PMOC MONTHLY REPORT

East Side Access (MTACC-ESA) Project

Metropolitan Transportation Authority

New York, New York

Report Period April 1 – April 30, 2018

PMOC Contract No. DTFT60D1400017

Project No. DC-27-5287, Task Order No. 0002, Work Order No. 06

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

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Third Party Disclaimer

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EXECUTIVE SUMMARY

This summary highlights key events and important issues for the current month.

Overall Program Status:	The current Overall Program is 76.5% complete versus 80.0% planned (based on invoice cost).
Construction Status:	The Construction Status is 76.9% complete versus 81.8% planned (based on invoice cost).
Contracts Awarded/Completed:	CH057D was awarded on April 12, 2018 with concurrent NTP.
Construction Progress Issues:	CM014B, CS084, VS086
Program Funding:	MTA announced the need for additional $956 million in local funding; details pending.
Program Cost and Budget:	(b)(4) [redacted]
Integrated Project Schedule:	Revised forecast target RSD remains May 2021.
Risk Management:	The Accelerated Amtrak Penn Station Program, Jan. 2018-May 2018 minimal impact; risks to date mitigated; 10 major risks remain.
Harold Interlocking:	Completed 2 signal test pre-cutover weekends during April 2018, bringing total completed weekends to 6 of a total of 10. Testing remains on schedule for a cutover start in June 2018.
Key Stakeholder Issues:	LIRR –Late resolution of CS179, CS084, and VS086 issues. Amtrak – Continuing Force Account availability issues; Electric Traction at historically lowest availability; and MTACC - Change Order processing issues, GEC CPS support for Contractor Submittals, redesigns, RFIs, and Field Conditions.
Construction Safety:	0.0 - Lost Time and 0.0 - Recordable Injuries during March 2018.
ELPEP Compliance:	No issues.
Project Management Plan:	No issues.

Key Event – MTACC announcement of results of their review of the ESA Program:

On April 23, 2018, MTACC announced the results of its comprehensive review of the ESA program. This is a significant achievement for the MTACC and is the culmination of a full year's effort since the FTA and PMOC were notified of the review at the May 9, 2017 FTA Quarterly Review Meeting. MTACC's presentation to the MTA CPOC committee touched key areas and provided a high level summary of cost and schedule changes. Specifically, the project team is forecasting a cost increase of $956 million, increasing the EAC from $10,178 million to $11,133 million, and that ESA will achieve its public commitment to start revenue service in December 2022 (the target RSD will move 9 months from May 2021 to February 2022). The program critical path has shifted from Harold Interlocking to the Manhattan/Systems path that experienced an 11 month delay. The PMOC anticipates receiving the details that support the findings that were presented in order to perform an independent analysis. Until such time as the data is received and analyzed, the PMOC will continue using only the usual reports and data that MTACC provides each month.

All Project Sponsor cost and schedule data included in this report is based on the MTACC East Side Access February 2018 Monthly Progress Reports, referenced in this report as the ESA

February 2018 MPR, which has a cost and schedule data date of March 1, 2018. Unless otherwise noted, all progress percentages in this report are based on invoiced costs, not actual construction.

Report Format and Focus

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60D1400017, Task Order No. 0002. Its purpose is to provide information and data to assist the FTA as it continually monitors the Project Sponsor's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the Project Sponsor continues to be ready to receive federal funds for further project development.

This report covers the project management activities on the East Side Access (ESA) Mega-Project managed by MTA Capital Construction (MTACC) with MTA as the Project Sponsor and financed by the FTA FFGA. The PMOC notes that the FFGA Amendment was fully executed with MTA's sign-off on August 2, 2016. The amended FFGA incorporates the changes in the Baseline Cost Estimate and Revenue Service Date that have occurred since 2006 when the original FFGA was signed.

MONITORING REPORT

1.0 PROJECT STATUS

a. Engineering Design and Construction Phase Services

The ESA February 2018 MPR shows that the overall Engineering effort is 97.9% complete as compared with the planned completion of 100% and that 98.1% of the overall EIS and Engineering budget has been invoiced, including the Design budget, of which 98.3% has been invoiced.

Status of Construction Packages Advertised

CS086 Tunnel Systems Package 2 – Signal Installation: The April 20, 2018, NTP was missed. It is anticipated that the NTP will be issued after the May 23, 2018, MTA board meeting.

CH057D, Harold Trackwork: Award/NTP for this contract was issued on April 12, 2018.

CH058A Harold Structures Part 3A, B/C Approach Structure, was not advertised as planned on April 12, 2018.

Status of Construction Packages Not Awarded

CM015 – 48th Street Entrance: Design work remained suspended through April 2018. MTA has notified the building owner that construction of the 48th St. Entrance has been deferred. MTACC-ESA is developing an alternative LIRR GCT entrance at 47th Street and has approved the associated GEC contract modification. MTACC-ESA is preparing a Technical Memorandum for the FTA.

CH058A, Harold Structures – Part 3A, B/C Approach, will include construction of the Tunnel B/C approach structure and demolition of the existing LIRR G02 Substation. Bid package preparation continued through April 2018. The contract was not advertised as previously forecast on February 28, 2018, and is now expected to be advertised in early May 2018 with a target NTP by August 31, 2018.

FQA33A, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for west end yard access to the Amtrak mainline through a connection from Sub 4 to Line 2. All yard exit options are presently being considered by ESA, Amtrak, and LIRR. The design package has been completed with incorporated LIRR review comments. Amtrak raised five earlier 90% design review issues that had not been satisfactorily resolved and did not provide its design concurrence in April 2018. This will be the only exit route from the MDSY that will be provided under the ESA Program.

FQA33B, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for a second west end yard access to the Amtrak mainline through a connection from Sub 3 to Line 4. The 100% design package remains temporarily on hold pending finalization and approval of the Sub 4 to Line 2 connection, the primary exit, to be built under FQA33A (see above). The second exit route will be constructed by Amtrak after Contract CQ033 completes the MDSY and upon arranging the funding source.

FQL33, Mid-Day Storage Yard Facility – LIRR F/A, provides LIRR force account construction support for CQ033. LIRR has returned comments on the 100% design package that included some revisions to the ET work package. The GEC incorporated the LIRR comments and returned a revised submission to LIRR in April 2018.

Positive Train Control: The MOU between MTACC and LIRR for the implementation of Positive Train Control (PTC) on ESA was executed and the Technical Concurrence Document has been agreed upon by MTACC and LIRR.

- LIRR had been expected to complete the PTC design by March 31, 2018, but this was not achieved. MTACC now reports that LIRR will not complete the PTC design until later in 2018.
- The GEC has prepared initial scoping of design modifications to Contracts CS179, VS086, and CS086, which will provide for the LIRR designed PTC overlay onto the ESA systems primarily by providing systems "infrastructure" including cable raceways, cabinets, and additional rack space. The GEC has provided LIRR with the proposed changes for PTC on these contracts at the various design stages to insure coordination with the LIRR PTC requirements.
- In early October 2017, LIRR formally requested the FRA to waive the requirement to have PTC operational in the Harold Interlocking by December 31, 2018, based on the interlocking's status as an active construction area. LIRR subsequently submitted a revised waiver request to the FRA in late December 2017. The FRA's formal response is still pending as of April 30, 2018.

Status of MTACC and LIRR Review and Approval of Systems Contractors' Final Designs

CS179, Systems Facilities Package No.1: The backlog of overdue submittal and RFI reviews noted in earlier reports continues to be a significant unresolved issue for the CS179 project team. The contractor continues to assert that overdue responses on design submittals and Requests for Information (RFI) and unresolved Notices of Change (NOC) are impacting the completion of design work and delaying the contract schedule. The contractor continues to note that there are 55 NOCs, 45 for which MTACC was to issue Contractor Proposal Requests (CPRs), that are contributing to its inability to finalize the design. The completion of Final Design (FD) for all 10 Control Systems, which was scheduled for completion 24 months ago, has not occurred yet and the completion of FD for all 19 Non-Control Systems is also delayed. The full impact of the Control and Non-Control System FD delays on contract progress remains undetermined at this time. Previously noted Buy/Ship America issues that could impact design completion also remain unresolved.

CS084, Traction Power Systems Package 4: The contractor contends that unresolved design issues, differing site conditions, and coordination issues continue to cause day-to-day delays to the completion of this contract. The contractor indicates that all of the contract milestones are already delayed and will continue to experience day-to-day delays until the noted problems and issues are resolved.

VS086, Systems Package 3 – Signal Equipment Procurement: The contractor continues to raise concerns over the timeliness of responses from MTACC on design submittals and inquiries and asserts that the lack of timely responses is causing day-to-day delays in the progression of the work. MTACC and LIRR need to make key design decisions that have the potential to impact designs already in progress, interim contract milestones, and the overall substantial completion of this contract.

b. Procurement

The February 2018 MPR shows that total procurement for the ESA project was 88.8% complete, with $9.04 billion awarded of the $10.178 billion current project budget (ESA Program only).

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

- CS086 Tunnel Systems Package 2 – Signal Installation: The contract is being procured as a RFP. The planned April 20, 2018, NTP date was missed and negotiations with the single proposer continued through April 2018. It is anticipated that the NTP will be issued after the May 23, 2018, MTA board meeting.
- CH057D, Harold Structures – Part 3: Trackwork, was awarded on April 12, 2018.

c. Construction

In the February 2018 MPR, MTACC reported that total construction progress reached 76.9% complete compared to as-planned progress of 81.8%. The percentage of work complete is calculated using invoiced costs and current awards, not actual construction progress, as shown throughout this report.

Manhattan Contracts

Costs and substantial completion dates are tabulated below for active Manhattan contracts.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
CM006	361.6	350.2	11.4	346.0	352.8	100.0%	99.3%	6/1/17	3/16/18	3
	nc	nc	nc	nc	nc	nc	(0.5%)	nc	+91cd	
	361.6	350.2	11.4	346.0	352.8	100.0%	98.8%	6/1/17	6/15/18	
CM007	712.3	662.2	50.2	247.4	697.9	39.3%	34.5%	1/28/20	6/26/20	
	nc	nc	nc	+13.7	+7.0	+6.1%	+4.9%	nc	nc	
	712.3	662.2	50.2	261.1	704.9	45.4%	39.4%	1/28/20	6/26/20	
CM014A	61.1	60.5	0.6	58.9	58.1	100.0%	97.4%	9/7/15	2/28/18	3,4
	nc	nc	nc	(-0.1)	nc	nc	(0.3%)	nc	+47cd	
	61.1	60.5	0.6	58.8	58.1	100.0%	97.1%	9/7/15	4/16/18	
CM014B	463.6	446.8	16.9	227.5	512.3	82.4%	49.5%	8/18/18	5/18/20	1
	nc	+0.7	(-0.8)	+7.9	(-14.3)	+3.4%	+3.1%	nc	nc	
	463.6	447.5	16.1	235.4	498.0	85.8%	52.6%	8/18/18	5/18/20	
VM014	46.2	34.9	11.3	21.7	44.9	NA	58.9%	10/25/19	10/16/20	2
	nc	nc	nc	+2.8	+0.6	NA	+11.3%	nc	0	
	46.2	34.9	11.3	24.5	45.5	NA	70.2%	10/25/19	nc	
									10/16/20	

Notes: Costs in millions; line 1 = prior value; line 2 = period change – nc = no change; and, line 3 = current value.

1. Current approved contract does not include full scope.
2. Contract Awards for Force Account work are made on an annual basis. Actual Cumulative % Complete based on Total Budget Value, not Approved Contract.
3. The substantial completion date has not been declared.
4. The forecast reflects a credit scope of -$1.6M that will be taken out of CM014A during close out.

CM006 – Manhattan North Structures:

Construction Progress: Through April 2018, the CM006 contractor continued to complete base contract work and open NCR work necessary for SC.

CM007 – GCT Station Caverns and Track:

Schedule: Milestone #4 (Track & 3rd Rail Complete) August 7, 2019, now February 2020. MTACC notes that this is -184 days from the original. The contractor has developed a recovery schedule.

Milestone #5 (Substations US1 and US2 Complete) June 7, 2018, now December 3, 2018. MTACC notes that this milestone is at -98 days. The substation units are set in place, but are not connected yet.

Milestone #5A (Caverns Ready for Integrated Testing) August 7, 2019.

Milestone #6 (All Caverns and Tunnel Work Complete) December 16, 2019; now February 7, 2020. MTACC notes that this milestone is at -53 days.

Construction Progress: South Back of House, East and West: Continued concrete slab and lower level walls (W), MEP, and CMU installation.

North Back of House, East and West: Continued MEP installation, lower level walls (W).

Access Tunnel #3: Completed grouting.

Cross Passageways #3, 5, and 6, and 45th Street Lobby: Continued PAC construction and grouting.

East Cavern: Continued lower level platform precast walls/slabs, closure of temporary cross passage, platform MEP work, Smoke Plenum precast installation, and grouting.

West Cavern: Continued upper level platform walls/slabs, platform MEP work, Mezzanine MEP work, and grouting.

Through April 22, 2018, MTACC reports that precast beams and decks are 80.1% complete; precast platform walls and deck panels are 39.2% complete; and the precast smoke plenum in the East and West Caverns is 60.0% complete.

Track: Continued Third Rail installation at Track WB1. Continued construction of the Direct Fixation Track on Resilient Tie Blocks (RTB) at Track WB3 and Tail Tracks LT302 and LT303 (setting tie blocks, threading and clipping rail). Continued to pull rail from Queens into the Caverns. Continued laboratory qualification testing of the Special Trackwork (ST) DFF. Completed qualification testing for High Attenuation (HA) DFF and Special Trackwork (ST) RTB. The test results were reviewed and more testing is required. HARTB qualification testing started during the first week in April 2018. Through April 22, 2018, MTACC reports that Track and Third Rail installation is 25.0% complete versus 25.1% planned (late finish).

CM014A – Concourse and Facilities Fit-Out Early Work:
Construction Progress: Through April 2018, the contractor continued to complete punchlist items.

CM014B – Concourse and Facilities Fit-Out:

Schedule: Milestone #4 (Comm. Closets CC-C3, CC-C7, and Room B3265); originally March 5, 2017; now April 1, 2018 – This milestone has been split into 2 completion dates. For MS#4A, the FM200 gas bottles have been relocated, and MS#4B remains May 20, 2018, for extension of room CC-C7.

Milestone #5 (44th St. Vent Building) June 4, 2017, now June 2018. The fans have been installed in Shaft #1 by the CS179 contractor. This contractor has resumed installation of the building storefront.

Milestone #5A (Completion of 48th St. Entrance) November 25, 2016 – This was delayed until October 2, 2017, and is now projected to be May 1, 2018, from the previous April 3, 2018. The elevator shaft work is complete. The elevator head house work is complete. The remaining work is paving 48th street, which has had some delays.

Milestone #6 (Communication Closets CC-C4, CC-C8) May 20, 2018. There has been no further update.

The design of the 47th St. Entrance is now the primary critical path. Structural steel work has now become the secondary critical path and is significantly behind schedule. The Biltmore Room construction is the tertiary critical path.

Construction Progress: Through April 22, 2018, MTACC reported that structural steel erection in the new GCT concourse was 46% complete by piece count and 35% complete by tonnage. Cumulative metal deck progress was 16% complete. This work is proceeding very slowly and is impacting the schedule and the CS179 contract. Electricians continued with installation of racks and conduits throughout and for Unit Substations (US) #3 and #4. Mechanical work continues with the installation of fan coil units and ductwork. Painting of block walls and columns continues throughout Zones 1-4. Painting of Fire Stand Pipe continues throughout the Concourse.

Biltmore Connection and Elevator #22: Outages on the MNR Express Level continue, taking out Tracks #41 and #42. Flagging continues on Tracks #39 and #40. At elevator #22, concrete placement at various levels nears completion.

Wellways: VM014 construction in Wellways #1 and #2 is complete and ready for CM014B to re-enter for architectural finish work. Escalators have 400A power at each wellway for in-contract maintenance. Shakeout of rigging steel is underway at Wellway #4. In Wellways #3 and #4, removal of scaffolding from the wellways is complete. VM014 mobilization into the wellways is pending.

47th Street Cross Passage: This area has become the primary activity on the Critical Path because of the redesign of the entrance to compensate for the apparent loss of access to the previously designed 48th Street Entrance.

East 50th Street Vent Building: The Vent Building continues in full fit-out mode. Work includes panel terminations at the concourse level and door security at the 2nd, 1st, and street levels. Installation of Elevator #9 continues.

VM014 – Vertical Circulation Elements (Escalators and Elevators):

Schedule: In its February 2018 Monthly Report, MTACC reports that all elevators for contract CM014B have been fabricated and delivered to the New Jersey storage warehouse, with the exceptions of EL #10 (50th St. Vent Building) and EL #22 (Biltmore Room). December 28, 2018, is the contractor's target date to begin work on EL #10.

Although this contract has milestones covering fabrication and delivery of escalators and elevators, the real schedule for those areas is driven by the respective schedules and access dates provided by the CM014B and CM007 contractors.

Construction Progress: In Wellways #3 and #4, all work by the CM014B and CS179 contractors is complete. The VM014 contractor is mobilizing and erecting the structural steel rigging, beginning at Wellway #4. At CM007, access dates and equipment delivery dates have been established. The first delivery of the mezzanine level escalators is scheduled to begin in July 2018.

Queens Contracts

Costs and substantial completion dates are tabulated below for active Queens Contracts.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
CQ032	265.4	261.7	3.7	260.6	263.7	100.0%	99.6%	9/6/16	4/13/18	
	nc	(-0.2)	+0.3	nc	(-0.5)	nc	+0.1%	nc	+77cd	
	265.4	261.5	4.0	260.6	263.2	100.0%	99.7%	9/6/16	6/29/18	
CQ033	308.0	294.0	14.1	59.6	308.0	NA	16.4%	8/10/20	12/9/20	
	nc	+0.7	(-0.7)	+5.6	+14.1	NA	+5.7%	nc	nc	
	308.0	294.7	13.4	65.2	322.1	NA	22.1%	8/10/20	12/9/20	

Notes: Costs in millions; line 1 = prior value; line 2 = period change – nc = no change; and, line 3 = current value.

CQ032 – Plaza Substation and Queens Structures:

Schedule: MTACC is currently projecting, MS#6, Substantial Completion (SC) by June 29, 2018, and forecasting MS#7, Final Completion at September 28, 2018.

Construction Progress: During April 2018, the CQ032 contractor continued preparation of documentation and completion of open NCRs necessary for SC.

CQ033 – Mid-Day Storage Yard Facility:

Schedule: Milestones MS#1, MS#2, and MS#3 have been achieved. MTACC reports that MS#4, submission of Integrated Testing Plan, achieved an actual finish on the contractual date of April 11, 2018. Milestones MS#4A (Start Integrated Testing), MS#5 (YS Track Completion), and MS#6 (Substantial Completion) are impacted by the delay of Access Restraints AR#1 and AR#2. AR#1 requires Amtrak to remove rail located at the west end of the Mid-Day Yard. AR#2 requires the installation of new catenary poles and Amtrak wire transfers, and pole locations are obstructed by an Amtrak signal trough. The contractor requires both AR#1 and #2 to install underground ductbanks, to complete the YS Track, followed by Integrated Testing. MTACC forecasts MS#6 at -121 calendar days December 9, 2020.

Construction Progress: During April 2018, the CQ033 contractor continued: CAM Platform work, traction power ductbank work, Yard Lighting work, detention, sanitary sewer, and Storm pipe work, Personnel Access Bridge foundation work, and street utilities. Demolition of the Montauk approach structure was completed in April 2018. Upcoming work: start Plaza site work and Cart Storage Building May 2018, Arch St. area work during a 30 day track outage that is scheduled to begin in June 2018, and start traction power cable pulling July 2018.

Systems Contracts

Costs and substantial completion dates are tabulated below for active Systems contracts.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
CS179†	606.9	565.0	41.9	376.3	610.2	66.2%	66.8%	7/1/20	1/19/21	
	nc	+0.4	(-0.4)	+9.9	+11.5	+4.7%	+1.5%	nc	nc	
	606.9	565.4	41.5	386.2	621.7	70.9%	68.3%	7/1/20	1/19/21	
CS084†	79.7	72.9	6.8	12.0	79.7	74.2%	16.4%	12/2/19	9/29/20	
	nc	nc	nc	(-0.1)	+0.1	+3.8%	(0.2%)	nc	+28cd	
	79.7	72.9	6.8	11.9	79.8	78.0%	16.2%	12/2/19	10/27/20	
VS086†	21.8	19.9	1.9	8.8	22.2	NA	41.6%	10/14/19	10/14/19	
	nc	nc	nc	nc	(-0.1)	NA	+2.8%	nc	nc	
	21.8	19.9	1.9	8.8	22.1	NA	44.4%	10/14/19	10/14/19	
VH051	30.2	29.5	0.7	28.8	30.2	NA	97.6%	4/30/15	5/20/18	
	nc	nc	nc	nc	(-0.1)	NA	nc	nc	nc	
	30.2	29.5	0.7	28.8	30.1	NA	97.6%	4/30/15	5/20/18	

Notes: Costs in millions; line 1 = prior value; line 2 = period change – nc = no change; and, line 3 = current value.

† Forecast SC is based on the approved schedule that does not account for open unresolved issues. The PMOC believes that addressing open issues will have significant negative impact on SC dates.

CS084 – Tunnel Systems Package 4 – Traction Power Systems:

Schedule: The information for CS084 is supplemented by discussions at an early-April 2018 Progress Meeting that reviewed contract progress up to April 11, 2018. The contractor continues to contend that the variance in the actual versus planned progress is because: 1) funds have not been expended as originally projected due to delays in approving the substation designs and equipment; 2) fabrication of the substations and procurement of equipment is behind schedule because designs were not approved as forecast; and, 3) the lack of unlimited access to all substation rooms has precluded the contractor from performing many construction activities. However, a significant portion of the required substation equipment has recently been released for fabrication, which should cause the invoiced costs to increase at a faster pace. The contractor continues to indicate that all of the contract milestones are delayed as a result of delays associated with the approval of substation designs and the resolution of Supervisory Control and Data Acquisition (SCADA) requirements. The timely development and issuance of necessary contract modifications continues to be an issue requiring improvement.

Design Progress: The contractor continues to assert that previous delays in receiving comments from MTACC for C08 facility switchgear, SCADA requirements, PLC information, and general C08 substation design impacted its ability to meet its own original design, procurement, fabrication, and installation schedules. Despite continued interaction by MTACC senior management with LIRR senior management, the LIRR's submittal/comment review process is still in need of improvement and an item of increasing concern. This month, the contractor advised that the current design for the C08 pre-fabricated substation building is approved and the design was released for fabrication. The contractor continued to advise MTACC that it still needs SCADA information to complete the programming of the SCADA equipment. MTACC continues to consider moving the design and installation of the fire alarm system in the C08 substation from the CS084 contract to the CS179 contract. This action will require contract modifications to both contracts, as neither contractor will progress or accept a work scope change without a contract modification or directive from MTACC. Design issues for cable routing and for alleviation of

interfering obstructions from other contracts remain unresolved. The PMOC continues to have concerns about the length of time it is taking to address the various design approval issues.

Construction Progress: The contractor continues to cite coordination issues, design approval delays, access restraints, and differing site conditions as its reasons why work at the various locations cannot progress. MTACC issued Stop Work Orders (SWO) at various locations to have time to address some of the differing site conditions and to issue contract modifications, where appropriate. Dates for lifting the SWOs are still undetermined. With the exception of very limited preliminary construction at the CO5 substation, every one of the remaining six regular substation facilities (C01/C02, C03, C04, and C06/C07) has some level of noted deficiencies precluding the start of significant construction by the contractor. Progress on addressing the issues is limited, as a number of the cited issues involve coordination with other contracts and will require the development and issuance of contract modifications to various contracts. The PMOC continues to be of the opinion that there are four (4) issues of concern on this contract that pose a significant risk to its timely completion. 1) the equipment delivery methodology for the C01/C02 substations; 2) the solution for the installation of the apparent missing conduit and manhole system for the C08 substation; 3) the failure of a second traction power transformer during hi-pot (high potential) testing; and 4) the lack of knowledge of the viability of the existing conduit and manhole systems for several other substations. The second failure of a required transformer while undergoing hi-pot testing is a significant manufacturing quality issue related to all the transformers provided under this contract and raises significant concerns about the long-term operational capability of all the transformers manufactured and installed under this contract. The investigation into the cause of this failure was completed and MTACC and LIRR will meet to discuss the findings. The contractor continues to raise concerns about the sequencing of activities by other contractors to allow for the installation of traction power cable from the C08 substation to the tracks. MTACC needs to expedite resolution of these open issues.

CS179 – Systems Package 1 – Facilities Systems:

Schedule: While MTACC reports that the SC date for this contract is April 2021; it also reports that the contractor shows an SC date of January 29, 2021. The PMOC questions the validity of achieving substantial completion in either January or April of 2021, because both the contractor's schedule and MTACC's IPS: 1) are based on the premise that all submitted designs are final (which is not the case); 2) consider that all field work is ready-to-go as currently understood (which is not the case); 3) do not include any design or testing contingency; 4) do not take into consideration any impact from the open NOCs; and, 5) do not address any impacts to the contract work from SWOs that remain in effect past the data date of the schedule. MTACC's goal to develop a realistic schedule remains elusive. Three Buy/Ship America issues, small HVAC units, public address system speakers, and video monitor display panels, remain unresolved. These open Buy America compliance issues pose schedule risks to the successful and timely completion of this contract. There are also 55 NOCs, 45 of which MTACC agreed to issue Contractor Proposal Requests (CPR), that are contributing to the contractor's inability to finalize the system designs. MTACC's inability to develop and issue promised CPRs for the NOCs is a significant issue impacting progress on the contract.

Design Progress: The approval of all 10 control system Final Designs (FDs), a critical activity, is now 24 months late, with the LIRR providing formal approval for only 7 out of the 10 Control System FDs. The contractor is also responsible to design, install, and test 19 Non-Control systems; several of which continue to have FD progress falling behind schedule. The contractor contends that the lack of resolution on open items (e.g., the open NOCs) is the primary cause for these

delays. Despite not having LIRR approval of the FDs for the various Control and Non-Control Systems, the contractor continues to move forward with the development of test plans and equipment fabrication. Moving forward without approved designs on equipment procurement and fabrication is, as previously noted by the PMOC, a risk to the timely completion of this contract due to possible non-acceptance by LIRR. The contractor continues to indicate that any continued progress on both these efforts is being severely hampered by unanswered RFIs and unissued CPRs that have the potential to alter existing designs.

Construction Progress: In April 2018, the CS179 contractor continued to progress a substantial amount of various elements of work (installation of conduit, cable, fire stopping, fire standpipe, lighting, etc.) in the tunnels and at the various substation facilities where access was available and conditions warranted. Coordination issues with other contractors, unexpected field conditions, unresolved design issues, water infiltration remediation efforts, open NOCs/CPRs, and numerous Stop Work Orders continue to impact further progress. The subcontractor developing the Control and Non-Control systems continues to request information from MTACC to enable it to finalize testing plans and procedures, as well as plans for system training; but, due to the many open NOCs/CPRs and RFIs, MTACC has been unable to provide much of that information.

VS086 – Systems Package 3, Signal Equipment Procurement:

Schedule: The information for VS086 is supplemented by discussions at a mid-April 2018 progress meeting that reviewed progress up to April 11, 2018. In July 2017, MTACC issued a contract modification to adjust the interim milestones for this contract. However, in October 2017, both MTACC and the contractor agreed that the contract milestones need to be re-baselined again to address open design, fabrication, and testing issues noted in previous PMOC reports and under Design Progress, below. It remains unclear when this schedule refinement will take place; or, if it will impact the contract substantial completion date. The timely development and issuance of contract modifications continues to be an issue impacting progress. MTACC further notes that any impact on overall design completion, equipment procurement, and schedule can only be determined when design issues are resolved and contract modifications, if any, are approved.

Design Progress: The contractor continues to raise concerns over the timeliness of responses from the MTA on design submittals and inquiries and asserts that this lack of timely responses caused, and continues to cause, delays in the progression of the work. There are now five (5) major unresolved design issues cited by the contractor that continue to impact progress towards design completion: 1) the approval and use of light emitting diodes (LED) for tunnel signal units; 2) the approval and use of TRU-III track circuit equipment; 3) the approval and use of ATT-20 track circuit equipment; 4) the delayed demonstration and approval of the Signal Local Control System (SLCS); and 5) a delay in Factory Acceptance Testing (FAT) and Factory Integrated Acceptance Testing (FIAT) of equipment and systems. Very little progress on resolving these issues is apparent to the PMOC.

Equipment Fabrication Progress: The approval and use of Low Smoke Zero Halogen (LSZH) wire in the signal cases is resolved; and, while the significance of using LSZH wire is reduced, the re-wiring of signal cases already fabricated and tested will have an, as yet undetermined, impact on the contract schedule and the commercial aspects of this contract. Once the Plaza Interlocking successfully passes the FAT, a 2 to 3 day activity that is scheduled to occur in July 2018, then the FIAT of this equipment and the software and equipment developed by the CS179 contractor will occur. Questions regarding the logistics of this FIAT were recently identified, as the CS179 equipment is located in New Jersey and the Plaza Interlocking equipment provided under this VS086 contract is located in South Carolina. Further, both the VS086 contractor and the LIRR

insist that, from warranty, installation, and operational perspectives, the CS086 contractor needs to attend the FIAT; a potential schedule issue because the CS086 contract has yet to be awarded. The delivery of Plaza Interlocking, which was to occur in April 2017, is significantly delayed and a new delivery date is undetermined at this time. As a result, the impact of this delay on the overall contract is unknown.

Harold Interlocking Contracts

Costs and substantial completion dates are tabulated below for active Harold contracts.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
CH061A	42.0	34.4	7.6	17.4	39.0	68.1%	44.6%	5/28/18	6/14/18	
	nc	nc	(-0.1)	+2.3	+0.2	+16.4%	+13.0%	nc	nc	
	42.0	34.4	7.5	19.7	39.2	84.5%	57.6%	5/28/18	6/14/18	

Notes: Costs in millions; line 1 = prior value; line 2 = period change – nc = no change; and, line 3 = current value.

CH061A – Track A Cut and Cover Structure:

Schedule: The remaining milestones for CH061A, MS#3, Substantial Completion, and MS#4, Final Completion, are on schedule for June 14, 2018, and August 23, 2018, respectively.

Construction Progress: During April 2018, the CH061A contractor continued to place sidewall waterproofing, re-bar, and concrete at the east and west (portal) ends of the Tunnel A structure, continued to pour concrete roof slabs in the mid-portion of the tunnel structure, and continued structural construction in the Mechanical Room. The PMT and the contractor also completed negotiations on a recovery schedule which established June 14, 2018, as the Substantial Completion date for the contract. The contractor will work a second shift during weekdays and on selected weekends to accomplish this.

Railroad Force Account Contracts

Costs and substantial completion dates are tabulated below for active Force Account contracts.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
FHA01	18.8	18.8	--	18.6	18.8	100.0%	99.5%	2/4/16	5/18/19	1,2
	nc	nc	nc	nc	nc	nc	(0.5%)	nc	+135cd	
	18.8	18.8	--	18.6	18.8	100.0%	99.0%	2/4/16	9/30/19	
FHA02	60.2	38.8	21.4	55.7	66.4	100.0%	90.2%	8/15/17	6/16/19	1,2
	nc	nc	nc	+0.6	(-6.2)	nc	+3.5%	nc	nc	
	60.2	38.8	21.4	56.3	60.2	100.0%	93.7%	8/15/17	6/16/19	
FHL01	24.4	20.8	3.6	24.4	24.4	100.0%	105.7%	4/9/15	1/31/19	1,2
	+2.9	nc	+2.9	+2.1	+2.9	nc	(8.4%)	+1,393cd	nc	
	27.3	20.8	6.5	26.5	27.3	100.0%	97.3%	1/31/19	1/31/19	
FHL02	96.6	48.2	48.4	96.4	96.6	100.0%	96.7%	11/25/16	8/26/20	1,2
	nc	nc	nc	nc	nc	nc	+3.2%	nc	nc	
	96.6	48.2	48.4	96.4	96.6	100.0%	99.9%	11/25/16	8/26/20	

Notes: Costs in millions; line 1 = prior value; line 2 = period change – nc = no change; and, line 3 = current value.

1 Current approved FA agreements within work stages are amended on an "as needed" basis, which are not fully scoped.

2 Contract Awards for Force Account work are made on an as needed basis. Actual Cumulative % Complete based on Total Budget Value, not Approved Contract.

FHA01 – Harold Stage 1 Amtrak:
Construction Progress: Amtrak did not perform any significant Stage 1 construction during April 2018. The PMOC is not concerned about this because the remaining Stage 1 work will only take one day and is presently scheduled to be done after the LIRR CIL cutovers in July 2018.

FHA02 and FHA03 – Harold Stage 2 and Stage 3 Amtrak:
Construction Progress: Amtrak C&S personnel continued to install, splice, and terminate signal cables along its New Haven tracks east of Harold Interlocking in support of the LIRR CIL cutovers scheduled for June and July 2018. The PMOC is concerned, however, that Amtrak Electric Traction work in support of the LIRR Northeast Quadrant (NEQ) turnout installations, which is scheduled to begin immediately after the CIL cutovers, may not be complete on time, which may limit the quantity of turnouts that are planned to be installed.

FQA65 – Loop Interlocking Amtrak:
The PMOC notes that FQA65 is a Regional Investment project that will provide independent utility not required for LIRR service into GCT, although it can impact the FFGA Harold scope of work by placing additional demands for scarce Amtrak force account resources.

Construction Progress: Amtrak did not perform any significant FQA65 construction during April 2018. The PMOC is not concerned about this because it is not a critical component of the "ESA First" construction schedule and, as such, will not be required for several years.

FHL01 – Harold Stage 1 LIRR:
Construction Progress: LIRR did not perform any significant Stage 1 construction during April 2018. The PMOC is not concerned about this because LIRR completed its remaining Stage 1 work several months ago and is now waiting for 3rd party construction at the new G02 Substation to be completed before it can make the final connections to place the substation in service.

FHL02 and FHL03 – Harold Stages 2 and 3 LIRR:
Construction Progress: During April 2018, LIRR signal personnel continued to perform FRA signal tests and other pre-cutover activities in preparation for the cutovers of the new "H1", "H2", "H5", "H6", and Location 30 Central Instrument Locations (CILs), which are now scheduled for June and July 2018. During April 2018, signal personnel successfully completed 2 extended weekend "pre-cutover" tests precedent to the actual cutovers. This brought the total number of successful weekend "pre-tests" to 6 of a total of 10. LIRR 3rd Rail personnel continued to install 3rd rail traction power cables and prepare for insulated joint installation on the LIRR ML4 and Amtrak NH2 Tracks. LIRR High Tension personnel completed the final cutover of the signal power separation system.

d. Quality Assurance and Quality Control

The PMOC reports Quality Assurance/Control issues in its quarterly comprehensive reports. MTACC did not report any significant issues regarding Quality Assurance or Quality Control in its February 2018 MPR.

2.0 SCHEDULE DATA

MTACC Comprehensive Review of ESA Program – April 2018

On April 23, 2018, MTACC announced the results of its review of the ESA program. Specifically, MTACC anticipates achieving its public commitment to start revenue service by December 2022; (b)(4) [redacted] MTACC will transition to this new RSD schedule over the coming months,

and the PMOC will track this transition in its monthly reports. (b)(4) [redacted] Additionally, MTACC determined that the Manhattan/Systems Sub Program Longest Path has become the ESA program critical path and is now delayed 11 months. The PMOC notes that these schedule changes will still allow MTA to meet the amended FFGA Revenue Operation Date of December 2023.

The new high level ESA schedule pushes out the completion dates for all major elements of construction, and determines that the Systems work is the most critical schedule path (refer to Chart 2.1).

Chart 2.1: Schedule Comparison – 2014 Replan, Current, and 2018 Proposed

(b)(4) [redacted]

The PMOC anticipates receiving the underlying details that support the MTACC findings in order to perform an independent analysis. Until such time as the data is received and analyzed, the PMOC will continue to use only the usual reports and data that MTACC provides each month.

Status and Schedule Contingency

The schedule information in this report is based on ESA Integrated Project Schedule (IPS) 103 (data date: March 1, 2018) and IPS Progress Report. In this IPS update, the Target Revenue

Service Date (RSD) remained May 26, 2021, and the Late RSD remained on December 13, 2022, as previously forecast.

(b)(4) [redacted]

The three primary program critical paths in IPS 103 are: 1) work in Harold Interlocking (no float); 2) Manhattan/Systems work (7 CDs float); and, work in Queens (48 CDs float).

Table 2.1 shows dates, remaining durations, and contingencies for the Target, Late, and FFGA Revenue Service Dates.

Table 2.1: Schedule Contingency – January 1, 2018 ESA IPS 101

(b)(4) [redacted]

Program Primary Critical Path – Harold Interlocking

The ESA March 1, 2018 IPS shows that the ESA Program primary critical path still runs through Harold Interlocking, as noted above, with an end date of January 26, 2021 (no float remaining). Table 2.2 shows the work and contracts that comprise the Harold work path through the Late/Public RSD along with forecast start and finish dates, as reported in the March 1, 2018 IPS. The PMOC notes that the schedules for two of these contracts – CH057D and CH058A – are preliminary. CH057D was only recently awarded and CH058A has not been advertised yet.

Table 2.2: Primary Critical Path – March 1, 2018 IPS

Contract / Scope		Duration	Start	Finish
FHL02	CIL Testing and Cutovers	341	1-Aug-17	8-Jul-18
FHA03	Remove NH1 Catenary for Northeast Quadrant	1	21-Jul-18	22-Jul-18
CH057D†	Harold Northeast Quadrant Trackwork	99	28-Jul-18	4-Nov-18
FHL02	Decommission Harold CIL	28	5-Nov-18	3-Dec-18
CH058A†	B/C Approach Structure	693	3-Dec-18	26-Oct-20
FHL04	Harold Testing and Cutovers	90	28-Oct-20	26-Jan-21
LIRR Staff Training and LIRR Final 3 Month Period		120	26-Jan-21	26-May-21
Target Revenue Service Date		(b)(4)		
ESA Program Schedule Contingency				
Late/Public Revenue Service Date				

Notes: † Baseline schedules have not been prepared for CH057D and CH058A.

Discussion of Progress along the Critical Path

As compared to the February 1, 2018, schedule, the March 1, 2018 IPS schedule for FHL02 lost time to complete the CIL cutovers on the initial portion of the Harold path due to requirements for additional pre-testing. Float in the CH057D planned schedule for the Northeast Quadrant was reduced and preparation work was redistributed to accommodate the additional time needed for the cutovers (July 2018) and to avoid having this delay propagate through the rest of the Harold work path. The dates for the Harold cutover work are coordinated with the Regional Schedule.

Maintaining the Harold work path schedule after the CIL cutovers will hinge on the CH057D contractor performing to achieve the planned schedule dates. This is equally true for CH058A, which has a planned NTP date of July 18, 2018, but MTACC reports that this may be delayed again based on concerns about LIRR force account resource availability to support the Harold southeast quadrant trackwork.

90-Day Look-Ahead of Program Critical Activities/Milestones

Table 2.3 shows the Program critical dates in the March 1, 2018 IPS forecast to occur within the next 90 days. While the completion of the FHL02 pre-cutover testing remains as a risk, the project has been successfully completing the pre-testing as scheduled in 2018 due to their efforts in coordinating a Regional Schedule.

ESA acknowledges that, by redistributing the CH057D Northeast Quadrant preparation work within FHL02 weekend work, the risk of not completing the Northeast Quadrant by September 2018 and consuming project contingency may significantly increase as soon as the next reporting period. ESA also acknowledges that it is working with LIRR to mitigate the potential delays due to a lack of LIRR support for the CH057D Southeast Quadrant work in 2018, which would most likely push the start of the work to March or April 2019 and cause a 4 to 5 month delay to completing the Southeast Quadrant. That potential delay and the subsequent CH058A B/C Approach Structure work were not considered in this IPS update; however, if not resolved, the delay would be addressed in the next IPS update.

Table 2.3: Program Critical Dates 90 Day Look-Ahead – March 1, 2018 IPS

Activity	Name	Start	Finish	Float
FHL02…				
CSR1240	H5/H6/30 South Pre-Cutover Testing	03-Jul-17	02-Mar-18	0
CSR462	Pre-testing weekends - H1/H2/L30 - (2 of 6)	03-Mar-18	04-Mar-18	0
CSR463	Pre-testing weekends - H1/H2/L30 - (3 of 6)	10-Mar-18	11-Mar-18	0
CSR464	Pre-testing weekends - H5/H6/L30 - (4 of 6)	24-Mar-18	25-Mar-18	0
CSR465	Pre-testing weekends - H5/H6/L30 - (5 of 6)	07-Apr-18	08-Apr-18	0
CSR466	Pre-testing weekends - H5/H6/L30 - (6 of 6)	14-Apr-18	15-Apr-18	0
CSR467	Pre-testing weekends - H5/H6/L30 - Add 1/4	05-May-18	06-May-18	0
CSR468	Pre-testing weekends - H5/H6/L30 - Add 2/4	12-May-18	13-May-18	0
CSR469	Pre-testing weekends - H1/H2/L30 - Add 3/4	19-May-18	20-May-18	0
CSR474	Pre-testing weekends - H5/H6/L30 - Add 4/4	02-Jun-18	03-Jun-18	0
66330	Cutover (2GHI): H5 / H6 / Loc 30 CIL + 6156, 6176, 6167 + ML4	23-Jun-18	24-Jun-18	0
CSR1170	Pre-testing for H1/H2 2J	25-Jun-18	06-Jul-18	0
07260	Cutover 2J: H1/ H2 / Loc 30 CIL	07-Jul-18	08-Jul-18	0

Sub Program Longest Path – Manhattan/Systems

The March 1, 2018 IPS shows that activities comprising the Manhattan/Systems longest path remained unchanged during the update period and that it has 7 CDs of float. The critical path starts with CM007 west cavern platform and electrical work, then flows into ceiling installation. The path continues on to CS179 device installation and local testing in the caverns. After local testing of the communication rooms is complete, Integrated Systems Testing (IST) in the GCT caverns continues with Field Network IST, Facility Power IST, Fire Alarm IST, and then Fire and Life Safety System IST, and concludes with CS179 substantial completion in mid-January 2021. The CM007 trackwork is still near critical and progress on resilient tie block testing, fabrication and installation is being closely monitored.

Sub Program Longest Path – Queens

The March 1, 2018 IPS Report shows that the activities comprising the Queens longest path remained unchanged during the update period and that it has 48 CDs of float. The path begins with the delay to the catenary work at the Montauk Cutoff. The work was transferred from the Track A Cut and Cover Structure (CH061A) contract to CQ033 to avoid delaying CH061. Design, fabrication, and delivery of the catenary poles are complete. The delay is due to catenary pole installation, which is obstructed by an underground Amtrak signal trough. This is shown as a 4 month delay without mitigations, as forecast by the CM. The contactor will forecast a revised substantial completion when the change order (CPR-025) for the catenary work is finalized. MTACC is working with the contractor to explore ways to mitigate the delay. When the catenary work is complete, the path continues with CQ033 traction power, low voltage, signal power, medium voltage, and communications utilities. This work is followed by CQ033 track, switch and signal work, and Mid-Day Storage Yard systems testing activities, leading to substantial completion.

Upcoming Contract Procurements

Table 2.4 shows the status of current and upcoming contract procurements, as reported in the March 1, 2018 IPS.

Table 2.4: Procurement Schedule

Contract Description	Advertise Date	Bid Date	NTP	Project Length	Substantial Completion
CS086: Tunnel Systems Package 2 – Tunnel Signals	8/10/17A	10/31/17A	4/20/18*	33 mos.	1/18/21
CH057D: Harold Trackwork	11/30/17A	2/20/18A	4/12/18A	15 mos.	6/29/19
CH058A: B/C Tunnel	4/12/18*	6/11/18	7/18/18	27 mos.	10/26/20

Note: * Neither of these planned dates were achieved.

Negotiations continued through April 2018 for CS086, Tunnel Systems Package 2 – Signal Installation, for the RFP received on October 31, 2017, from a single proposer. The previously planned March 26, 2018, NTP was missed. The next opportunity for this award to be presented to the MTA board for ratification will be the May 2018 board meeting.

The MTA announced the result of the bid opening for CH057D, Harold Trackwork, on February 20, 2018. The contract was awarded April 12, 2018, with NTP on the same date.

The planned advertisement date for CH058A, B/C Tunnel, slipped to April 12, 2018, but was not achieved. LIRR resource availability to support Southeast Quadrant work may delay the procurement of CH058A. MTACC and LIRR are reviewing steps to mitigate the delay.

The procurement of CM015, 48th Street Entrance, has been removed from active reporting until agreements with the property owner can be completed. The PMOC notes that the PMT is developing alternative access at 47th Street – to be built by contract modification under the existing ESA CM014B Contract – and that CM015 48th St. entrance will not be critical to the completion of the ESA program

PMOC Concerns

The PMOC has the following observations and concerns about the ESA schedule:

1. The PMOC is concerned that the slippage on the primary critical path through Harold Interlocking pushed out the Target RSD and consumed six weeks of Programmatic Contingency between November 1, 2017, and March 1, 2018. Further slippages will likewise further erode the remaining program contingency, with ever dwindling opportunities to recover lost time.
2. Concerns continue regarding CH057D due to required LIRR support for the Southeast Quadrant work and the need for 3rd party labor approvals.
3. Concerns continue regarding procurement of CH058A B/C Tunnel Approach, which is on the program primary critical path. Delay to this contract would impact the Program schedule. The PMOC recommends that this contract be awarded and contractor schedule be obtained as soon as possible so that inter-contract milestones and interfaces – and the program critical path – can be validated.
4. Concerns continue about the ESA secondary critical path, which runs through Manhattan/Systems work. It is likely that the remaining float could be consumed and the Manhattan/Systems path would control completion of the ESA program.

5. Progress on CS084, Tunnel Systems Package 4 – Traction Power, is slow and is currently reported at 16.2% complete vs. 78.0% planned. The PMOC observes that much of the work has had day-for-day delays in each IPS update period. The PMT is working with the contractor to get a realistic schedule; however, the PMOC believes that a revised schedule will incorporate delays in the delivery of equipment that will push out milestone dates. The PMOC recommends that ESA analyze options to recover the schedule; focusing on major electrical equipment submittals and layouts; identifying major issues; and determining corrective measures.
6. Concerns continue for the delays in the procurement of CS086, Tunnel Systems Package 2 – Signal Installation. With the award of CS086 potentially delayed until June 2018, the PMOC is concerned that the delays may eventually impact the Program schedule.

3.0 COST DATA

MTACC Comprehensive Review of ESA Program – April 2018

On April 23, 2018, MTACC announced the results of its review of the ESA program. (b)(4) [redacted] Specific information about changes to local funding was not provided. The PMOC notes that the revised EAC, $11,133 million, exceeds the amended FFGA Baseline Cost Estimate (BCE) of $10,922 million.

Table 3.1: Budget Comparison – 2014 Replan, Current, and 2018 Proposed

	2014 Replan Budget	Current Budget Feb MPR	New 2018 Forecast	Change from 2014 Replan	Percent Change	Change from Current	Percent Change
Third Party	6,619.6m	6,723.2m	**7,054.3m**	+434.7m	+6.6%	+331.1m	+5.0%
Force Account	759.7m	829.3m	**959.8m**	+200.1m	+26.3%	+130.5m	+17.2%
Soft Costs	1,874.9m	1,889.8m	**2,192.9m**	+318.0m	+17.0%	+303.1m	+16.2%
OCIP	282.6m	307.6m	**457.4m**	+174.7m	+61.8%	+149.7m	+53.0%
Unallocated Contingency	(b)(4) [redacted]						
Rolling Stock	202.0m	202.0m	**202.0m**	--	+0.0%	--	+0.0%
Total	(b)(4) [redacted]						

The PMOC anticipates receiving the underlying details that support the MTACC findings in order to perform an independent analysis. Until such time as the data is received and analyzed, the PMOC will continue to use only the usual reports and data that MTACC provides each month.

Budget/Cost

The PMT reported in the February 2018 MPR that total project progress was 76.5% compared with planned progress of 80.0% of the $10.178 billion Current Baseline Budget (CBB). The report also shows that construction progress reached 76.9% complete of the CBB compared with planned progress of 81.8%, based on invoiced construction costs. (Details of the project budget and expenditures are shown in report Appendix B and report section 1.0-c.)

(b)(4) [redacted]

(b)(4)

[redacted]

Contingency

(b)(4)

[redacted]

The PMOC remains concerned that there will be ongoing demands on the program's contingencies until the PMT completes the ESA cost assessment and makes related budget adjustments, if required.

Table 3.2: ESA Cost Contingency

(b)(4)

[redacted]

Change Orders/Budget Adjustments

The February MPR 2018 lists five executed construction Change Orders with magnitudes greater than $100,000.

Table 3.3: Change Order Log (magnitude > $100,000)

Contract	Description / Mod No.	Amount
CM005	Final Contract Closeout (mod. 40)	1,269,507
CM014B	FM-200 for CC1 thru CC8 (mod. 109)	467,842
CQ032	Deletion of Various Scope of Work from CQ032 (mod. 85)	(281,798)
CQ033	Detention Pipe Profile (mod. 7)	743,500
CS179	Emergency Switchgear Sequence and AC Control Cabinet (mod. 53)	404,845

Funding

The MTA is developing a plan (i.e. modification of the current Capital Plan or inclusion in the next Capital Plan) for additional funding for the anticipated cost overruns that have been forecast in the program cost assessment, which concluded in April 2018. Until a funding plan is approved, it is anticipated that project contingencies will be used to fund additional program costs, if necessary. The PMT previously estimated that there are sufficient contingency funds to cover all contract awards and identified cost overruns planned through the fourth quarter of 2018. The PMOC is concerned that a delay to this plan could potentially result in a funding gap that could impact the program**.**

Federal Funding: The total Federal funding commitment to the ESA project is $2.699 billion, of which $2.698 billion was expended through March 1, 2018.

Local Funding: The budget for Local Funding is $7.479 billion, of which $5.092 billion was expended through March 1, 2018. Financing costs are funded separately by local sources.

PMOC Concerns

1. The ESA PMT has not included the costs of the items noted above (i.e. force account; OCIP; CM014B; professional services) in the project forecasts. MTACC is working to update the Project forecast and an update is anticipated in May 2018.
2. The PMOC understands that additional funding is necessary for the ESA program based on the review conducted by MTACC. Actions by MTACC to address funding shortfalls are being developed. A funding constraint could be a major risk.
3. Ongoing and possible future delays may result in increasing costs for the following contracts:
    - CS179 – the late completion of systems designs and resulting schedule compression needed to hold the start date of Integrated Systems Testing.
    - CS084 – the late completion of final design has delayed fabrication of some traction power equipment.
    - VS086 and CS086 – incorporation of Positive Train Control into the ESA signal system and technology issues.
4. Construction expenditures (i.e. invoiced costs, preliminary/pencil-copy DCBs) continue to lag significantly behind the planned/scheduled expenditures. This may be a negative indication about the ESA project's ability to achieve the target date for revenue operations.

4.0 RISK MANAGEMENT

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

Harold Interlocking Risk Review

During 2Q2017, the ESA Risk Manager, working with the consultant risk assessment facilitator, conducted a comprehensive risk review of the remaining work in Harold Interlocking required to be complete to provide LIRR service into the new LIRR rail station at Grand Central Terminal. The risk workshop to evaluate the risks and quantify the probability of occurrence and cost and schedule impacts was held over a three-day period and included the primary stakeholders and the PMOC. MTACC continues to finalize the summary of the risk review results.

Harold Interlocking – ESA Risk

Harold Re-Sequencing Plan ("ESA First") Risk

Through April 2018, MTACC continued to adjust the "ESA First" Harold Re-sequencing to accommodate railroad force account constraints. As a result, the impacts caused by insufficient Amtrak support were reduced during this period, but not totally eliminated. This situation continues to be a challenge for MTACC.

Amtrak Preparation for Extended East River Tunnel Outages Risk

The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to harden East River Tunnel (ERT) Lines 1 and 4 in preparation for extended outages for ERT Lines 1 and 2 to complete Hurricane Sandy damage-related reconstruction work, originally planned for 2019, and now apparently planned for 2025, starting with Line 2. Amtrak has provided no details regarding how this change might affect the remaining predecessor hardening work for ERT Lines 1 and 4. Reliability issues might require Amtrak to make emergency repairs at any time between now and 2025.

LIRR Positive Train Control (PTC) Risk

There are two potentially significant impacts of PTC implementation: first, design changes to active contracts CS179, VS086, and pending contract CS086; second, potential delay to the remaining ESA Harold work after the planned May 2018 LIRR CIL cutovers, should FRA not grant LIRR's waiver request to postpone the December 31, 2018, deadline for PTC operation in Harold. If FRA does not grant LIRR's waiver request, LIRR may be required to significantly reduce its support for the ESA work in Harold in order to install, test, and activate PTC by the end of 2018. As of April 30, 2018, FRA has not formally responded to LIRR's waiver request to postpone the PTC deadline for the Harold Interlocking.

LIRR was not able to complete PTC design in 1Q2018, as earlier projected, and design completion is now expected later in 2018. The GEC does not believe that this will be a problem because ESA/GEC has been coordinating with LIRR regarding the required PTC design changes for the associated ESA contracts VS086, CS086, and CS179.

Capital Funding Risk

The PMOC is concerned about potentially significant impacts to the program budget coming from anticipated additional costs and their possible impact on the achieving the target Revenue Service Date, based on the need for an additional $956 million as identified in the PMT cost review. Additional funding would likely be proposed for the current or next MTA Capital Plan.

ESA Vehicle Risk

The PMOC remains concerned about the schedule slippage of the LIRR federal vehicle procurement program for the M-9A vehicles because it has the potential to significantly impact delivery of the vehicles, and, hence, MTACC's Revenue Service Date. The PMOC notes that, although the LIRR issued the "Qualifications" portion of the two-part RFP in November 2017, it had not issued the second "Technical/Cost" portion of the RFP by the end of April 2018 as it continued to review vendors' "Qualifications" submissions. The procurement schedule is based on a December 2018 contract award and will require that both portions of the RFP are complete and satisfactory. The PMOC is growing increasingly concerned that the December 2018 award may not be met based on the amount of time and effort normally involved with a procurement of this type.

Manhattan/Systems Performance Risk

The primary PMOC concern since September 2017 is that this near critical schedule path has very little float, most recently only 7 CDs of float, and the forecast completion for the contract on this

path – CS179 – extends to January 2021, approximately 34 months hence. The PMOC's position has been that it is likely that the Manhattan/Systems schedule path could become critical in the near future. On April 23, 2018, MTACC announced the results of its review of the project schedule and acknowledged that delays along the Manhattan/Systems schedule path are now forecast to be 11 months and that this schedule path has become the ESA program critical path.

5.0 ELPEP COMPLIANCE SUMMARY

The current status of each of the remaining main Enterprise Level Project Execution Plan (ELPEP) components is summarized as follows:

- **Technical Capacity and Capability:** MTACC previously indicated that it will review the Technical Capacity and Capability (TCC) Plan and propose revisions, if required, to reflect the current status of the Program. MTACC submitted an updated TCC Plan in 3Q2017. In April 2018, FTA advised MTACC to incorporate its current updates and then commence with a subsequent revision that addresses management changes resulting from the MTACC Six-Point Plan for ESA.
- **Continuing ELPEP Compliance:** The ESA project should continue to make additional improvements in the following areas: Management Decision; Design Development; Change Control Committee (CCC) Process and Results; Stakeholder Management; Procurement; and Risk-Informed Decision Making. The PMOC has noted progress in two previously identified areas – Issues Management and Timely Decision Making, particularly when responding to new issues arising with the railroads' Force Account resource availability, track outages, and other issues regarding the remaining work in the Harold Interlocking.
- **Project Management Plan:** MTACC is using the current version of the PMP, Rev. 10, which the FTA accepted in 2017.
- **Cost/Schedule Contingency:** MTACC has reached agreement with the FTA and the PMOC on the ELPEP minimum cost and schedule contingency hold points, levels, and drawdowns. MTACC continues to report the cost and schedule contingency levels against the ELPEP minimums in its quarterly reports to the FTA.

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

- **Schedule Management Plan:** The ESA project should continue to make additional improvements to the Schedule Management Plan (SMP) in the following areas: Integrated Project Schedule (IPS) Updating, Forecasting, and Schedule Contingency Management against a current baseline schedule. MTACC is using Rev. 2 of the SMP, dated September 2016.
- **Cost Management Plan:** The ESA project should continue to make additional improvements to the Cost Management Plan (CMP) in the following areas: Project Level EAC Forecasting, Project Level EAC Forecast Validation, and MTACC Cost Contingency Management and Secondary Mitigation. MTACC is using Rev. 2 of the CMP, dated October 2016.
- **Risk Management Plan:** ESA submitted the updated Risk Management Plan in 4Q2017. In April 2018, FTA advised MTACC to incorporate its current updates

and then commence with a subsequent revision that addresses any changes resulting from the MTACC Six-Point Plan for ESA.

- **Project Quality Manual:** ESA submitted the updated Project Quality Manual in February 2018. In April 2018, FTA advised MTACC to incorporate its current updates and then commence with a subsequent revision that addresses any changes resulting from the MTACC Six-Point Plan for ESA.

The PMOC anticipates the need for the PMT to update one or all of the Project, Cost, and/or Schedule Management Plans to document changes called for by the incorporation of the MTACC Six-Point Plan for ESA to reduce potential programmatic risks.

Revisions to the ELPEP Document: As part of the process of updating the ELPEP document, the PMOC completed an independent evaluation of the minimum required future cost and schedule contingencies. During 1Q2016, MTACC and the ESA PMT accepted the FTA/PMOC recommended ELPEP cost and schedule contingency hold points, values, and curves for the remainder of the program. MTACC submitted an updated ELPEP with suggested revisions in 3Q2017. In April 2018, FTA advised MTACC to re-evaluate its proposed updates in consideration of the changes resulting from the MTACC Six-Point Plan for ESA.

6.0 SAFETY AND SECURITY

Based on safety information supplied by MTA, the PMOC calculated ESA Injury Ratios for CY2018 through March 31, 2018, were 0.0 for Lost Time Injuries (LTI) and 0.0 for Recordable Injuries (RI). Both were below the 2018 Bureau of Labor Statistics (BLS) Safety Guidelines of 1.7 for LTI and 2.8 for RI. Additionally, ESA did not report any significant security issues in its February 2018 Monthly Report.

7.0 ISSUES AND RECOMMENDATIONS

Design: The PMT design management team needs to focus on the timely achievement of intermediate milestones and working closely with the GEC to facilitate finalization of the scopes of work for remaining procurement and construction packages.

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 planned; and,
- LIRR is making changes that alter the design basis and result in time-consuming and costly re-design work by the GEC.

The ESA PMT needs to continue to monitor and better coordinate the interface of design reviews and equipment approvals between the GEC and LIRR for the CS084, CS179, and VS086 contracts. These shortcomings indicate possible technical capacity and capability issues in the particular design support areas. The PMOC acknowledges the efforts by senior management to resolve these issues and recognizes that some short-term improvements have been achieved, but notes that more sustained effort is needed.

Procurement: The lack of stability in the contracting strategy and Contract Packaging Plan (CPP) remains a concern. Scope shifting among different packages delays completion and finalization of the required design packages and resulted in significant delays to the procurement schedules during 2016, 2017, and into 2018. The PMOC continues to recommend that the ESA PMT make

an effort to adhere to the current version of the CPP, rev. 11.0, and minimize shifting scope for the remainder of the project.

Water Infiltration Concerns Regarding Contracts CS179, CS084, and CQ032: The PMOC remains concerned about the numerous water infiltration issues in the electrical and electronic equipment rooms either constructed by, or provided for, these contracts. The PMOC notes that, to date, many of the water remediation efforts that have been employed have not been successful and this has caused delays to follow-on construction.

Contract CS179: The PMOC recommends that the ESA PMT continue making improvements regarding the PMOC's following concerns for CS179:

- Timely delivery and discussion about the contractors' monthly schedule submissions;
- Timely preparation and submission of documentation for two potential Buy/Ship America issues;
- ESA PMT responses to contractor NOCs and issuance of CPRs; and,
- Timely design review and approvals to contractor's design submittals.

Contract CS084: MTACC should prioritize the delivery of requested design information, the approval of substation designs, and the execution of contract modifications to preclude any further impact to substation design and fabrication. Additionally, the PMOC remains concerned about the issue related to the installation of traction power feeder cables between the C08 substation and the track, the live load (dynamic) testing of the C08 Substation, the integrated testing of all CS084 substations, management of coordination issues related to work area access issues with other contractors, and the resolution of access issues for the delivery of substation equipment at the C01/C02 substations. Also, no additional surveys have been conducted to verify availability of required conduit/manhole system for each TPSS.

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

Project Funding: The project is at risk due to an anticipated $956 million in additional costs that were forecast by the PMT in April 2018 during its current program re-assessment that need to be accounted for in the project forecast and for which consideration of additional funding needs to be addressed. The PMOC is concerned about potential impacts on the program budget and schedule, as well as the Revenue Service Date.

Project Budget: The PMOC remains concerned about the adequacy of remaining cost contingency to address major risks detailed in the Risk Management discussion below and potential other additional costs noted elsewhere in this report. (b)(4) [redacted]

Project Schedule: The PMOC remains concerned about the ability of the program to make planned progress on the three most critical paths. Although key dates in late 2017 were achieved for CIL cutover pre-testing on the Harold path, the path also includes work by two contracts that

are not yet procured – a process that has historically been problematic. The second and third critical paths – both only days to weeks behind the Harold path – have each realized significant lost time and are dependent on timely procurement, award, and execution of future contracts. Based on the MTACC's current ESA program re-assessment of April 2018, the Manhattan/Systems schedule path has now become the ESA program critical path and has been delayed 11 months.

Risk Management: The segmentation of construction packages has created multiple inter-contract interfaces and milestones. In the PMOC's opinion, managing inter-contract handoffs and interfaces will continue to be very challenging and represents significant MTACC-retained risks. The PMOC does recognize 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). However, the PMOC believes that any meaningful schedule recovery, especially for Contracts CM014B, CS179, and CS084, will be difficult at best.

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

1. Program Funding – update of the program budgets and inclusion in the MTA Capital Plan (risk realized in 2Q2018);
2. Recovery of lost time due to significant schedule delays on CM014B and CS084;
3. Successful execution of multiple hand-off interfaces across several contracts;
4. Contractor access and work area coordination in Manhattan;
5. Duration of integrated systems testing;
6. Continued availability of adequate Amtrak and LIRR force account resources;
7. Continued availability of required track outages in Harold Interlocking;
8. Maintaining adequate schedule performance of the remaining work in Harold Interlocking;
9. Remaining schedule path float will be used in the near future and Manhattan/Systems path will become critical (risk realized in April 2018); and,
10. Coordination risk retained by MTACC in Manhattan and the ESA tunnels with regard to construction and testing interface management for the systems work.

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

A. Major Risks included in the Risk Assessment

1. Positive Train Control: Implementation of Positive Train Control in Harold Interlocking to the degree necessary to achieve the December 31, 2018, FRA deadline. Risk is not well defined because scope and schedule details have not been finalized. Possible mitigation: LIRR submitted the formal waiver request to the FRA in early October 2017 to postpone this requirement based on Harold remaining an active construction area after 2018. LIRR submitted a revision to its original waiver request in December 2017; no formal FRA response yet.
2. LIRR Force Account Performance: Ability of LIRR force account resources to provide both a very high level of support for third-party contractor access and protection and adequate productivity for significantly increased direct labor work involving track, 3rd rail, and signals, in accordance with the current ESA schedule.

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

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

1. ESA Project funding constraints (risk realized in 2Q2017);
2. Ongoing and future Regional Projects requiring extensive support from Amtrak; and,
3. Amtrak program to reconstruct existing ERT Lines 1 and 2 has apparently been deferred until after the ESA program. The risk now is from the impact of unplanned emergency tunnel repairs.

The PMOC notes that, although MTACC continues to engage Amtrak to develop some specific mitigations for certain risks and continues to work on strategies for mitigating many of the other identified risks, continued shortcomings in provision of adequate force account resources have adversely impacted the current Harold schedule and have, over time, caused the remaining Harold work to become the ESA program schedule critical path. During February 2018, this became a significant problem, particularly with regard to Amtrak Electric Traction (ET) support. The PMOC recognizes that MTACC and ESA have been proactive in dealing with these issues as they arise and also recognizes ESA's efforts to re-baseline the remaining work in Harold Interlocking to reflect more realistic expectations of Amtrak support. However, the situation still requires improvement and the PMOC recommends that the PMT actively engage executive management in MTACC and MTA to assist with resolution of outstanding issues with Amtrak and LIRR.

The ESA risk profile changed significantly based upon the MTACC's current ESA program re-assessment of April 2018 that acknowledged that the Manhattan/Systems schedule path has become the ESA program critical path and has been delayed 11 months.

APPENDIX A – ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
AWO	Additional Work Order
BIM	Building Information Model
BLS	Bureau of Labor Statistics
BSA	Buy/Ship America
C&S	Communication and Signals
CBB	Current Baseline Budget
CCC	Change Control Committee
CCM	Consultant Construction Manager
CCTV	Closed Circuit Television
CD	Calendar Day
CIL	Central Instrument Location
CIR	Central Instrument Room
CM	ESA Construction Manager assigned to each contract
CMP	Cost Management Plan
CMU	Concrete Masonry Unit
ConEd	Consolidate Edison Company
CPOC	Capital Program Oversight Committee
CPP	Contract Packaging Plan
CPR	Contractor Proposal Request
DC	Direct Current
DCB	Detail Cost Breakdown
DFF	Direct Fixation Fastener
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
ERT	East River Tunnel
ESA	East Side Access
ET	Electric Traction
F/A	Force Account
FAT	Factory Acceptance Testing
FD	Final Design
FFGA	Full Funding Grant Agreement
FIAT	Factory Integrated Acceptance Testing
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCT	Grand Central Terminal
GEC	General Engineering Consultant
HVAC	Heat, Ventilation and Air Conditioning
IPS	Integrated Project Schedule
IST	Integrated System Test
LIRR	Long Island Rail Road
LSZH	Low Smoke Zero Halogen
MNR	Metro-North Railroad
MOD	Contract Modification
MPR	Monthly Progress Report
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority Capital Construction
NCR	Nonconformance Report
NOC	Notice of Change
NTP	Notice to Proceed
NYCT	New York City Transit
OCIP	Owner Controlled Insurance Program
PAC	Pneumatically Applied Concrete
PCO	Proposed Change Order
PLC	Program Logic Control
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PMT	ESA Project Management Team
QA	Quality Assurance
QPR	Quarterly Progress Report
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
RTB	Resilient Tie Block
SC	Substantial Completion
SCADA	Supervisory Control and Data Acquisition
SDR	Second Design Review
SLCS	Signal Local Control System
SMP	Schedule Management Plan
SMS	Security Management System
SWO	Stop Work Order
TCC	Technical Capacity and Capability
TPSS	Traction Power Substation
TSR	Track and Signal Route
WBY	Westbound Bypass Tunnel
YSB	Yard Services Building

APPENDIX B – TABLES

Table 1: Summary of Critical Dates

Program Milestone	FFGA	Forecast (F) Date, Actual (A) Date		Amended FFGA Dates
		Project Sponsor*	PMOC**	
Begin Construction	Sept. 2001	Sept. 2001 (A)	Sept. 2001 (A)	Sept. 2001
Construction Complete	Dec. 2013	Dec. 2022 (F)	Sept. 2023 (F)**	Dec. 2023
Revenue Service	Dec. 2013	Dec. 2022 (F)	Sept. 2023 (F)	Dec. 2023

Notes: * Project Sponsor forecast Revenue Operations Date per presentation 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

(Cost shown in millions)

	FFGA				MTA Current Baseline Budget (CBB)		Expenditures March 1, 2018	
	Original FFGA	Amended FFGA	Pct. of FFGA	Obligated	CBB	Pct. of Total CBB	Expend-itures	Pct. of CBB
Grand Total	7,386.0	12,038.0	100.00%	9,627.4	11,214.0	100.00%	8,248.2	73.55%
Financing Cost	1,036.0		14.03%	617.6	1,036.0	9.24%	617.6	59.61%
		1,116.0	9.27%					
Total Project Cost	6,350.0		85.97%	9,009.8	10,178.0	90.76%	7,630.6	74.97%
		10,922.0	90.73%					
Federal Share	2,683.0		36.33%	2,698.8	2,699.0	24.07%	2,698.0	99.96%
		2,683.0	22.29%					
5309 New Starts share	2,632.0		35.63%	2,436.7	2,437.0	21.73%	2,435.9	99.95%
		2,632.0	21.86%					
Non New Starts share	51.0		0.69%	66.7	67.0	0.60%	66.7	99.55%
		51.0	0.42%					
ARRA	0.0	0.0	0.00%	195.4	195.0	1.74%	195.4	100.21%
Local Share	3,667.0		49.65%	6,311.0	7,479.0	66.69%	4,932.6	65.95%
		8,239.0	68.44%					

Table 3: Project Budget and Invoices
(Cost shown in millions)

Elements	Baseline Budget June 2014	February 2018			
		Current Budget	Actual Awards	Invoiced to Date	Inv. Pct. of Budget
Construction Subtotal	7,379.3	7,552.5	7,009.5	5,662.6	74.98%
Soft Costs Subtotal	2,798.5	2,625.3	2,032.3	1,968.0	74.96%
Engineering	720.6	739.6	737.4	723.7	97.86%
OCIP	282.6	307.6	307.6	307.4	99.92%
Project Mgmt.	972.2	972.2	865.8	819.1	84.25%
Real Estate	182.1	178.0	118.8	117.8	66.13%
Rolling Stock	202.0	202.0	2.7	0.1	0.04%
Program Reserve		(b)(4)			
Total w/o Financing					

Note: ESA carries the Rolling Stoc

Table 4: Comparison of Standard Cost Categories: FFGA vs. CBB
(Cost shown in millions)

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	Dec 2017 CBB	Jan 2018 CBB	Feb 2018 CBB	CBB / FFGA Var.	CBB / Amend FFGA Var.
10 - Guideway & Track Elements	1,988.7	3,405.5	3,353.4	3,524.6	3,412.3	3,413.0	71.6%	1.8%
20 - Stations, Stops, Terminals, Intermodal	1,168.7	2,238.2	2,326.8	2,328.2	2,327.7	2,327.7	99.2%	0.0%
30 - Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	513.1	513.1	513.1	44.0%	13.8%
40 - Site Work and Special Conditions	205.1	610.6	562.5	560.9	560.7	560.7	173.4%	-0.3%
50 - Systems	619.3	605.6	627.7	577.5	690.4	692.6	11.8%	10.3%
60 - ROW, Land, Existing Improvements	165.3	219.4	192.2	215.4	215.4	215.4	30.3%	12.0%
70 - Vehicles	494.0	209.9	879.5	209.9	209.9	209.9	-57.5%	-76.1%
80 - Professional Services	1,184.0	1,975.4	1,809.0	2,015.7	2,015.7	2,019.3	70.6%	11.6%
90 - Unallocated Contingency	(b)(4)							
Subtotal								
100 - Financing Cost								
Total								

Table 5: Summary by FTA Standard Cost Categories
(Costs shown in millions)

Standard Cost Category	FFGA	June 2014		March 1, 2018		
		Project Budget	Amended FFGA	Current Budget	Awarded Value	Paid to Date
10 - Guideway & Track Elements	1,988.7	3,405.5	3,353.4	3,413.0	3,212.0	2,843.3
20 - Stations, Stops, Terminals, Intermodal	1,168.7	2,238.2	2,326.8	2,327.7	2,187.8	1,597.3
30 - Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	513.1	499.6	265.3
40 - Site Work and Special Conditions	205.1	610.6	562.5	560.7	490.7	494.6
50 - Systems	619.3	605.6	627.7	692.6	574.2	419.4
60 - ROW, Land, Existing Improvements	165.3	219.4	192.2	215.4	156.1	155.1
70 - Vehicles	494.0	209.9	879.5	209.9	10.6	5.6
80 - Professional Services	1,184.0	1,975.4	1,809.0	2,019.3	1,910.8	1,850.2
90 - Unallocated Contingency	(b)(4)					
Subtotal						
100 - Financing Cost						
Total						

Table 6: Quarterly Actual and Planned Cash Flow – June 2014 Plan
(Cost shown in millions)

Year – Quarter	Construc-tion	Engineering	OCIP	Project Management	Real Estate	Rolling Stock
Prior Payments >	**3,660.2**	**646.4**	**155.6**	**580.0**	**112.6**	**--**
Remaining >	**3,719.1**	**74.2**	**127.0**	**392.1**	**69.4**	**202.0**
2014 3Q	209.3	(-3.3)	4.8	16.7	--	--
4Q	168.3	(-3.3)	4.8	16.7	0.1	--
2015 1Q	134.6	(-3.2)	4.6	16.1	4.5	--
2Q	147.4	(-3.3)	4.8	16.7	4.7	--
3Q	169.7	(-3.3)	4.8	16.7	4.7	--
4Q	201.2	(-3.3)	4.8	16.7	4.7	--
2016 1Q	193.3	(-3.2)	4.7	16.3	4.6	--
2Q	180.9	(-3.3)	4.8	16.7	4.7	8.7
3Q	182.0	(-2.0)	4.8	16.7	4.7	13.1
4Q	214.2	6.7	4.8	16.0	4.7	13.1
2017 1Q	210.6	6.5	4.6	15.5	4.5	12.6
2Q	199.7	6.7	4.8	16.0	4.7	13.1
3Q	189.4 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
4Q	182.1 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
Remaining Planned >	1,318.7 m	75.7 m	65.3 m	179.7 m	18.5 m	128.4 m
Remaining Actual >	1,839.9 m	15.8 m	0.3 m	147.2 m	60.3 m	202.0 m
2018 1Q	174.2 m	6.5 m	4.6 m	15.5 m	4.5 m	12.6 m
2Q	170.5 m	6.7 m	4.8 m	16.0 m	4.7 m	13.1 m
3Q	168.5 m	6.7 m	4.8 m	16.0 m	4.7 m	14.0 m
4Q	155.2 m	6.7 m	4.8 m	16.0 m	0.1 m	14.0 m
2019 1Q	148.4 m	6.5 m	4.6 m	15.5 m	--	13.6 m
2Q	110.9 m	6.7 m	4.8 m	16.0 m	--	14.0 m
3Q	93.6 m	6.7 m	4.8 m	16.0 m	--	14.0 m
4Q	71.6 m	6.7 m	4.8 m	16.0 m	--	14.0 m
2020 1Q	20.7 m	6.6 m	4.7 m	15.6 m	--	5.0 m
2Q	11.7 m	6.7 m	4.8 m	16.0 m	--	0.9 m
3Q	7.6 m	2.3 m	4.9 m	5.4 m	--	--
4Q	2.8 m	--	5.0 m	--	--	--
2021 1Q	0.9 m	--	3.3 m	--	--	--
2Q	--	--	--	--	--	--
3Q	--	--	--	--	--	--
4Q	--	--	--	--	--	--

Note: * Remaining Actual cost is calculated by PMOC as: current budget (CBB) less amount invoiced.

Table 7: ESA Budget Adjustments

	ESA	RI	Other	Total
EIS & Engineering				
Design				
D0600 - General Engineering Consultant	+3.6m	+1.0m	--	+4.7m
Design Subtotal:	+3.6m	+1.0m	--	+4.7m
EIS & Engineering Total:	**+3.6m**	**+1.0m**	**--**	**+4.7m**
Construction				
Force Account				
Long Island Rail Road	+2.9m	--	--	+2.9m
FHL01 - Harold Stage 1: LIRR	+2.9m	--	--	+2.9m
Long Island Rail Road Subtotal:	+2.9m	--	--	+2.9m
Force Account Subtotal:	+2.9m	--	--	+2.9m
Construction Total:	**+2.9m**	**--**	**--**	**+2.9m**
Project Wide				
Contingency/Reserve				
S0999 - Staffing Contingency	(b)(4) [redacted]			
Y0100 - Management Reserve				
Z0100 - Construction Contingency				
Contingency/Reserve Subtotal:				
Project Wide Total:				
ESA Program Total:	**--**	**--**	**--**	**--**

Table 8: ESA Core Accountability Items

Project Status		Original at FFGA	Amended FFGA	Current*	ELPEP **
Cost	Cost Estimate	$7.386 B	$10.922 B	$10.178 B	$8.119 B
Contingency	Unallocated /Risk Contingency	(b)(4)	[redacted]	[redacted]	[redacted]
	Total Contingency (Allocated plus Unallocated)	(b)(4)	[redacted]	[redacted]	[redacted]
Schedule	RSD	Dec. 31, 2013	Dec. 31, 2023	Dec. 2022	April 30, 2018
Total Project Percent Complete	Based on Invoiced Amount	76.5% actual vs. 80.0% planned (ESA calc.)			
Project Performance Rate Since 2014 ESA Re-Plan	Based on Earned Value	79.4% (PMOC calculation of construction spending at 4Q2017 planned vs. actual since re-baselining)			
Contracts	Total contracts awarded to date	$9.042 B	88.8% of total awards		
	Total construction contracts awarded to date	$7.010 B	92.8% of construction awards		

Major Issue	Status	Comments
Project Funding and Budget	The ESA PMT completed a comprehensive cost review for the ESA program and forecasts a need to increase the budget by approximately $956 million.	MTACC is developing a plan to address funding for the anticipated cost overruns. (b)(4) [redacted]
Project Cost	In April 2018, MTACC identified the need for additional funding of approximately $956 million, including: ▪ Third Party 331.1m ▪ Force Account 130.5m ▪ Soft Costs 303.1m ▪ OCIP 149.7m [redacted] (b)(4) [redacted] If funding constraints are realized, schedule delays may result in additional escalation costs.	The PMT funding strategy details are not yet known but could potentially delay the completion of current contracts, the award of remaining contracts, and/or the completion of railroad force account work. The resulting added cost escalation could be significant.
Project Schedule	(b)(4) [redacted]	(b)(4) [redacted]
Harold Schedule	The schedule for the remaining ESA work in Harold Interlocking has been revised several times since the June 2014 Program Schedule re-baseline; Dec. 2014 (ESA First); 2015 (Harold Re-Sequencing); and, 1Q2016 schedule adjustment resulting in the Program critical path passing through the Harold work. Primary cause is inadequate railroad force account support due to other higher priority Amtrak projects in the region. PMOC notes that, based on the current ESA Program reassessment, the Manhattan/Systems path has overtaken the Harold path as the ESA Program critical path.	MTACC PMT made progress in coordinating a regional inter-agency schedule to minimize conflicts among force account resources, resulting in better on-time completion of planned work. Planned LIRR signal work on Harold CILs on weekend track outages continued through 2018. Amtrak ET support declined significantly in February 2018.

Notes: * Current Budget was approved by MTA CPOC in June 2014.
** 2010 ELPEP reflecting medium level of risk mitigation, excluding financing cost of $1,116 million. This is currently being re-evaluated.