did not update its variance report to reflect the latest changes in its IPS

² CM007's technical bid review date has slipped by 2 months to date, although ESA has held the NTP date for January 1, 2016. Any additional complications in the procurement cycle could potentially cause further time loss and a delay to the NTP date.

³ CQ033 was planned to be awarded by the end of 4Q2015, but is now projected to have a 3 month delay. This will cause a corresponding delay in achieving ESA's first ELPEP cost contingency hold point that has been projected for 4Q2015, and might consequently change ESA's contingency drawdown.

Table 2-2, below, shows important 90 day Look-Ahead milestone schedules:

Table 2-2: Critical Milestones 90 Day Look Ahead (from ESA IPS #77)

Activity ID	Activity Name	Start	Finish	Total Float
CM014B: GCT Concourse and Facilities Fit Out				
CM014B-MS01	CM014B MS01 - TMC/ CC-C5/ CR-C2 Comms. Room & F/O Backbone Route from TMC-CRC2		15-Apr-16	677
CM005: Manhattan South Structures				
CM005-1040	Milestone 4 Complete Balance of Project (Substantial Completion) - MS60 - (February 6 2016)		8-Feb-16	11
CM007: GCT Caverns				
CM007-0160	CM007 Notice of Award		12-Feb-16	92
CM007-1020	CM007 NTP	16-Feb-16		92
CQ033: Mid-Day Storage Yard Facility				
CQ033-1050	CQ033 Ready for Procurement (Sign/Seal)		27-Jan-18	132
CQ033-1060	CQ033 Begin Advertisement	1-Mar-16		56
CH057A: Westbound Bypass Structure (exclude Slab)				
CH057A-5580	CH057A Milestone 2 - Signal Bridge 16		14-Feb-16	-20



3.0 COST DATA

Funding: The MTA funding request for the 2015-2019 Capital Program was submitted to the NYS Capital Program Review Board (CPRB). ESA will need to obtain funding from this program to award all the options in the CS179 contract and to award the CM007, CQ033, and CH058 contracts. The \$10.178 billion (not including the \$463 million Rolling Stock Reserve) budget, presented to the Capital Program Oversight Committee (CPOC) in June 2014, will make the need for additional funding even greater. Until new funding is provided, the project has a funding shortfall of approximately \$2.6 billion, and is part of the un-funded MTA Budget. In late October 2015, the MTA presented a \$29 billion program to its Board for the 2015 – 2019 funding cycle. Although an agreement has been reached with the Governor, the Capital Plan funding had not been appropriated to the ESA project as of January 31, 2016. The ESA CS 179 CM indicates that Option 3B is awaiting available funding before it can be exercised. In early January 2016, ESA was given an interim funding allocation of approximately \$941 million in 2015 – 2019 funds, of which \$748 million was for CM007. Funding will also cover the award of VQ033, forecasted overruns on Active 3rd Party contracts (excluding CH057A), CS179 Options expiring by June 2016, OCIP, cash flow needs through June 2016 for Force Account, Management, and Utilities, and additional real estate and utility relocation issues. Contract deferrals were also required in order to balance to available funding (new awards including Mid-Day Storage, Tunnel A, 250 Hz Track, Cab Simulator, Harold Stage 4, portion of CS179 Option 2B, etc.)

Budget/Cost: The ESA January 2016 Progress Report shows that the total project progress was 60.9% versus 62.2% planned against the Current Baseline Budget (CBB) of \$10.178 billion. Total construction progress was 60.9% versus 62.9% 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 Feb 2021 completion date rather than ESA’s announced target of 2020 for Early Revenue Service. As a result, the “Planned Value” of construction will be lower than that required to sustain the current ESA Target completion date at any particular time. Based on the cash flow report from ESA, construction progress is 89.6% of what was planned since the rebase lining in 2014. Given the above, this suggests that MTACC’s probability of making its projected Revenue Service Date (RSD) is low.

After discussion at several Monthly Cost Review meetings, the PMOC and ESA established that the ESA Planned Cash Flow Chart is based on expenditure of the full budget, with the exception of the project reserve, which is not what ESA plans to do. Consequently, “pay outs” will continue until all contingencies are spent and will not be related to the Plan or the Schedule. The PMOC does not regard that as a proper Cash Flow chart because it shows Planned Progress as lower than it is scheduled to be. The PMOC suggested that ESA update its Cash Flow chart to

align it with planned construction progress and completion dates, but, to date, ESA has not yet made these changes.

Several significant items were discussed at the Monthly Cost Review meeting of February 24, 2016. ESA indicated that the cost at completion of CM005 would allow transfer of \$7 million to contingency. They also indicated that their ongoing (not yet completed) Force Account Forecast study will reveal that budget adjustments on the order of \$50 million will be required for Access & Protection and Amtrak/LIRR Direct Stage 2 work. In addition, their ongoing Harold Schedule Status update will likely result in the transfer of work from Amtrak FA to 3rd Party contracts. Finally, a reduction of \$210.5 million in Project wide Reserve is forecast between December 2015 and January 2016. The largest parts of this reduction are due to OCIP costs through April 2021 (\$180 million), Management costs through February of 2021 (\$70.5 million), and a forecast reduction of the overall CM007 cost by \$58 million based on the anticipated award to Tudor Perini. The PMOC will examine the cost details of the CM007 Contract award when they are made available by ESA.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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

[REDACTED]

[REDACTED]

[REDACTED]

Change Orders/Budget Adjustments: The PMT reported that, during 4Q2015, nine (9) construction Change Orders over \$100,000 were executed and four (4) design Change Orders were executed with the GEC for a total of \$860,000.

4.0 RISK MANAGEMENT

The last monthly risk meeting held by ESA was in January 2015. Since that time, ESA has not succeeded in addressing the risk topics as they had planned during the subsequent monthly cost and schedule review meetings. In response to the PMOC’s request, ESA had planned to resume the dedicated monthly risk meetings in October 2015, but this did not occur because the newly assigned Risk Manager resigned in October 2015. The PMOC is concerned that the risk management area has not been adequately supervised since the re-assignment of the previous Risk Manager nearly seven months ago. ESA identified the new Risk Manager in December 2015 and he started work on the project in January 2016. Regularly scheduled risk meetings had been planned to resume in February 2016 but this been postponed to March 2016 due to ESA staff commitments.

As noted previously, MTACC has not yet provided the FTA or the PMOC with the May 2015 draft risk report for Contract CM007 (GCT Caverns and Track). The MTA Board’s approval of Contract CM007 on January 27, 2016, has effectively provided closure on most of the previously identified bid/market risk. The PMOC recommends release of the draft report to assist the PMT in developing the package level register of remaining risks. Some progress in this area is noted based on the Feb 24, 2016, interim risk review of the original risk register from the 2015 risk workshops. The PMOC notes, however, that MTACC is still negotiating the BAFO schedule and the PMOC is concerned regarding the outcomes of the negotiations and potential impact on

contract duration. If the agreed duration is increased from the MTA approved 44 months, there will likely be a cost impact.

Based on long standing issues and concerns regarding Amtrak's ability to provide sufficient force account support to the ESA project, especially Electric Traction (ET) resources, ESA completed a Harold schedule re-sequencing in December 2014, also known as "ESA First," that advances work elements required for the new LIRR service to GCT and delays the FRA funded High Speed Rail (HSR) work beyond 2017. Railroad construction work prior to development of the "ESA First" schedule was also falling behind schedule due to the overall delays to much of the Harold work. On September 16, 2015, FRA approved the MTA-generated grant amendment which will provide the basis to extend the funding. MTACC continues to work with the FRA to have the funding appropriation extended.

The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to harden ERT Lines 3 and 4 in preparation for extended outages for ERT Lines 1 and 2 to complete Hurricane Sandy damage-related reconstruction work, earlier scheduled to commence in 2018, but now planned for 2019. Amtrak has not yet provided any specific details about the ERT Lines 3 and 4 hardening work, but there is concern that significant Amtrak Force Account resources will be needed to support the hardening work, which could further reduce the Amtrak resources available to support the ESA Harold Re-Sequencing Plan. There is also concern that track outages required for the hardening work may conflict with ESA needs to support the planned Harold work. Delays in completing work as scheduled in the Harold Re-Sequencing Plan may result in essential ESA work being pushed back into the timeframe for Amtrak's extended outages for ERT Lines 1 and 2. The PMOC notes, however, that in early November 2015, ESA advised the PMOC that Amtrak is leaning toward closing ERT Line 2 first in 2019. Although this represents a delay from the earlier 2018 forecast time frame, the selection of Line 2 to close first does support the current ESA Harold schedule. The PMOC expects that any Amtrak commitments in this area will be reflected in the revisions to the 2014 "ESA First" Harold Schedule Re-sequencing discussed below.

With regard to the implementation of the "ESA First" Harold Re-sequencing of late 2014, the PMOC notes that Amtrak has not been able to provide even the reduced level of force account resources that was planned in support of the schedule. Additionally, the projected force account costs are trending noticeably higher than planned and the force account contingency budget line item is nearly depleted. ESA is currently engaged in a comprehensive study to identify and evaluate the reasons for the appearance of this situation and to make recommendations. The study had been expected to be completed in January of 2016, but the PMT now anticipates completion in March 2016. The study results will also be the basis for a revision to the 2014 "ESA First" Harold Schedule Re-sequencing.

5.0 ELPEP COMPLIANCE SUMMARY

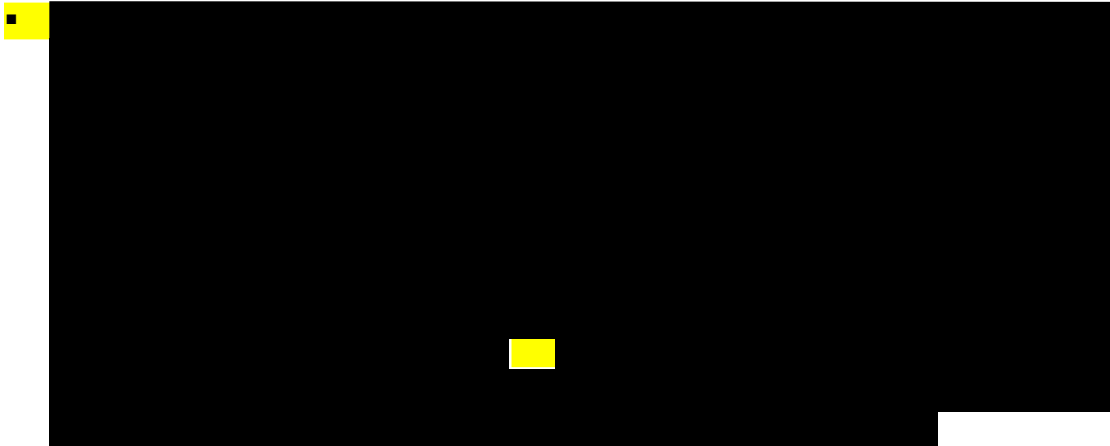
The current status of each of the remaining main ELPEP components is summarized as follows:

- **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 or are deficient: Management Decision; Design Development; Change Control Committee (CCC) Process and Results; Stakeholder Management; Issues Management; Procurement; Timely Decision Making; and Risk-Informed Decision Making. The PMOC is particularly concerned about the effectiveness of the risk management process since June 2015 due to the staffing change at that time and the lack of continuity of leadership because the ESA Risk Manager position was vacant from October 2015 through early January 2016. The PMOC does note, however, that the new ESA Risk Manager has been actively working to status and update the risk management process since January 2016.
- **Project Management Plan:** The PMOC completed its review and evaluation of the MTACC's revisions and responses and submitted its findings to FTA-RII in 4Q2014. The 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 required to complete this process.

The PMOC notes that, since June 2013, the ESA project has continued to be non-compliant with ELPEP and is not meeting some of the more important requirements of the Schedule Management Plan (SMP) and Cost Management Plan (CMP) sub-plans to the PMP. The PMOC's opinion is that this continues to be a serious deficiency and needs to be resolved as soon as possible. The PMOC's major areas of concern include:



- **Schedule Management Plan (SMP):** The ESA project remains non-compliant with requirements for Integrated Project Schedule (IPS) Updating, Forecasting, and Schedule Contingency Management against a current baseline schedule. Given that the new budget and schedule are in place, the PMOC expected that the MTACC would start to meet the requirements set forth in its SMP in the above-referenced areas. The revised SMP was submitted on October 26, 2015, and the PMOC will provide its review results in March 2016.
- **Cost Management Plan (CMP):** The ESA project remains non-compliant with requirements for Project Level EAC Forecasting, Project Level EAC Forecast Validation, and MTACC Cost Contingency Management and Secondary Mitigation. Given that the new budget and schedule were presented to the MTA CPOC in June 2014, these requirements should have been met by now, but MTACC has not made significant progress in this area. MTACC provided an initial draft of the revised CMP on December 15, 2015, and the PMOC is currently reviewing this draft.

Revisions to the ELPEP Document: As part of the process of updating the ELPEP document, the PMOC has performed an independent evaluation of the minimum required cost and schedule contingencies going forward. The PMOC’s recommendations were presented at several meetings with the MTACC. On January 15, 2016, MTACC and the ESA PMT accepted the FTA/PMOC proposed ELPEP minimum cost contingency hold point values. In conclusion, MTACC has accepted the FTA/PMOC recommended ELPEP cost and schedule contingency hold points, values and curves for the remainder of the program. The PMOC is working on a draft revision to the ELPEP document that reflects these agreements.

The next ELPEP Quarterly Review Meeting with the MTACC, FTA-RII, the SAS and ESA projects and the PMOC had been scheduled for January 21, 2016, but is now rescheduled for March 3, 2016.

6.0 SAFETY AND SECURITY

Table 6-1, below, shows the ESA Lost Time and Recordable injury ratios through January 31st for CY2016. The PMOC developed this table to demonstrate the effectiveness of ESA’s most recent safety efforts rather than its cumulative safety record, which it includes in each of its monthly reports. The PMOC believes that this provides a more accurate measure of ESA’s current safety performance than the cumulative record does.

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

	Lost Time Ratio	Recordable Ratio
2015 BLS Ratio (used by OSHA) (2016 BLS Ratio (used by OSHA)	1.80	3.20
ESA January 2016 Ratio	0.57	2.84
ESA CY2016 Ratio	0.57	2.84
ESA Reported Ratio	1.96	ESA does not

(Cumulative since beginning of project)		report cumulative Recordable Injury Rates
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Additionally, the ESA PMT did not report any significant security issues in its January 2016 Monthly Progress Report.

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 and the creation of new packages has made finalizing design documents and drawings very challenging and time consuming. The PMOC continues to recommend that the PMT develop a design milestone tracking sheet for the remaining design work on the project.

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

Contract CS179: As previously noted, the PMOC is concerned that, because the equipment and material designs are still incomplete, Buy/Ship America compliance issues continue to be identified. The design work needs to be completed soon to ensure that all equipment and material, both compliant and potentially non-compliant, is identified in a timely manner to provide time to address any Buy/Ship America issues that might impact the CS179 and overall ESA project schedule.

The PMOC remains concerned about the numerous water infiltration issues in the equipment rooms that are now being identified and the solutions that need to be developed and implemented to provide permanent mitigation of the water infiltration in rooms with electronic equipment. Previous attempts to mitigate the problem by grouting cracks in the concrete floor slabs have not worked and other solutions need to be quickly identified and implemented to preclude contract schedule slippage.

Contract CS084: The PMOC remains concerned about the revised design for the ventilation duct/equipment hatch interference at the Vernon substation and whether this design will be acceptable to the LIRR when the time for inspection, commissioning, and facility acceptance arrives. The ESA CS084 CM needs to ensure that any revised designs that are implemented meet with the approval of LIRR; with special consideration for possible long-term maintenance issues for the LIRR. The PMOC continues to encourage the ESA CS084 CM to quickly resolve any outstanding design comments on the C05 and C08 substations so that the final designs for these facilities can be approved and other substation designs can progress.

The PMOC remains concerned about the numerous water infiltration issues in the equipment rooms that are now being identified and the solutions that need to be developed and implemented to provide permanent mitigation of the water infiltration in rooms with electronic equipment. Previous attempts to mitigate the problem by grouting cracks in the concrete floor slabs have not

worked and other solutions need to be quickly identified and implemented to preclude contract schedule slippage.

Contract CH057A: The CH057A contractor completed installation of all 79 secant piles and continued installation of soldier piles in the East Approach Structure of the Westbound Bypass during February 2016, which alleviated the PMOC’s concern about that issue. The PMOC remains concerned that the contractor has not been able to achieve its desired water-table depth in the West Approach, however, which it needs to achieve before it can begin its “jacked shield” excavation of the Bypass tunnel. Although the contractor has taken the necessary steps to remediate the problem, it is too early to determine if the installation of the 5 additional well points during February 2016 will be sufficient to do so. The contractor continues to monitor the situation on a daily basis, however, and is prepared to take appropriate steps to achieve the desired water depth. As it continues these efforts, the contractor will also begin to transport its “jacking shield” to the job site in anticipation of beginning its excavation in early May 2016.

Contract CM006: The PMOC remains concerned that the CM006 contractor continues to fall behind its construction schedules. Although MTACC and the contractor are presently negotiating changes to the CM006 contract to mitigate its impact on the CM007 contract, nonetheless to date the CM006 contractor has not provided realistic contract schedules that could be relied upon. As a result, its impact on the CM007 contract cannot be forecast. Consequently, the PMOC recommends that MTACC and the CM006 contractor continue to work together to develop realistic construction schedules.

Contract CM007: The PMOC had earlier expressed concern that the technical/schedule proposal due date was delayed a total of 4.5 months and the cost proposals were delayed an additional 3 weeks. This significantly reduced the time for negotiations on this very large contract that is currently on the program schedule critical path. MTACC was not able to meet its original planned award date prior to December 31, 2015. However, MTACC was successful in expediting completion of the initial stages of the negotiating process and the MTA Board approved the CM007 contract on January 27, 2016. Because the project critical path includes a significant portion of the CM007 work, the PMOC remains concerned about the schedule impacts of the delayed award and NTP for the CM007 contract. The actual incurred delay is now two months and the contract is not yet awarded as of February 29, 2016. Award is now pending final completion of the BAFO schedule. Delay to project critical path will now be greater than two months. Because MTACC is still negotiating the BAFO schedule, the PMOC is concerned regarding the outcomes of the negotiations and potential impact on contract duration. If the agreed duration is increased from the MTA approved 44 months, there will likely be a cost impact.

Project Funding: As stated in the Risk Management section below, the PMOC believes that the timing and availability of funding presents a significant schedule risk to the project. The timing of funding has already impacted the CS179 package (that was restructured with options due to concerns regarding funding availability) and the CM007 procurement that was delayed to the 1Q2016 for award and Notice to Proceed. The PMOC does note that MTACC is fully aware of this situation and the critical role that funding serves in the successful completion of the project. MTACC continues to work closely with the MTA finance group and keeps the FTA up-to-date on developments and issues. The PMOC previously recommended to the ESA Project Controls Group that a funding needs projection be developed along with the cash flow projection to assess

the risks to the project should funding not be available in the necessary time frame. ESA has the information to develop a basic funding needs projection and has been working with the PMOC to develop a forecast tool to assist in evaluating funding risk at a more detailed level. The PMOC notes that MTA has been successful in arranging funding to continue work. In early January 2016, ESA was provided an interim funding allocation of approximately \$941 million in 2015-2019 funds consisting of \$777 million for CM007 and funding for support costs and program management through 2016. Budget adjustments will be implemented to provide sufficient funds to progress CS179 Options, award new contracts and support the railroads' Force Account work.

Project Budget:

ESA did not adequately budget the CM014B package and has used significant cost contingency to cover the contract award amount. The PMOC remains concerned about the adequacy of remaining cost contingency to address major risks detailed in the Risk Management discussion below. The PMOC notes that the project's use of unallocated cost contingency continues to be significant, and the rate at which the Forecast cost increases continues to accelerate. The PMOC has noted to ESA that its analysis shows the Forecast cost to be approximately \$100 million higher than ESA's, and thus causes the remaining Unallocated Contingency to remain below what will be required to complete the project per the ELPEP agreements.

Project Schedule: The PMOC is concerned about the overall state of the ESA schedule, specifically Manhattan and Systems contracts. ESA does not follow its Schedule Management Plan in a number of areas, as noted in Section 5.0 of this report. The SMP update to reflect candidate revisions was submitted in October 2015. Furthermore, the PMT has not yet developed a plan to mitigate its problems with CM007 schedule logic. [See Special Note in Section 2.0, Schedule Data]

Risk Management: In the PMOC's opinion, funding availability continues to be a significant risk on the ESA project. Funding uncertainty has already resulted in the following:

- PMT's delay of the CM007 contract award until 2016 due to budget constraints; and
- The restructuring of the CS179 contract by splitting it into a base contract with seven options, based predominately on access restraints imposed by the CM006, CM007, and CM014B packages. This will significantly increase the construction contract interface risks.

This segmentation of construction packages has created multiple inter-contract interfaces and milestones. In the PMOC's opinion, the probability of successfully achieving all of them is low, and leads to the possibility of a ripple effect of delays and coordination difficulties between contracts. There is very limited opportunity, at best, for the contractors to make up any of the time lost to interface delays due to work site time and access constraints. Should delays start to accumulate, recovery will likely not be possible. Managing inter-contract handoffs and interfaces will be challenging and represents significant MTACC-retained risks. Some of the schedule risks have now been realized because funding was not in place to fully exercise the three options in the CS 179 contract package that were scheduled for November 6, 2015 another option in January 2016. As noted in an earlier PMOC report, the Options exercised in November 2015, as scheduled, are Option Nos. 2A, 6, and 7. The other portion of the original Option No. 2, now designated "No. 2B - Manhattan Work", must still be exercised, contingent upon funding

availability. The other portion of the original Option No. 3, scheduled for January 2016, now identified as Option No. 3B – GCT Concourse 2, is also awaiting funding availability before it is exercised. Access Restraints in the CS179 Contract are correlated to the contract options and the CS179 Contract will also have multiple interfaces with the future CM007 Contract. Given that this work is on the project critical path, delays in awarding the options will result in the use of program schedule contingency.

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

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

- Program Funding;
- Successful execution of dozens of hand-off interfaces across multiple contracts;
- Contractor access and work area coordination in Manhattan;
- Duration of integrated systems testing;
- Continued availability of adequate Amtrak and LIRR force account resources [increasing risk trend noted in 3Q and 4Q2015]; and
- Continued availability of required track outages in Harold Interlocking.

The PMOC notes that, although MTACC has actively engaged Amtrak to develop some specific mitigations for the last two risks and continues to work on strategies for mitigating many of the other identified risks, continued shortcomings in provision of adequate force account resources threaten to adversely impact the current Harold schedule and may cause 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 essential to completion of the project.

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
CPOC	Capital Program Oversight Committee
CPP	Contract Packaging Plan
CPR	Contractor Proposal Request
CPRB	Capital Program Review Board
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
ERT	East River Tunnel
ESA	East Side Access
ET	Electric Traction
FA	Force Account
FFGA	Full Funding Grant Agreement
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCT	Grand Central Terminal
GEC	General Engineering Consultant
HSR	High Speed Rail
IEC	Independent Engineering Consultant (to MTA)
IFB	Invitation for Bid

IPS	Integrated Project Schedule
IST	Integrated System Testing
LIRR	Long Island Rail Road
MOD	Contract Modification
MNR	Metro-North Railroad
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority Capital Construction
N/A	Not Applicable
NTP	Notice to Proceed
NYAR	New York and Atlantic Railroad
NYCT	New York City Transit
PAC	Pneumatically Applied Concrete
PDR	Preliminary Design Review
PEP	Project Execution Plan
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PMT	ESA Project Management Team
PQM	Project Quality Manual
PVS	Plaza Vent Structure
PWE	Project Working Estimate
QA	Quality Assurance
RAMP	Real Estate Acquisition Management Plan
RFI	Request for Information
RFP	Request for Proposal
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
SSMP	Safety and Security Management Plan
SWO	Stop Work Order
TCC	Technical Capacity and Capability
TELP	Temporary Eastbound LIRR Passenger
WBY	Westbound Bypass Tunnel
YSB	Yard Services Building

APPENDIX B – TABLES

Table 1: Summary of Critical Dates

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

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

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

Table 2: Project Budget/Cost Table

	FFGA			MTA's Current Baseline Budget CBB		Expenditures	
	(Millions)	(% of Grand Total Cost)	Obligated	(Millions)	(% of Grand Total Cost)	(Millions)	(% of CBB)
Grand Total Cost							
	\$1,036	14.0%	\$617	\$1,036.0	9.24%	\$617.6	59.61%
Total Project Cost	\$6,350	86.0%	\$4,107	\$10,178.0	90.76%	\$6,051.3	59.45%
Federal Share	\$2,683	36.3%	\$1,148	\$2,699.0	24.07%	\$2023.9	74.99%
5309 New Starts share	\$2,632	35.6%	\$1,098	\$2,436.6	21.73%	\$1,761.8	72.31%
Non New Starts grants	\$51	0.7%	\$50	\$67.0	0.60%	\$66.7	99.55%
ARRA	0	0.0%	0	\$195.4	1.74%	\$195.4	100.0%
Local Share	\$3,667	49.6%	\$2,959	\$7,479.0	66.69%	\$4,027.4	53.85%

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

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (January 2016)	Actual Awards (December 2015)	Paid to Date (January 2016)	Actual % Budget Paid
Construction	\$7,379,296,706	\$7,433,486,349	\$5,613,109,653	\$4,390,572,647	59.06%
Soft Costs Subtotal	\$2,798,474,304	\$2,744,284,661	\$1,697,572,197	\$1,660,738,071	60.52%
Engineering	\$720,615,810	\$722,491,293	\$671,210,711	\$659,244,961	91.25%
OCIP	\$282,613,620	\$282,613,620	\$210,470,653	\$210,150,692	74.36%
Project Mgmt.	\$972,168,644	\$972,168,644	\$699,529,200	\$676,725,362	69.61%
Real Estate	\$182,076,230	\$179,080,316	\$116,361,633	\$114,617,056	64.00%
Rolling Stock	\$202,000,000	\$202,000,000	\$0	\$0	0.00%
Management Reserve	\$439,000,000	\$385,930,788	\$0	\$0	0.00%
Project subtotal w/o Financing & RI	\$10,177,771,010	\$10,177,771,010	\$7,310,681,850	\$6,051,310,718	59.46%

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 (YOE \$) M	June, 2014 Re-Plan (YOE \$)	November 2015 SSC (YOE \$) M	December 2015 SSC (YOE \$) M	January 2016 SSC (YOE \$) M	January 2016 % of Re-Plan	Nov '15 to Jan '16 Change \$ M	CBB Variance from FFGA %
10	1,989	3,405	3,422	3,422	3,419	100.41%	-3	71.90%
20	1,169	2,238	2338	2,338	2,338	104.47%	0	100.00%
30	356	474	474	474	472	99.58%	-2	32.58%
40	205	611	593	593	593	97.05%	0	189.27%
50	619	606	565	566	566	93.40%	1	-8.56%
60	165	220	219	218	217	98.64%	-2	31.52%
70	957	210	210	210	210	100.00%	0	-78.06%
80	1,184	1,975	1,975	1,976	1,977	100.10%	2	66.98%
90	169	439	382	385	386	87.93%	4	128.40%
Subtotal	6,813	10,178	10,178	10,178	10,178	100.00%	0	49.39%
100	1,036	1,036	1,036	1,036	1,036	100.00%	0	0.00%
Total Project Cost (10 – 100)	7,849	11,214*	11,214*	11,214*	11,214*	100.00%	0	42.87%

*This total amount does not include Regional Investment amount of \$758,260,953.
 Note: Sum of rounded values for current month is less than actual summed value.

Reasons for Changes to SCC Code:

- 10: \$818,195 reduction due to the CQ039 closeout and BMT transfer to CQ032.
- 60: \$1,218,414 reduction due to funding the design of the 48th St. Entrance with Real Estate funds.
- 80: \$1,218,414 increase due to funding the 48th St. Entrance with RE funds.
- 90: \$719,978 increase due to the CQ039 close out and the BMT transfer to CQ032.
- Misc. Changes of \$98,217 to SCC codes 30 & 40 due to the CQ039 closeout and BMT transfer.

Table 5: Quarterly ESA Planned Cash Flow- Actuals to Date and Actuals Remaining (as of 4Q2015)

Quarter/year	Construction \$(000)	Engineering \$(000)	OCIP \$(000)	Project Mgmt. \$(000)	Real Estate \$(000)	Rolling Stock \$(000)
Paid To Date	3,660,194,771	646,377,892	155,604,955	580,041,291	112,634,547	0
Remaining	3,719,144,273	74,237,918	127,008,665	392,127,353	69,441,683	202,000,000
3Q2014	209,340,620	-3,311,163	4,774,951	16,667,454	0	0
4Q2014	168,280,817	-3,290,689	4,774,951	16,667,454	75,948	0
1Q2015	134,568,200	-3,183,384	4,619,246	16,123,950	4,506,241	0
2Q2015	147,357,357	-3,290,689	4,774,951	16,667,454	4,658,137	0
3Q2015	169,688,509	-3,290,689	4,774,951	16,667,454	4,658,137	0
4Q2015	201,239,698	-3,290,689	4,774,951	16,667,454	4,658,137	0
Remaining Planned	2,688,669,072	93,895,222	98,514,666	292,666,131	50,885,083	202,000,000
Remaining Actual	3,001,511,940	61,678,387	72,462,928	300,956,037	67,459,174	202,000,000
1Q2016	193,275,933	-3,219,153	4,671,147	16,305,118	4,556,873	0
2Q2016	180,854,738	-3,290,689	4,774,951	16,667,454	4,658,137	8,666,545
3Q2016	181,988,455	-1,983,850	4,774,951	16,652,320	4,658,137	13,070,855
4Q2016	214,173,807	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2017	210,556,624	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2017	199,737,103	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2017	189,382,506	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
4Q2017	182,084,699	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2018	174,210,593	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2018	170,524,739	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2018	168,497,619	6,728,414	4,774,951	15,971,281	4,658,137	14,014,767
4Q2018	155,245,094	6,728,414	4,774,951	15,971,281	50,632	14,014,767
1Q2019	148,441,548	6,509,009	4,619,246	15,450,479	0	13,557,764
2Q2019	110,893,994	6,728,414	4,774,951	15,971,281	0	14,014,767
3Q2019	93,559,944	6,728,414	4,774,951	15,971,281	0	14,014,767
4Q2019	71,649,848	6,728,414	4,774,951	15,971,281	0	14,014,767
1Q2020	20,704,406	6,582,144	4,671,147	15,624,080	0	5,043,553
2Q2020	11,682,057	6,728,414	4,774,951	15,971,281	0	943,912
3Q2020	7,573,078	2,267,183	4,947,825	5,381,627	0	0
4Q2020	2,750,374	0	5,035,679	0	0	0
1Q2021	881,913	0	3,256,771	0	0	0
2Q2021	0	0	0	0	0	0
3Q2021	0	0	0	0	0	0
4Q2021	0	0	0	0	0	0
BL Subtotal	3,719,144,273	74,237,918	127,008,665	392,127,353	69,441,683	202,000,000

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

Standardized Cost Category	FFGA	May 2012 Re-Baseline	June 2014 Re-Plan	Awarded Value (4Q2015)	Paid To Date (4Q2015)
10- Guideway & Track Elements	\$1,513,998	\$2,943,165	\$3,405,463	\$2,836,785	\$2,186,476
20- Stations, Stops, Terminals, Intermodal	\$1,168,655	\$1,513,998	\$2,238,235	\$1,640,951	\$1,193,792
30- Support Facilities, Yards, Shops, Admin Buildings	\$356,264	\$384,583	\$474,177	\$209,674	\$206,219
40- Site Works and Special Conditions	\$205,105	\$491,341	\$610,570	\$446,115	\$450,053
50- Systems	\$619,343	\$698,296	\$605,592	\$424,472	\$298,417
60-ROW, Land, Existing Improvements	\$165,280	\$203,639	\$219,397	\$153,283	\$151,938
70- Vehicles	\$493,982	\$674,372	\$209,938	\$7,838	\$5,549
80- Professional Services	\$1,184,000	\$1,648,606	\$1,975,398	\$1,578,971	\$1,540,301
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Sub-Total	\$6,349,900	\$8,708,000	\$10,177,771	\$7,298,089	\$6,032,745
Estimated Financing Cost	\$1,036,100	\$1,116,000	\$1,036,000	\$617,607	\$617,607
Total	\$7,386,000	\$9,824,000	\$11,213,771	\$7,915,696	\$6,650,352

Table 7: ESA Core Accountability Items

Project Status:		Original at FFGA	Current*	ELPEP **
Cost	Cost Estimate	\$7.368 billion	\$10.178 billion	\$8.119 billion
[Redacted Content]				

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

[REDACTED]

[REDACTED]