

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

Report Period November 1 – November 30, 2018

PMOC Contract No. DTFT60D1400017

Project No. DC-27-5287, Task Order No. 0002, Work Order No. 07

Urban Engineers of New York, D.P.C., 2 Penn Plaza, Suite 1103, New York, NY 10121

PMOC Lead: b(6)

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

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EXECUTIVE SUMMARY

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

Overall Program Status: The Overall Program is 74.3% actual versus 73.9% as-planned (based on invoice cost).

Construction Status: The Construction Status is 77.4% actual versus 77.2% as-planned (based on invoice cost).

Contracts Awarded/Completed: None.

Construction Progress Issues: CM014B, CS084, VS086, CS179.

Program Funding: Total program funding is \$10,335 million, which is sufficient for the MTACC forecasts through December 2020.

Program Cost and Budget: Total remaining contingencies decreased to \$787.3 million (\$550.8 million unallocated; \$216.5 million allocated).

Integrated Project Schedule: The February 2022 forecast target RSD is unchanged. The ESA Program Critical Path is controlled by Manhattan/Systems work.

Risk Management: 12 major risks remain.

Harold Interlocking: Began Southeast Quadrant (SEQ) turnout placement.

Key Stakeholder Issues: LIRR –Late resolution of CS179, CS084, and VS086 issues.
Amtrak – Continuing Force Account availability issues; Electric Traction improved availability.
MTACC - Change Order processing issues, GEC CPS support for Contractor Submittals, redesigns, RFIs, and Field Conditions.

Construction Safety: 1.14 – Lost Time and 1.14 – Recordable BLS Injury ratios during October 2018; both decreases from September 2018.

ELPEP Compliance: MTACC reported Schedule Contingency remains 20 CDs above the ELPEP minimum.

Project Management Plan: MTACC to update PMP and Sub-plans to reflect major management, organizational, and process changes project-wide.

Buy America: One CS179 Issue – Small Split HVAC units (waiver requested);

Organization: The Program Manager – Project Controls left the project and a new manager started in November 2018.

All Project Sponsor cost and schedule data included in this report is based on the MTACC East Side Access Q3 2018 Progress Report (July, August, September) and referenced in this report as the ESA Q3 2018 Report, which has a cost and schedule data date of October 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 and quality management activities on the East Side Access (ESA) Mega-Project managed by MTA Capital Construction (MTACC) with MTA as the Sponsor and financed by the FTA FFGA.

MONITORING REPORT

1.0 PROJECT STATUS

a. Engineering Design and Construction Phase Services

In the ESA 3Q 2018 Report, the PMT reported that the overall engineering progress is 84.4% complete compared with as-planned progress of 84.9%. Since the ESA July 2018 MPR, the PMT calculates summary engineering progress as a percentage of the \$871.8 million April 2018 EAC forecast. The ESA September 2018 Total Cost Report shows that 99.7% of the overall EIS and Engineering budget, including 99.9% of the design budget, has been invoiced.

Status of Construction Packages Advertised

CH058A Harold Structures Part 3A, B/C Approach Structure: Six (6) bids were opened on August 9, 2018 and the contract was awarded October 25, 2018. NTP anticipated December 7, 2018.

Status of Construction Packages Not Awarded

CM015 – 48th Street Entrance: Design work remained suspended through October 2018. MTA has notified the building owner that construction of the 48th St. Entrance has been deferred. Based on code compliance requirements, an emergency exit to street level will need to be provided in the interim. The GEC is developing the design for this feature.

Alternate 47th Street Entrance (Contract CM014B additional work scope): MTACC-ESA has developed an alternative LIRR GCT entrance at 47th Street and has approved the associated GEC contract modification. The GEC submitted 100% FIO drawings for the CS179 (systems) scope for the proposed entrance. The PMT completed the CS179 (systems) design changes based on LIRR approval and no further comments from MNR. The CM sent the 47th Street Entrance CPR to the CM014B contractor in September 2018 and negotiations were completed in October 2018. The GEC provided the signed/sealed plans/specifications on October 4, 2018. The CM014B contract modification was executed on November 11, 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 have been considered by ESA, Amtrak, and LIRR. The design package has been completed with incorporated LIRR review comments. Based on Amtrak's proposal for an elevated turnout, MTACC and the GEC have developed alternatives to the plan and have identified two options. The two options are currently on hold pending MTACC decision on LIRR request for an alternative yard exit route, Option E. The CQ033 Construction Manager completed his evaluation of Option E on November 7, 2018 and MTACC forwarded the design for LIRR's for review and comments are expected in January 2019. Upon LIRR approval, Option E will be submitted to Amtrak for review. 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 FQA33B 100% design package remains temporarily on hold pending finalization and approval of the Sub 4 to Line 2 connection Option E, the primary exit, to be built under FQA33A (see above). Although this second exit route was earlier planned to be constructed by Amtrak after Contract CQ033 completes the MDSY and upon arranging the funding source from LIRR, LIRR might decide that this is not required based on the operational advantages offered by Option E under FQA33A.

FQL33, Mid-Day Storage Yard Facility – LIRR F/A, provides LIRR force account construction support for CQ033 and includes the West End Yard changes. The GEC has incorporated all LIRR final comments and LIRR has approved the package. The GEC provided the signed and sealed package to the CQ033 CM and the contractor was approved to commence work on November 30, 2018.

Status of Positive Train Control Design

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. MTACC will be installing, testing, and commissioning PTC for all track and signal systems built under the ESA Program.

- 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 January 2019.
- The GEC has prepared initial scope design modifications to Contracts CS179, VS086, and CS086, which will provide for the LIRR designed PTC overlay onto the ESA systems. The GEC has provided LIRR with the proposed changes for PTC on these contracts to insure coordination with the LIRR PTC requirements. The PMOC notes that these changes cannot be finalized until LIRR completes the PTC design.
- In early October 2017, LIRR formally requested that FRA waive the requirement to have PTC operational in the Harold Interlocking by December 31, 2018, based on the interlocking being an active construction area. LIRR subsequently revised its waiver request in late December 2017 and received the FRA's response on May 2, 2018. LIRR was required to submit the revised PTC Implementation Plan with its alternate schedule to the FRA within 90 days, i.e., August 2, 2018. As of November 30, 2018, LIRR had not yet provided FRA with the requested information.

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

CS179, Systems Facilities Package No.1: The backlog of overdue submittals 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 RFI, unresolved NOC, and numerous SWOs are impacting the completion of design work and delaying the contract schedule. The contractor continues to note that there are 30 NOCs contributing to its inability to finalize designs; 15 of which MTACC was to issue CPRs and 15 more that exceed the 30-day turnaround time duration provision in the contract. The completion of FD for all 10 Control Systems, which was scheduled for completion 31 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. One Buy/Ship America issue (previously noted) that could impact design and construction also remains unresolved.

CS084, Traction Power Systems Package 4: While the contractor continues to contend that unresolved design issues, differing site conditions, and coordination issues caused delays to this contract, progress continues to be made on the fabrication and delivery of equipment. Final approval of the SCADA software design by LIRR remains as an open issue. Some design issues related to water remediation methodologies and other identified field construction issues also remain open.

VS086, Systems Package 3 – Signal Equipment Procurement: The contractor continues to assert that the lack of timely responses on design submittals and inquiries caused delays in the progression of the work. Work on the design to incorporate Positive Train Control (PTC) requires a contract modification that must still be developed and negotiated.

b. Procurement

The ESA 3Q 2018 Report shows that total procurement for the ESA project is 83.6% complete, with total awards of \$9,306 million. Since the ESA July 2018 MPR, the PMT calculates summary procurement progress as a percentage of the \$11,133 million April 2018 EAC forecast. The status of the remaining major near-term procurements is summarized below:

- CH058A Harold Structures Part 3A, B/C Approach Structure: the contract was advertised on May 8, 2018. Six bids were opened on August 9, 2018. The contract was awarded on October 25, 2018. NTP is anticipated December 7, 2018.
- CH063 Electric Traction Catenary Work, 3rd Party. This will be a negotiated procurement using the RFP process. The contract includes design-build ET catenary relocation work for Mid-Day Storage Yard and completion of all the remaining catenary work required for operational readiness in Harold Interlocking. The RFQ advertisement date is forecast for January 24, 2019. The forecast notice to proceed date is June 20, 2019.

c. Construction

In the ESA 3Q 2018 Report, MTACC reported that total construction progress is 77.4% complete compared with as-planned progress of 77.2%. Since the ESA July 2018 MPR, the PMT calculates summary construction completion as a percentage of the \$8,014 million April 2018 EAC forecast. The percentage of work complete, as shown throughout this report, is calculated using invoiced costs to represent construction progress. The current contract and force account budgets equal the amounts that are allocated in the MTA Impact accounting system and are used for percentage calculations for individual contracts.

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	356.0	100.0%	98.8%	6/1/17	12/31/18	
	nc	nc	nc	nc	nc	nc	nc	nc	nc	
	361.6	350.2	11.4	346.0	356.0	100.0%	98.8%	6/1/17	12/31/18	
CM007	712.3	662.6	49.7	372.7	724.8	57.5%	56.2%	1/28/20	3/5/20	
	nc	nc	nc	+12.8	+2.0	nc	+1.9%	nc	(-18cd)	
	712.3	662.6	49.7	359.9	722.8	57.5%	54.3%	1/28/20	3/23/20	
CM014B	484.7	461.9	22.9	296.5	529.9	95.1%	64.2%	8/18/18	7/27/20	
	nc	+0.3	(-0.2)	+5.6	+17.5	nc	+1.2%	nc	nc	
	484.7	461.6	23.1	290.9	512.4	95.1%	63.0%	8/18/18	7/27/20	
VM014	46.9	34.9	12.0	26.1	47.8	NA	74.8%	10/25/19	3/23/20	
	nc	nc	nc	nc	+1.1	NA	nc	nc	nc	
	46.9	34.9	12.0	26.1	46.7	NA	74.8%	10/25/19	3/23/20	

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

Please refer to the contract narratives for additional information.

CM006 – Manhattan North Structures:

Schedule: MTACC is currently projecting Milestone MS#3, Substantial Completion (SC), by December 31, 2018, and MS#4, Final Completion, by March 31, 2019.

Construction Progress: The CM006 contractor continued the following activities in November 2018: minor base contract work, water repairs, and open NCR work. The Dispute Resolution Board (DRB) is assisting with the determination of SC.

CM007 – GCT Station Caverns and Track:

Schedule: Milestone #4 (Track & 3rd Rail Work Complete) August 7, 2019, is now November 21, 2019, -106 days. Milestone #5 (Substations US1 and US2 Complete) June 27, 2018, was scheduled for October 26, 2018, but not achieved, -42 days. Milestone #5A (Caverns Ready for Integrated Systems Testing) August 7, 2019, is now September 6, 2019, -30 days. Milestone #6 (All Caverns and Tunnel Work Complete) December 16, 2019, is now February 18, 2020, -64 days. Milestone #6A (Substantial Completion) January 28, 2020, is now March 5, 2020, -37 days. ESA and the contractor continued discussions for the contractor's Time Impact Analysis (TIA)/recovery schedule dealing with trackwork issues, and systems issues.

Construction Progress: South Back of House, East and West: Continued topping slab construction, MEP, and CMU installation. North Back of House, East and West: Continued MEP and CMU installation. 45th Street Lobby West: Continued CMU wall installation. East Cavern: Continued preparation for escalator #52, #53, and #54 installation and continued escalator #51 and #55 installation. West Cavern: Continued upper and lower level track curb construction, mezzanine level electrical installation, upper level MEP installation, and intumescent painting of plenum steel. Continued elevator #19 and escalator #59 and #63 installation and preparation for glass installation at elevator #8. Track: Continued trackwork construction in the Cavern and into the Tunnel Track area. Continued turnout installation. Continued qualification testing of Special Trackwork DFF assemblies; variances requested from LIRR. Through November 30, 2018, MTACC reports that Track, Third Rail and Special Track Work construction is 41.8% complete against 55.1% planned.

CM014B – Concourse and Facilities Fit-Out:

Schedule: In its ESA Q3 2018 Report, MTACC reports that this contract is 64.2% complete vs. 96.2% planned. Milestone #5 (44th St. Vent Building) June 4, 2017, then December 29, 2017; then March 2018; then June 2018; now end of 2018: CS179 continues joint occupancy. Milestone #7 (50th St. Ventilation Facility) January 27, 2018; now projected for the end of 2018. The parallel switchgear installation is ongoing.

Through November 27, 2018, the structural steel erection was 73% complete by piece and 67% by weight. As previously reported, this work is proceeding very slowly and is impacting the schedule and the CS179 contract. Cumulative metal ceiling deck progress remained at 23% complete.

Construction Progress: Electricians continued with installation of overhead racks/conduit and light fixtures in various zones and work in the Chiller Plant Room. Plumbers continued testing domestic water and installing plumbing fixtures throughout the Concourse. Installation of seismic angles has begun. Mechanical work continued with the installation of branch piping and ductwork. Painting of block walls and columns continued throughout Zones 1-4. Painting of Fire Stand Pipe continued throughout the Concourse. Installation of the marble stone wall finish continued in public areas from south to north. Installation of the suspended ceiling system continued throughout the Concourse. The CCM reports that, through November 6, 2018, the CMU work was approximately 70.49% complete.

Biltmore Connection: This work continues on the tertiary critical path for the contract.

Wellways: In the Wellways, escalator maintenance is ongoing one day every 2 months. In Wellway #1, the glass tile installation is continuing. Sprinkler installation nears completion. Glass tile installation continues. In Wellway #2, the glass curtainwall construction continues and CS179 is installing light fixtures and the PA system. In Wellway #3, escalator truss installation nears completion. The header section repair for Escalator #46 was completed. In Wellway #4, escalator truss installation is complete and truss alignment and splicing continues. Machine Room work continues. 47th Street Cross Passage: All work is on hold per Stop Work Order due to a pending design change of the area. The redesign of the 47th Street Entrance design has been completed and MTACC has approved the associated contract modification to build the entrance. Construction of the 47th Street Entrance is now the primary critical path for this contract. 50th St. Vent Facility: Work includes installation of parallel switchgear and associated conduit.

VM014 – Vertical Circulation Elements (Escalators and Elevators):

Schedule: In the ESA Q3 2018 Report, it was reported that, through June 30, 2018, 74.8% of this contract has been invoiced and 70.4% paid. Through November 30, 2018, for the CM007 contract, elevator and escalator sections continue to be delivered to the site and erection of escalators and elevators is underway.

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

Construction Progress: CM014B: All 22 escalators have been fabricated and delivered. All elevator fabrication has been completed, with the exception of EL 10 (50th St. Vent Building) and EL 22 (Biltmore Connection). Installation of Elevators #1 and #2 is beginning. Biltmore Room: The new start date for Escalators #1 and #2 installation remains May 2019. CM007: Through Q3 2018, 3 of the 6 elevators and 4 of the 16 escalators for installation on the train platforms were delivered.

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	262.2	3.2	261.3	263.5	100.0%	99.6%	9/6/16	12/31/18	
	nc	+0.7	(-0.8)	nc	nc	nc	(0.3%)	nc	nc	
	265.4	261.5	4.0	261.3	263.5	100.0%	99.9%	9/6/16	12/31/18	
CQ033	325.0	298.9	26.0	137.3	343.1	40.9%	46.0%	8/18/18	10/25/20	
	nc	+0.2	(-0.3)	+8.9	(-1.9)	nc	+3.0%	nc	(-10cd)	
	325.0	298.7	26.3	128.4	345.0	40.9%	43.0%	8/18/18	11/4/20	

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

Please refer to the contract narratives for additional information.

CQ032 – Plaza Substation and Queens Structures:

Schedule: MTACC is currently projecting Milestone MS#6, Substantial Completion (SC), by December 31, 2018, and MS#7, Final Completion, by March 31, 2019.

Construction Progress: The CQ032 contractor continued the following activities to progress work in November 2018: work regarding closure of NCRs, work to eliminate water infiltration conditions, documentation, and other commercial items. Of concern remain the seven NCRs

related to tunnel duct bench clearance as-built deviations from plan which may require selective bench reconstruction to meet train operation clearance requirements.

CQ033 – Mid-Day Storage Yard Facility:

Schedule: MTACC reports that Milestones #1, #2, #3, and #4 have been achieved. 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 Storage Yard. AR#2 requires the installation of new catenary poles and Amtrak wire transfers. The contractor requires both AR#1 and #2 to install underground ductbanks to complete the YS Track, followed by Integrated Testing. MTACC currently forecasts MS#6 Substantial Completion (SC) at October 25, 2020, -76 days.

Construction Progress: The CQ033 contractor continued the following construction activities in November 2018: water main installation, fire line installation, storm sewer installation, and duct bank construction. Other activities: Car Appearance Maintenance platform work, CMU wall construction for Cart Storage Building, foundation construction for Storage Building and Toilet Service Building, Yard lighting foundation and pole construction, catenary structure work, traction power cable pulls, and ballast retainer work continued. Signal CIL MID-3 was set in November 2018, and cable installation, tagging and termination continued. Also, rail and turnout manufacture continued.

Systems Contracts

Costs and substantial completion dates are tabulated below for active Systems contracts. Contract CS086 has been awarded with Notice-to-Proceed and is anticipated to be added to this table in the next report.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
CS179	606.9	572.5	34.5	438.1	644.3	81.5%	76.0%	7/1/20	7/27/21	1
	nc	nc	nc	+6.6	(-0.1)	nc	+0.8%	nc	nc	
	606.9	572.5	34.5	431.5	644.4	81.5%	75.2%	7/1/20	7/27/21	
CS084	79.7	73.4	6.3	20.5	82.8	85.1%	28.0%	12/2/19	4/5/21	
	nc	nc	nc	+2.2	nc	nc	+3.0%	nc	(-4cd)	
	79.7	73.4	6.3	18.3	82.8	85.1%	25.0%	12/2/19	4/9/21	
VS086	21.8	19.9	1.9	11.8	22.2	NA	59.0%	10/14/19	10/14/19	
	nc	nc	nc	+1.1	nc	NA	+5.2%	nc	nc	
	21.8	19.9	1.9	10.7	22.2	NA	53.8%	10/14/19	10/14/19	
VH051	30.2	29.7	0.5	29.5	30.2	NA	99.6%	4/30/15	5/31/21	
	nc	nc	nc	nc	nc	NA	nc	nc	+517cd	
	30.2	29.7	0.5	29.5	30.2	NA	99.6%	4/30/15	12/31/19	

Notes: Costs in millions; line 1 = current value; line 2 = period change, nc = no change; and, line 3 = prior value
Please refer to the contract narratives for additional information.

1. 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 a mid-November 2018 Progress Meeting that reviewed contract progress up to November 14, 2018. 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, unresolved issues, and obstructions in CS084 work areas

from other ESA contractors, SWOs, and site access restraints. The timely development and issuance of necessary contract modifications on this contract and other contracts for which work is required to progress the CS084 work is improving, but continues to be an issue requiring further focus.

Design Progress: The design focus is now on developing solutions to issues identified during site surveys and construction activities. As these issues are identified, the GEC is being tasked to develop design solutions. There is, however, one original design effort, LIRR's approval of SCADA software that needs to be accomplished to progress the work.

Construction Progress: A considerable amount of equipment for the substations has been fabricated and delivered to storage, where it will remain until the TPSS rooms for those substations are ready for their installation of the substation equipment. 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. Progress on addressing the issues has been exceedingly slow, as a significant number of the cited issues involve coordination with other contracts and will require the development and issuance of contract modifications to various contracts.

MTA has the contractual obligation to provide 26 Inductive Reactors to the contractor for installation at various locations. The contractor initially refused to accept these reactors based on concerns about apparent damage to some units and notified MTACC of this problem. Although considerable discussions regarding the condition and utilization of the reactors ensued and continues, the contractor, after some minor functionality testing, took possession of two of the reactors for installation at the Vernon facility.

The PMOC previously reported significant Quality issues related to the 2 of the 18 required substation transformers while undergoing hi-pot testing. Repairs were made to one transformer, a re-test was performed, and another failure occurred due to foreign debris in the transformer coil. The GEC has recommended that all the coils in the C03-2 transformer be replaced and hi-pot testing of this re-built transformer be performed. MTACC is waiting for a recommendation on this from the transformer manufacturer and the CS084 contractor.

The PMOC remains concerned about several issues, including:

1. TPSS equipment delivery methodology (means and methods);
2. Installation of the C08 traction power cables due to missing conduit and manholes;
3. Transformer hi-pot testing failures;
4. Verification of existing conduit and manholes in several substations;
5. Coordination with other contractors;
6. Possible damage to the MTA-provided inductive reactors due to improper storage and handling by MTA; and
7. Water infiltration issues in the facilities

CS179 – Systems Package 1 – Facilities Systems:

Schedule: MTACC reports that the SC date for this contract has slipped one month from that previously reported and the new date is July 27, 2021. The PMOC continues to question the validity of achieving substantial completion by that date, because the schedule:

1. Is based on the premise that all submitted designs are final (which is not the case);
2. Considers that all field work is ready-to-go as currently understood (which is not the case);
3. Does not take into consideration any impact from the open NOCs;

4. Does not address any impacts to the contract work from SWOs that remain in effect past the data date of the schedules; and
5. Does not yet include the required Integrated System Test Plan (ISTP) and test schedule that incorporates MTACC's incremental approach.

The PMOC acknowledges that ESA has reported that negotiations with the contractor regarding the Incremental IST schedule was recently concluded.

Design Progress: The final approval of all 10 control system Final Designs (FDs), a critical activity, is now 31 months late. MTACC Senior Management indicates that the LIRR has formally approved 8 out of the 10 Control System FDs. The contractor is also responsible to design, install, and test 19 Non-Control systems; several of which, according to the contractor, 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 and that any continued progress on system designs and equipment testing is being severely hampered by unanswered RFIs and unissued CPRs that have the potential to alter existing designs. However, the contractor continues to move forward with the development of test plans and equipment fabrication. Further, factory testing of equipment for 5 of the 10 Control Systems and 2 of the 19 Non-Control Systems is on hold pending the resolution of adjacent contractor coordination issues, Stop Work Orders, and resolution of RFIs and NOCs.

Construction Progress: In November 2018, the CS179 contractor continued to progress installation of conduit, cable, fire stopping, fire standpipe, lighting, vent fans, 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. Furthermore, the previously noted concern related to environmental conditions in the various equipment rooms and the "open" type equipment racks remains an item of discussion between MTACC, LIRR, and the contractor.

VS086 – Systems Package 3, Signal Equipment Procurement:

Schedule: The milestones for this contract must be modified to accurately evaluate progress. It remains unclear when this schedule update will take place. MTACC has already indicated that the contract modification for incorporation of PTC requirements will impact the contract substantial completion date. The timely development and issuance of contract modifications continues to be an issue impacting the efficient progression of the contract work. 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 are approved.

Design Progress: The contractor continued to assert that the lack of timely responses on design submittals and inquiries caused delays in the progression of the work. There are two contract modifications required for incorporation of PTC into the signal design – one for the GEC and the other for the VS086 contractor to incorporate the circuitry into the VS086 signal design.

The previously noted issue of Electro-Magnetic Interference (EMI) with ESA signal and communications equipment remains an open issue and the contractor will re-submit a waiver request to delete this contract requirement.

Equipment Fabrication Progress: The Plaza Interlocking equipment FAT issues were resolved and the signal cases were turned over to the CS086 contractor for future installation. LIRR continues

to indicate that re-testing of the Plaza Interlocking equipment cases will be required once they are delivered to the ESA work sites.

CS086 – Tunnel Systems Package 2 – Signal Installation

Schedule: The Joint Venture (JV) submitted a preliminary schedule to MTACC for review and the baseline schedule is due on December 14, 2018.

Design/Construction Progress:

- Once again, MTACC reminded the JV that personnel installing signal equipment are governed by the Federal Hours of Service Laws related to signal-covered service.
- MTACC rejected the JV's original submission of fiber optic cable it intends to use as it does not conform to the requirement that all cabling in the tunnels must be of the Low-Smoke-Zero-Halogen (LSZH) type to meet LIRR and MTA requirements.
- The JV advised that the Plaza Interlocking equipment room has a major water infiltration issue that needs to be addressed.
- The JV advised that it wants to perform surveys of all equipment locations to identify any issues (e.g., water infiltration, obstructions, etc.) at those sites.
- The JV believes that Room 4G36 is too small to fit all the proposed equipment.
- MTACC will send a significant amount of revised/additional contract drawings and specifications to the JV for pricing and inclusion in the baseline schedule. The associated contract modifications will follow.

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
CH057D	29.6	22.4	7.2	9.8	29.0	14.5%	43.9%	1/31/19	5/30/19	
	nc	+3.0	(-3.1)	+0.9	+0.5	nc	(2.2%)	nc	+119cd	
	29.6	19.4	10.3	8.9	28.5	14.5%	46.1%	1/31/19	1/31/19	

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

CH057D – Harold Trackwork Part 3:

Schedule: The CH057D contractor did not complete any specific schedule milestones during November 2018.

Construction Progress: During November 2018, the contractor completed its portion of Track A construction from the #2122 turnout to the Tunnel A Approach structure, continued to install the Westbound Bypass Track (NEQ construction), and began SEQ track construction with placement of the west end of the #6199 crossover.

CH058A – Harold Structures – B/C Approach

Schedule: MTACC issued the Notice of Award for the CH058A contract on October 25, 2018, although it does not intend to issue the Notice to Proceed until early December 2018. During November 2018, ESA conducted a series of discipline kick-off meetings, which was highlighted by the project kick-off meeting on November 29, 2018.

Construction Progress: ESA does not anticipate any significant CH058A construction progress until mid-to-late 1Q2019.

Railroad Force Account Contracts

Costs and substantial completion dates are tabulated below for active Force Account packages. Railroad force account agreements do not contain schedule requirements, so the PMOC will not report on schedules in this section.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
FHA01	18.8 nc 18.8	18.8 nc 18.8	-- nc --	18.6 nc 18.6	18.8 (-0.1) 18.9	100.0% nc 100.0%	99.0% nc 99.0%	2/4/16 nc 2/4/16	4/20/19 nc 4/20/19	1
FHA02	60.9 nc 60.9	60.8 nc 60.8	0.1 nc 0.1	60.1 +0.2 59.9	60.5 +0.2 60.3	100.0% nc 100.0%	98.7% +0.3% 98.4%	8/15/17 nc 8/15/17	6/19/19 +7cd 6/12/19	1
FHL01	29.1 nc 29.1	29.0 nc 29.0	0.2 nc 0.2	26.9 nc 26.9	34.2 (-0.3) 34.5	100.0% nc 100.0%	92.3% +0.1% 92.2%	4/9/15 nc 4/9/15	4/19/19 +65cd 2/13/19	1
FHL02	114.8 nc 114.8	113.2 nc 113.2	1.7 nc 1.7	113.2 nc 113.2	123.4 +0.7 122.7	100.0% nc 100.0%	98.6% +0.1% 98.5%	11/25/16 nc 11/25/16	12/23/20 +119cd 8/26/20	1

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

Please refer to the contract narratives for additional information.

1. Budgets for force account work are made on an as needed basis. Actual cumulative percent complete is based on the Total Budget Value, not the Approved Contract.

FHA01 – Harold Stage 1 Amtrak:

Amtrak Electric Traction (ET) personnel completed reconfiguration work on the H24 catenary break in Harold Interlocking during November 2018, which completed all Stage 1 work in its agreement.

FHA02 – Harold Stage 2 Amtrak:

During November 2018, Amtrak ET personnel completed restoration of the catenary wires over the LIRR Port Washington #1 (PW1) and Amtrak New Haven #1 (NH1) Tracks, which allowed Amtrak to resume revenue train operation over its normal route through Harold Interlocking into Penn Station.

FHL01 – Harold Stage 1 LIRR:

During November 2018, LIRR ET personnel completed preparations for cutover of the new G02 Substation, which is scheduled for mid-December 2018.

FHL02 – Harold Stage 2 LIRR:

During November 2018, LIRR Signal personnel continued snow melter installation for the Northeast Quadrant (NEQ) turnouts and began signal conduit and cable installation for the Southeast Quadrant (SEQ) turnouts. LIRR Electric Traction personnel began installation of 3rd rail and traction power conduit for the SEQ turnouts.

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 ESA Q3 2018 Report. The PMOC continues to track developments regarding the Contract CS084 transformer test failures that occurred in 2017 and 2018 as well as the concerns about the condition of the 26 inductive reactors provided by MTACC to the CS084 Contractor.

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The ESA program primary critical path in IPS 110 remains through Manhattan/Systems work and ends on May 31, 2021. Table 2.2 shows the contracts and work that comprises the Manhattan/Systems path as reported in this update. There were no significant changes to the scope

that comprises the Manhattan/Systems path in IPS 110 and its end date is unchanged from IPS 109.

The IPS schedule is based on MTACC's plan for incremental IST that remains as a proposal, which has not yet received final acceptance by either the LIRR or the contracts that could potentially be impacted (CM007, CM014B, CS179, VS/CS084). The IST dates and durations forecasted in IPS 110 are subject to execution of contract modifications so that incremental testing can begin as early as practical, activities have sufficient durations, and resources are leveled. The ESA program schedule contingency could be impacted if the Incremental IST is not started in the forecasted timeframe.

Table 2.2: Primary Critical Path – IPS 110, October 1, 2018

Activity Name	Duration	Start	Finish
CS084 Tunnel Systems Package 4 – Traction Power			
C08 Building Section Fabrication	168	21-Sep-18 A	7-Mar-19
C08 FAT Test, Ship and Deliver	75	8-Mar-19	21-May-19
C08 Assembly, Conduits, Equipment and Ground	247	22-May-19	23-Jan-20
C08 Functional Tests, ConEd Energize / In Service	123	24-Jan-20	25-May-20
C08 Conduits; Pull, Rack, Terminate Cables; Testing	207	26-May-20	18-Dec-20
CS179 – System Package 1 – Facilities Systems			
IST for Traction Power	9	21-Dec-20	29-Dec-20
IST for Radio Systems and CTC	153	30-Dec-20	31-May-21
Program Activities			
FRA Testing (signal and power) †	113	31-May-21	20-Sep-21
LIRR Final Tests and Final Preview ‡	83	21-Sep-21	12-Dec-21
Issue Contingency	71	13-Dec-21	21-Feb-22
Target Revenue Service Date			21-Feb-22
ESA Program-Level Contingency	295	22-Feb-22	13-Dec-22
Public Revenue Service Date			13-Dec-22

Notes: † Successor to Manhattan/Systems work path and Queens work path.

‡ Successor to Harold Interlocking work path.

Discussion of Progress along the Critical Path

The Manhattan/Systems critical path held its completion date of May 31, 2021, in IPS 110. The critical path starts with the ongoing fabrication of CS084 traction power substation C08. CS084 continues to control the majority of the Manhattan/Systems critical plan as it has since IPS 108. In IPS 110, the fabrication of C08 building sections ends on the same date as in IPS 109; however, ESA is aware of ongoing delays in the substation fabrication, which it anticipates addressing in the next IPS update. The work path continues through C08 factory testing, delivery, installation, grounding, field testing, and ConEdison testing. This is followed by installation of traction power conduits and cables, terminations, and energization of C08. The CS084 work is followed by CS179 traction power and radio systems IST through to the end of the Manhattan/Systems path in May 2021. From this point, the path runs through LIRR FRA testing for signals and traction power and then LIRR final testing and previews. This is followed by the Issue Contingency activity, which remains approximately 10 weeks in this update, and leads to the Target RSD on February 21, 2022.

The Manhattan/Systems work path is subject to change due to several open/unresolved issues. The schedule includes the MTACC proposal for incremental IST, which needs to be discussed, negotiated, and accepted by the LIRR; executed in a contract modification for CS179; and, then subsequently incorporated in contract modifications for the interfacing contracts, as may be necessary. Additionally, the schedule includes a placeholder activity for the construction of the 47th Street Entrance, which has an assigned duration of more than one year. Finally, the MTACC is working through the implications that the major redevelopment of 270 Park Avenue could have on the ESA program.

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

Appendix B, Table 6, shows the ESA Program activities on the primary critical Manhattan/Systems work path that are planned for the next 90 days as forecast in IPS 110.

Sub Program Longest Path – Harold Interlocking

Harold Interlocking work continues to have the second longest of the three ESA program areas in IPS 110. In IPS 110, the path concludes on June 4, 2021, approximately 3 weeks later than date shown in IPS 109, thereby reducing the float on this path by 3 weeks. The Harold path changed this period with CH058A disappearing from the start of the path because it was awarded (without NTP) and replaced by CH057D and force account prep work. Additionally, a third party contract, CH063, has been introduced at the end of the work path to perform catenary work.

In IPS 110, the Harold Interlocking work path begins with preparatory work in the Harold southeast quadrant by force account forces and CH057D to reconfigure tracks before the construction of the B/C approach. The IPS shows that this work period is interrupted for approximately 8-weeks to shut down for winter weather. The timely completion of this work is predicated on MTACC securing approval of track outages which are planned for December 2018 and January 2019. The Harold Interlocking path continues with the CH058A design for underpinning the 39th Street Bridge. The date of Access Restraint 1 slipped 3 weeks in IPS 110 to March 29, 2019, after which CH058A performs the bridge underpinning and B/C Approach construction through August 2020. The path continues with CH058A track work until December 2020 and is followed by LIRR force account track and signal work and testing of the B/C track until April 2021. The final work on the Harold path is by CH063 (a new contract) for third party catenary work, which ends on June 4, 2021. The Harold Interlocking work path in IPS 110 ends 17 calendar days later than in IPS 109, and now has 109 CDs of float to the start of LIRR final systems testing in September 2021, at which point the path merges with the Manhattan/Systems critical path. The float on this path decreased approximately 3 weeks due to the delay in completing preparatory work leading to Access Restraint 1 by force account and CH057D.

Sub Program Longest Path – Queens

The Queens (Mid-Day Storage Yard) work path is the shortest of the three ESA program areas in IPS 110. The Queens path remained the same during the update period, and improved the completion date by 10 CDs to October 25, 2020. The float on the Queens longest path has increased to 218 CDs due to the earlier finish date.

The Queens path in IPS 110 has the same scope, with slight improvements in forecasted finish dates and float. The Queens path begins with the ongoing resolution of the Amtrak catenary-signal trough conflict (CPR025), by the release of Access Restraint 2 on March 30, 2019. The work path then gains approximately 2 weeks as it runs through construction of sewers in the Mid-Day Yard followed by signals and power systems construction; track construction; signal installation; MID-8 CIL and battery hut commissioning and ends in October 2020 at the conclusion of Mid-Day Storage Yard integrated testing. The Queens path ends 10 CDs earlier in IPS 110 on October 25,

2020, with 218 CDs of float to the LIRR FRA testing activity where the path merges with the ESA program critical path.

Upcoming Contract Procurements

Table 2.4 shows the status of current and upcoming contract procurements as reported in IPS 110 (October 1, 2018).

Table 2.4: Procurement Schedule

Contract Description	Advertise Date	Bid Date	NTP	Project Length	Substantial Completion
CH058A: Harold Structures - Part 3A B/C Approach Structures	5/4/18A	8/9/18A	11/9/18	27 mos.	2/17/21
CH063: ET Catenary Work 3rd Party	1/17/19	3/5/19	5/5/19	25 mos.	6/4/21

CH058A, B/C Tunnel: Awarded on October 25, 2018, with NTP anticipated December 7, 2018.

CH063 Electric Traction Catenary Work, 3rd Party: The contract includes design-build ET catenary relocation work for Mid-Day Storage Yard and all catenary work required for operational readiness in Harold Interlocking. The advertisement date is forecast for January 7, 2019. The receipt of bids and notice to proceed are forecasted as March 5, 2019, and May 5, 2019, respectively.

PMOC Concerns

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

1. Concerns continue about the Manhattan/Systems work path. Until MTACC works through the uncertainties concerning Incremental IST, 47th Street Entrance, and redevelopment of 270 Park Avenue, future schedules may show the changes to the critical path, further delays, and reduction of the Issue Contingency. It is likely that program float could be consumed in reaching agreement with the CS179 contractor on the incremental IST schedule.
2. The PMOC has growing concerns about the significant schedule changes that resulted in major shifts among contracts on the Manhattan/Systems schedule path, which is the ESA Program Critical Path. The fundamental issue is that the MTACC does not yet have a final agreement among the contractors and LIRR for the Incremental IST schedule, which will exert a significant influence on the critical path. Until this schedule is locked down, the ability of the ESA programs to achieve the planned RSD is uncertain at best. The MTACC and CS179 contractor agreed on a syndicated IST schedule in November 2018, which will be incorporated in the IPS after a contract modification is executed.
3. The ESA program schedule contingency remains at 295 CDs, which is only 20 CDs above the minimum required FTA ELPEP schedule contingency. The ability of the MTACC to maintain the FTA minimum until the next ELPEP hold point (95% constructed; fourth quarter of 2020) is at risk due to the uncertainties about the Manhattan/Systems schedule, the greatest of which is finalization of the plan for the Incremental IST.
4. Progress on CS084, Tunnel Systems Package 4 – Traction Power, is slow and is currently reported as 28.4% complete compared with 87.6% as-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 continue to analyze options to recover the schedule by focusing on major electrical equipment submittals and layouts, identifying major issues, and, determining corrective measures.

5. Concerns continue for the delay in procuring CS086, Tunnel Systems Package 2 – Signal Installation. The delay in issuing the actual NTP for CS086 until September 21, 2018, has used valuable schedule float time that is no longer available during construction. The PMOC is concerned about the impact of this delay on the Program schedule.

3.0 COST DATA

Budget/Cost

In the ESA 3Q 2018 Report, the PMT reported that the total project progress is 74.3% complete compared to as-planned progress of 73.9% of the \$11,133 million April 2018 EAC forecast. The report also shows that construction progress reached 77.4% compared with planned progress of 77.2% of the \$8,014 million April 2018 EAC forecast, based on invoiced construction costs. Contract percentage calculations use the amount that has been allocated to each contract in the MTA Impact accounting system as their budget.

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Change Orders/Budget Adjustments

The ESA 3Q 2018 Report lists 9 change orders with magnitudes greater than \$100,000 that were executed in September 2018. The net value of these change orders was \$4.0 million. No budgets were adjusted in September 2018.

Table 3.2: Executed Change Order Log (magnitude > \$100,000)

Contract	Description / Mod No.	Amount
CH061A	Duct bank for CS179 Backbone Communication System (mod. 18)	164,473
CM014B	Transformer House 9 Drainage (CPR-A040) (mod. 161)	154,600
CQ032	Additional Water Infiltration Remediation (mod. 82)	736,350
CQ033	Raising Arch Street Track (mod. 19)	236,000
CS179	General Electrical Panel Changes (mod. 85)	1,958,500
CS179	UL Rated Cable Replacement MHTN (mod. 94)	221,000
CS179	Plaza Fire Alarm Changes (mod. 115)	162,000
CS179	2nd Ave Metal Grating Supports (mod. 118)	117,000
CS179	ESA System Clock Changes (mod. 123)	203,223

Funding

Budget Amendment 3 to the 2015–2019 Capital Plan has been incorporated into the ESA program budget. This action added \$157 million (local funds) and increased the overall ESA program budget from \$10,178 million to a new value of \$10,335 million.

Federal Funding: The total Federal funding commitment to the ESA project is \$2,698,750,620, of which \$2,698,750,495 was expended through October 1, 2018.

Local Funding: The budget for Local Funding is \$7,636.3 million, of which \$5,577.6 million was expended through October 1, 2018. Financing costs are funded and paid separately from other local sources.

PMOC Concerns and Recommendations

1. The PMOC is concerned that MTACC's strategy of holding funding as contingencies rather than funding contract budgets to their projected value results in an overstatement of both the contract completion percentages and the total value of unallocated contingencies. While

MTACC's strategy retains maximum flexibility, it differs from the generally accepted practice of committing funds to budgets for known program costs. The PMOC anticipates that the budgets will be updated after major contract modifications are executed and when the 2020–2015 Capital Plan is adopted.

2. The MTACC needs to prepare its 2020–2024 Capital Plan, which is anticipated to include approximately \$956 million to complete the ESA program and to restore \$157 million to the Regional Investment program. This future potential funding constraint could be a major risk.
3. The PMOC recommends that MTACC expedite discussions and negotiations with the CS179, CS084, VS/CS086, CM007, CM014B, and CQ033 contractors to resolve the major open cost and schedule issues and to incorporate the Incremental IST so that the associated budgets can be determined. Additionally, ongoing and possible future delays may result in increasing costs for the following contracts:
 - CS179 – the late completion of systems designs and extended schedule for Incremental Integrated Systems Testing.
 - CS084 – the late completion of final design has delayed the completion of fabrication of some traction power equipment; transformer test failures and resolution of potential damage to some of the 26 inductive reactors provided by MTACC.
 - VS086 and CS086 – incorporation of Positive Train Control into the ESA signal system and technology issues.
4. While construction expenditures continue to lag behind the rate anticipated during the 2014 rebaseline, the MTACC has updated the expenditure plan using the April 2018 EAC forecast. The PMOC has received an updated revised expenditure plan for the April 2018 EAC forecast and is continuing to work with the PMT to resolve comments.

4.0 RISK MANAGEMENT

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

Harold Interlocking – ESA Risk

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

Through November 2018, MTACC continued to adjust the “ESA First” Harold Re-sequencing plan to accommodate railroad force account constraints. As a result, the impacts caused by any insufficient Amtrak support were reduced during this period, but not totally eliminated. This situation continues to be a challenge for MTACC, although noticeable improvements have been reported to continue through November 2018 for LIRR direct Force Account work and Amtrak ET support.

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 deferred until 2025, starting with Line 2. The risk remains that tunnel systems reliability or safety issues might require Amtrak to make emergency repairs on either Line 1, 2, or 4 at any time between now and the RSD of December 2022.

LIRR Positive Train Control (PTC) Risk

This risk has three distinct elements, as discussed here.

- a.) A potential risk that may be realized in the near future is the impact that LIRR installation of PTC in Harold Interlocking may have on the Harold Critical Path work, especially the successor activities to the CIL cutovers completed in July 2018. Although LIRR originally submitted a waiver request to the FRA in early October 2017 to have the December 31, 2018, deadline extended and subsequently submitted a revised request in late December 2017, the possibility exists that FRA might not grant the waiver based on LIRR's response to the FRA's May 2, 2018, request to resubmit the alternate PTC implementation plan and revised schedule. If the waiver is denied, PTC installation may take precedence over the ESA work in Harold. The PMOC notes that LIRR's response to FRA, due by August 2, 2018, had not been issued as of November 30, 2018.
- b.) Another second risk is that LIRR may divert some level of force account resources away from support for the ESA work to provide support for LIRR's systems-wide PTC work during the remainder of 2018.
- c.) A third risk is that LIRR did not complete PTC design in 1Q2018, as earlier projected, and design completion is now not expected until January 2019. The GEC acknowledges that the required associated design changes for ESA Contracts VS086, CS086, and CS179 cannot be completed until the PTC is finalized. The PMOC continues to monitor this situation to determine if it presents any schedule risk to the three cited ESA contracts and also with regard to finalization of the CS179 Integrated System Testing Plan and Schedule. MTACC acknowledges that the contract modification for incorporation of PTC requirements will impact the substantial completion date for Contract VS086.

Capital Funding Risk

MTACC is forecasting that the ESA program will need approximately \$956 million in the 2020–2024 Capital Plan. The PMOC remains concerned that, until the 2020-2024 Capital Plan is approved, this potential future funding constraint may significantly impact the program budget and schedule as well as the start of Revenue Service.

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. During October 2018, LIRR issued the second solicitation for the Phase I, "Pre-Qualifications", portion of the procurement after cancelling the first solicitation that was advertised in November 2017. The new procurement included revised M-9A specifications and additional equipment requirements. Responses to this new solicitation were due on November 28, 2018, but LIRR extended the deadline for responses until mid-December 2018 due to numerous vendor questions. Although the procurement will be a two-step RFP and the Phase I portion must be completed before the Phase II, "Cost/Technical", portion can begin, nonetheless LIRR intends to award the contract in June 2019. The PMOC considers this schedule to be overly optimistic based on previous LIRR vehicle procurements.

Manhattan/Systems Performance Risk

The fabrication of the Contract CS084 TPSS C08 building sections at the beginning of the path lost time previously, and the PMT anticipates additional delays will be revealed in the next IPS update. Additionally, the Manhattan/Systems path is at risk for future open/unresolved issues. The schedule includes the MTACC proposal for an Incremental IST, which needs to be accepted by the LIRR; executed in a contract modification for CS179; and then subsequently incorporated in contract modifications for interfacing contracts, as may be necessary. The process for

incorporating the Incremental IST is progressing, but is taking longer than earlier anticipated. Additionally, the schedule currently includes only a placeholder activity for the 47th Street Entrance, which has an assigned duration of more than one year. Finally, MTACC is working through the implications that the development of the new building located at 270 Park Avenue could have on the ESA program. Without better definitions of the scopes of work, schedule impacts cannot be accurately forecast.

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. All aforementioned updates will be consolidated in a draft, anticipated to be issued in December 2018.
- **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 continues to note progress in two previously identified areas – Issues Management and Timely Decision Making, particularly when responding to new issues arising from the railroads' Force Account resource availability, track outages, and other issues regarding the remaining work in Harold Interlocking.
- **Project Management Plan:** MTACC is using the current version of the PMP, Rev. 10, that the PMOC reviewed and the FTA accepted earlier in 2017.
- **Cost/Schedule Contingency:** MTACC, the FTA and the PMOC are in agreement 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 MTACC has reported that the Schedule Contingency remains only 20 CDs above ELPEP minimum.

The ESA PMT is preparing draft updates of the Project, Cost, Schedule, Risk Management, Contract Packaging and Technical Capacity and Capability Plans. These will document the changes called for by the incorporation of the MTACC Six-Point Plan for ESA to reduce potential programmatic risks. MTACC plans to issue updated drafts for the CMP, SMP, RMP and TCC in December 2018 with the updates for the PMP and CPP to follow in 1Q2019.

- **Schedule Management Plan:** The ESA project should continue to make additional improvements to the Schedule Management Plan (SMP) in the following areas: Alternative 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, the 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.

Revisions to the ELPEP Document: 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 revised EAC, budget, and IPS, as well as organizational, management, and process changes resulting from implementation of 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 October 2018 were 1.14 for Lost Time Injuries (LTI) and 1.14 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 ESA Q3 2018 Report.

7.0 ISSUES AND RECOMMENDATIONS

Design: The PMT design management team needs to focus on the timely achievement of time-critical intermediate milestones and work closely with the GEC to provide the required Construction Phase Services for schedule critical construction/procurement efforts as determined by the PMO Analytics Group. 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 improve coordinating 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, recognizes that some improvements have been achieved, and notes that these improvements need to continue.

Procurement: The PMOC recommends that the ESA PMT update the current version of the CPP, Rev. 12.0, and minimize shifting scope for the remainder of the project. This update needs to account for the remaining third-party contracts and railroad force account packages, along with all anticipated scope/scope transfers and a procurement timeline.

Water Infiltration Concerns Regarding Contracts CS179, CS084, VS086, 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, while a number of the water remediation efforts employed have been successful, others have not; and this has caused delays to construction work. Further, the CS179 and CS084

contractors continue to advise MTACC of more water infiltration issues in areas where work access is now available and the CS086 contractor identified a serious water issue in the Plaza Interlocking facility. Investigation continues regarding the potential water infiltration/moisture issue identified in August 2018 regarding VS086 equipment rack configurations. Water conditions remain in three main areas under CQ032: the former Launch Block area, the Stair #2 area, and the former Early Access Chamber area.

Contract CQ032: The PMOC remains concerned about the resolution of seven NCRs regarding tunnel duct bench clearance as-built deviations from plan that remain pending MTACC survey analysis and resolution. These deviations have the potential to impact continuing trackwork construction and may require selective duct-bench reconstruction to correct.

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;
- Resolution and implementation of coordination issues;
- ESA PMT responses to contractor NOCs and issuance of CPRs; and,
- Timely design review and approvals to the contractor's design submittals and Requests for Information.

Contract CS084: MTACC should prioritize the execution of contract modifications to preclude any further impact to substation design and fabrication. Additionally, the PMOC remains concerned about the following issues:

1. Equipment delivery methodology (means and methods);
2. Installation of the C08 traction power cables due to missing conduit and manholes;
3. Transformer hi-pot testing failures;
4. Verification of existing conduit and manholes in several substations;
5. Coordination with other contractors; and,
6. Possible damage to the MTA-provided inductive reactors due to improper storage and handling by MTA; and,
7. Water Infiltration issues in the facilities.

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. Issues regarding the acceptability of "open-type" racks and PTC design incorporation need to be expeditiously resolved.

Contract CS086: MTACC and the contractor need to address the noted water infiltration issues and expeditiously conduct inspections of other work sites to determine if water issues, or any other issues, will preclude the expedient progress of the contract work.

Project Funding: The project is at risk due to the anticipated need for approximately \$956 million to address additional costs that were forecast by the PMT in the April 2018 program reassessment. Interim funding needs through December 2020 have been addressed. The PMOC is concerned about future potential impacts on the program budget and schedule if there are delays in funding the ESA program in the 2020–2024 Capital Plan.

Project Budget: The PMOC is concerned about MTACC's unconventional strategy of holding significant contingencies that would only be released to specific projects on an as-needed basis commensurate with construction progress and based on future contract modifications. While

MTACC's strategy retains maximum flexibility, it differs from the generally accepted practice of committing funds to budgets for known program costs. The PMOC is concerned that the strategy results in an overstatement of both the contract completion percentages and the total value of unallocated contingencies at any point in time.

Project Schedule: The PMOC remains concerned about the remaining program schedule contingency of 295 calendar days that is only 20 calendar days above the ELPEP minimum. IPS 110 shows that Manhattan/Systems work is the primary critical path for the ESA program, which has unresolved issues for Incremental IST, the 47th Street Entrance, and the redevelopment at 270 Park Avenue. Additionally, Manhattan/Systems contracts that are not on the critical path include CM014B, CM007, and CS086, each of which has its own schedule challenges that may not be readily apparent due to the linear nature of critical path reporting.

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 has been, and will continue to be, very challenging and represents a significant MTACC-retained risk. The PMOC believes that any meaningful schedule recovery, especially for Contracts CM014B, CS179, and VS084, 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 2Q 2018);
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);
10. Coordination risk retained by MTACC in Manhattan and the ESA tunnels with regard to construction and testing interface management for the systems work;
11. CS084 equipment issues involving transformers, 3 hi-pot test failures, and final resolution of concerns about MTACC provided inductive reactor equipment; and,
12. Foundation systems required for the new JP Morgan/Chase (JPMC) building at 270 Park Avenue may impact the LIRR Concourse at GCT as well as the MNR train shed. Ongoing MTA, MTACC-ESA and JPMC discussion continued through November 2018.

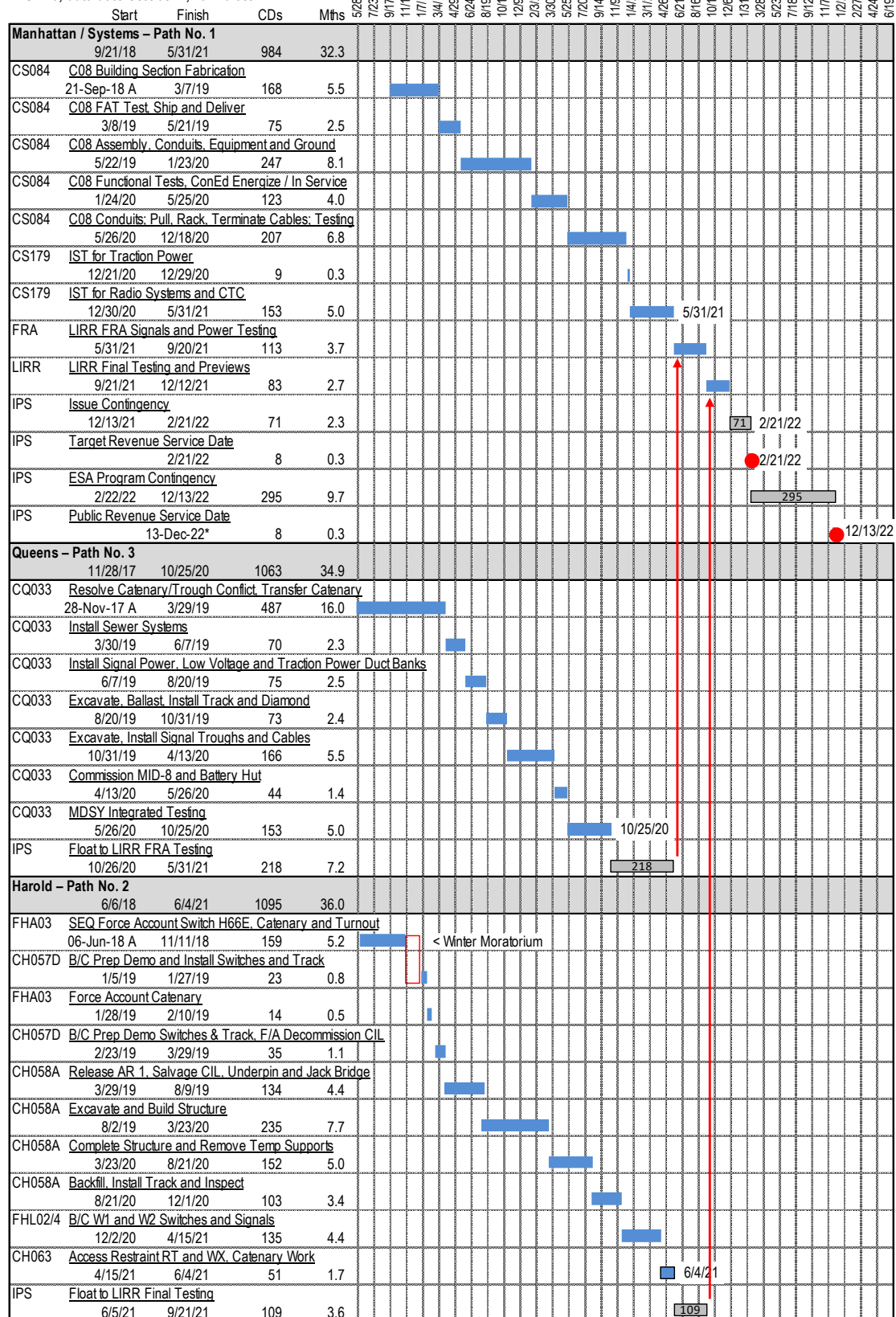
Specific remaining risks for the Harold Interlocking work, previously identified by MTACC, include the following:

1. **Positive Train Control in Harold:** LIRR submitted a formal waiver request to FRA; LIRR was required to resubmit its revised PTC Implementation Plan/Schedule by August 2, 2018, but had not done so by November 30, 2018.
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:** [No longer a risk as of September 30, 2018]
4. **LIRR CIL Cutovers:** [No longer a risk as of July 31, 2018]

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.
6. Funding: Funding constraints (risk realized in 2Q 2017; long-term risk remains).
7. Amtrak Support: Ongoing/future Regional Projects requiring extensive Amtrak support.
8. Reconstruction of Existing Amtrak ERT Lines 1 and 2: Deferred until after the ESA program. The risk now is from the impact of unplanned emergency tunnel repairs.

APPENDIX A – ACRONYMS

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



APPENDIX B – TABLES

Table 1: Summary of Critical Dates

Program Milestone	FFGA	Forecast (F) Date, Actual (A) Date		Amended FFGA ***
		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.

*** Source – Amended FFGA, August 2016

Table 2: Project Budget/Cost Table
(Cost shown in millions)

	FFGA			MTA Current Baseline Budget (CBB)			Expenditures Oct. 1, 2018	
	Original FFGA	Amended FFGA	Pct. of FFGA	Obligated	CBB	Pct. of Total CBB	Expenditures	Pct. of CBB
Grand Total	7,386.0	12,038.5	100.0%	9,923.4	11,451.5	100.0%	8,715.8	76.1%
Financing Cost	1,036.0		14.0%	617.6	1,116.5	9.7%	617.6	55.3%
		1,116.5	9.3%					
Total Project Cost	6,350.0		86.0%	9,305.8	10,335.1	90.3%	8,098.2	78.4%
		10,922.0	90.7%					
Federal Share	2,683.0		36.3%	2,698.8	2,698.8	23.6%	2,698.8	99.9%
		2,698.8	22.4%					
5309 New Starts share	2,632.0		35.6%	2,436.7	2,436.7	21.3%	2,436.7	99.9%
		2,436.7	20.2%					
Non New Starts share	51.0		0.7%	66.6	66.6	0.6%	66.6	99.9%
		66.6	0.6%					
ARRA	0.0	195.4	1.6%	195.4	195.4	1.7%	195.4	99.9%
Local Share	3,667.0		49.6%	6,607.0	7,636.2	66.7%	5,399.5	70.7%
		8,223.2	68.3%					

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

Elements	Baseline Budget June 2014	April 2018 EAC Forecast	October 1, 2018			
			Current Budget (interim)	Actual Awards	Invoiced Costs	Inv. Pct. of <u>Budget</u>
Construction Subtotal	7,379.3	8,014.1	7,537.0	7,159.1	6,199.3	82.3%
Soft Costs Subtotal	2,359.5	2,852.2	2,247.3	2,146.7	2,077.0	92.4%
Engineering	720.6	871.8	770.2	738.3	735.9	95.5%
OCIP	282.6	457.4	379.2	379.2	352.1	92.9%
Project Mgmt.	972.2	1,117.3	965.4	907.2	871.0	90.2%
Real Estate	182.1	203.7	124.9	119.2	117.8	94.3%
Rolling Stock	202.0	202.0	7.5	2.7	0.2	2.5%
Contingency Subtotal	439.0	267.0	550.8	--	--	--
Total w/o Financing	10,177.8	11,133.3	10,335.1	9,305.8	8,276.3	80.1%

Note: ESA carries the Rolling Stock Reserve as an off-line cost, outside the program budget.

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

Standard Cost Category	FFGA	June 2014 Project Budget	Amended FFGA	July 2018 CBB	Aug 2018 CBB	Sep 2018 CBB	CBB / FFGA Var.	CBB / Amended FFGA Var.
10 - Guideway & Track Elements	1,988.7	3,405.5	3,353.4	3,403.7	3,407.6	3,403.3	71.1%	1.5%
20 - Stations, Stops, Terminals, Intermodal	1,168.7	2,238.2	2,326.8	2,277.1	2,292.1	2,290.9	96.0%	-1.5%
30 - Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	516.0	531.4	558.6	56.8%	23.9%
40 - Site Work and Special Conditions	205.1	610.6	562.5	548.3	549.8	525.7	156.3%	-6.5%
50 - Systems	619.3	605.6	627.7	692.0	710.9	713.2	15.2%	13.6%
60 - ROW, Land, Existing Improvements	165.3	219.4	192.2	162.3	162.3	162.3	-1.8%	-15.6%
70 - Vehicles	494.0	209.9	879.5	15.4	15.4	15.4	-96.9%	-98.2%
80 - Professional Services	1,184.0	1,975.4	1,809.0	2,113.1	2,114.8	2,114.8	78.6%	16.9%
90 - Unallocated Contingency	168.5	439.0	720.2	607.2	550.8	550.8	226.8%	-23.5%
Subtotal	6,349.9	10,177.8	10,922.0	10,335.1	10,335.1	10,335.1	62.8%	-5.4%
100 - Finance Cost	1,036.1	1,036.1	1,116.5	1,116.5	1,116.5	1,116.5	7.8%	0.0%
Total	7,386.0	11,213.9	12,038.5	11,451.6	11,451.6	11,451.6	55.0%	-4.9%

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

Standard Cost Category	FFGA	June 2014		October 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	3,403.3	3,262.2	2,949.8
20 - Stations, Stops, Terminals, Intermodal	1,168.7	2,238.2	2,326.8	2,290.9	2,207.8	1,756.7
30 - Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	558.6	531.1	339.1
40 - Site Work and Special Conditions	205.1	610.6	562.5	525.7	478.8	501.7
50 - Systems	619.3	605.6	627.7	713.2	634.0	442.8
60 - ROW, Land, Existing Improvements	165.3	219.4	192.2	162.3	156.5	155.2
70 - Vehicles	494.0	209.9	879.5	15.4	10.6	5.7
80 - Professional Services	1,184.0	1,975.4	1,809.0	2,114.8	2,024.8	1,947.1
b(4)						
Subtotal	6,349.9	10,177.8	10,922.0	10,335.1	9,305.8	8,098.2
100 - Finance Cost	1,036.1	1,036.1	1,116.5	1,116.5		
Total	7,386.0	11,213.9	12,038.5	11,451.6		

Table 6: Program Critical Dates 90 Day Look-Ahead – IPS 110, October 1, 2018

Act. Id.	Name	Start	Finish	Float
CS084	Traction Power Systems Package 4			
C08-1560C	Fabricate Building Sections D-F	21-Sep-18 A	9-Nov-18	3
C08-1560D	Fabricate Building Sections G-I	9-Oct-18	29-Nov-18	3
C08-1560E	Fabricate Building Sections J-L	25-Oct-18	14-Dec-18	3
C08-1560F	Fabricate Building Sections M-O	20-Nov-18	9-Jan-19	3
C08-1560G	Fabricate Building Sections P-R	17-Dec-18	5-Feb-19	3
C08-1560H	Fabricate Building Sections S-T	16-Jan-19	7-Mar-19	3
C08-1560I	Complete Internal Wiring All Sections	8-Mar-19	18-Mar-19	3
C08-1700	Notification to Witness Factory Test C08 Queens	19-Mar-19	19-Mar-19	3
CQ033	Mid-Day Storage Yard Facility			
CPR-025-10	CPR-025: Catenary B-918 1/2N and B-914W Guy Anchor + Amtrak Signal Trough Resolution	28-Nov-17 A	27-Nov-18	147
SP71842	Install Signal Power Duct banks Sta 43+50 to 45+50 (Shallow)8-4"	02-Feb-18 A	9-Apr-19	154
SP71843	Install Signal Power Duct banks Sta 43+50 to 45+50 (Shallow) 2 - 3" & 8-4"	02-Feb-18 A	9-Apr-19	154
CPR-025-20	CPR-025: Construction of Runaround Duct bank	28-Nov-18	24-Dec-18	147
CPR-025-30	CPR-025: Termination of Signal & Removal of Existing Utilities interfere with the foundation (by Amtrak C&S)	26-Dec-18	11-Jan-19	147
CPR-025-40	CPR-025: B-918 1/2N Foundation & Erect Pole + B-914W Guy Anchor	14-Jan-19	31-Jan-19	147
CPR-025-50	CPR-025: Amtrak Wire Transfers	1-Feb-19	29-Mar-19	147
FHA03	Harold Stage 3 – Amtrak F/A			
CA8118	H66E Switch	06-Jun-18 A	1-Oct-18	12
1800	ET Catenary -PW1/ 1121 (H45E FTAB)DURING: NH1/PW1 OOS (ESA)	12-Sep-18 A	22-Oct-18	8
FHL03	Harold Stage 3 – LIRR F/A			
MS.6050	SEQ Weekend 2 Install 6197 Turnout	27-Oct-18	28-Oct-18	2
MS.6070	SEQ Weekend 3 - Install Partial ML2 & Surface 6197	3-Nov-18	4-Nov-18	2
MS.6090	SEQ Weekend - Contingency	10-Nov-18	11-Nov-18	2

Table 7: ESA Core Accountability Items

Project Status		Original at FFGA	Amended FFGA	Current	ELPEP **
Cost	Cost Estimate	\$7,386 M	\$10,922 M	\$10,335 M*	\$8,119 M
Contingency	Unallocated /Risk Contingency	\$169.0 M	\$720.2 M	\$550.8 M	\$260.0 M
	Total Contingency (Allocated plus Unallocated)	\$738.7 M	\$1,068.2 M	\$767.3 M	\$722.0 M
Schedule	RSD	Dec. 31, 2013	Dec. 31, 2023	Dec. 2022	April 30, 2018
Total Project Percent Complete		Based on Invoiced Amount	74.3% actual vs. 73.9% planned (ESA calc. †)		
Project Performance Rate Since 2014 ESA Re-Plan		Based on Earned Value	81.8% (PMOC calculation of construction spending at 3Q 2018 planned vs. actual since re-baselining)		
Contracts	Total contracts awarded to date		\$9,306 M	83.6% (PMOC calculation†)	
	Total construction contracts awarded to date		\$7,159 M	89.3% (PMOC calculation†)	
Major Issue	Status		Comments		
Project Funding and Budget	b(4)				
Project Cost	The ESA PMT updated the ESA program budgets based on the approval of Budget Amendment 3 for the 2015–2019 Capital Plan. The April 2018 EAC is \$11,133 million. The Amended FFGA Baseline Cost Estimate is \$10,922 million.		If the 2020-2024 Capital Plan is not approved for the required ESA funds, then there may be significant impacts to the completion of current contracts, award of remaining contracts, and/or completion of railroad force account work.		
Project Schedule	The primary critical and near-critical paths to b(4) The target RSD forecast is February 2022, unchanged from the previous IPS update. The public RSD remains December 2022. The Amended FFGA Revenue Operations Date is December 2023.				
Manhattan/ Systems Schedule Path	IPS 110 shows that the ESA Program Critical Path runs through the Manhattan/Systems contracts. This work path has several major open/unresolved issues having potentially significant schedule impacts: incremental IST; 47th Street Entrance; and, the major redevelopment of 270 Park Avenue.		Concerns continue about the ESA critical path through Manhattan/Systems work. The Manhattan/-Systems path completion date remained on May 31, 2021 in IPS 110. The fabrication of substation C08 lost time in prior updates and the PMT anticipates additional delays will be revealed in the next IPS update. Additionally, the schedule has significant unresolved issues. Acceptable work progress along this schedule path relies heavily on the effectiveness of MTACC/ESA coordination efforts across the seven area contracts.		

Notes: * The cost estimate total budget was established in the May 2018 current baseline budget.

** 2010 Enterprise Level Project Execution Plan (ELPEP) reflecting medium level of risk mitigation, excluding financing cost of \$1,116 million.

† ESA April 2018 EAC Forecast: Construction \$8,014.1million; \$871.8million Engineering; \$1,980.4million Soft Cost; \$267.0million Contingency; and, Total \$11,133.3million.