

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

Report Period August 1 – August 31, 2019

PMOC Contract No. DTFT60D1400017

Project No. DC-27-5287, Task Order No. 0002, Work Order No. 09

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PMOC Lead: **b(6)**

Length of time on project: Thirteen years on Project for Urban Engineers

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Third Party Disclaimer

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

EXECUTIVE SUMMARY

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

Overall Program Status: The Overall Program is 78.9% actual versus 79.6% as-planned (based on invoice cost and April 2018 EAC forecast).

Construction Status: The Construction Status is 82.7% actual versus 83.7% as-planned (based on invoice cost and April 2018 EAC forecast).

Contracts

Awarded/Completed: (None)

Construction Progress Issues: CM014B, CS084, CS179, CS086.

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

Program Cost and Budget: b(4)

Integrated Project Schedule: The target RSD forecast is February 14, 2022. The ESA program critical path is controlled by Manhattan/Systems work.

Risk Management: 12 major risks remain.

Harold Interlocking: No Issues.

Key Stakeholder Issues: LIRR – Late resolution of CS179, CS084, CS086, and VS086 issues; late completion of Positive Train Control Design. MTACC- Change Order processing issues, GEC CPS support for Contractor Submittals, Redesigns, RFIs, Field Conditions.

Construction Safety: 1.64 – Lost Time (LT) and 2.46 Recordable (RI) BLS Injury ratios during July 2019; both higher than June 2019.

ELPEP Compliance: b(4)

Project Management Plan: MTACC is updating PMP/Sub-plans to reflect major management, organizational, and process changes (in progress).

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

All Project Sponsor cost and schedule data included in this report is based on the MTACC East Side Access Q2 2019 Quarterly Progress Report, referenced in this report as the ESA Q2 2019 Report, which has a Cost and Schedule data date of July 1, 2019. 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 June 2019 MPR, the PMT reported the overall engineering effort at 86.8% complete compared to planned completion of 87.3%. Since the ESA July 2018 MPR, the PMT calculates summary Engineering progress as a percentage of the \$871.8 million April 2018 engineering EAC forecast.

Status of Construction Packages Advertised

CH063 Electric Traction Catenary Work: The RFQ for this contract was advertised earlier in 2019 and MTACC received seven proposals, of which four were deemed “Pre-Qualified”. Proposals from those four were scheduled to be solicited in August 2019, but they were delayed while MTACC continued to finalize the scope of work. ESA plans to schedule the solicitation for early September 2019, with contract award for mid-to-late Q4 2019.

Status of Construction Packages Not Awarded

CM015 – 48th Street Entrance: MTA/MTACC-ESA has achieved significant progress in negotiations with the owners of the buildings at 415 Madison Avenue and 270 Park Avenue regarding the ESA 47th Street and the 48th Street Entrances to the LIRR Concourse at GCT. As a result of these negotiations and anticipated agreements, The FTA de-federalized the 48th Street Entrance during August 2019. The current plan is for the owner of 415 Madison Avenue to construct the 48th St. Entrance core and shell and to complete the facility fit-out.

FQA33B, Mid-Day Storage Yard Facility – Amtrak F/A, includes provision for what was originally a second west end yard access to the Amtrak mainline through a connection from Sub 3 to Line 4. During March 2019, however, MTACC received CCC approval to pursue this option for the west end MDSY exit. Correspondingly, the funding for the FQA33A Sub 4 to Line 2 connection option, which was under previous consideration, will be transferred to the FQA33B Sub 3 to Line 4 option.

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-ESA 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 earlier reported that LIRR had been expected to complete the PTC design in January 2019, but this has been delayed due to resolving GEC/LIRR comments on the GCT3 and GCT4 application logic submittals and reaching scope concurrence with Contracts VS086, CS086, and CS179. As of August 31, 2019, LIRR has reportedly provided most of the design information to the GEC. However, there remain outstanding items required for completion of the additional scope of work for the three contracts noted above, including: Book of Plans and details of the Wayside Interface Units for Plaza Interlocking; PTC L2 Switch and FDP drawing for each ESA interlocking; Bill of Material for equipment provided by LIRR PTC; LIRR PTC test plans and procedures, including FRA test plans.

- 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. MTACC is currently working through the CPR and contract modification process with both the CS179 and CS086 contractors for incorporation of the PTC work scope. MTACC acknowledges that the contract modification for incorporation of PTC requirements will impact the substantial completion date for Contract VS086.

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. As of August 31, 2019, the number of contractor submittals continued to increase (704 awaiting MTACC response) with 201 of those (28%) exceeding the required 30 day turnaround time. The contractor continued to assert that these overdue responses are impacting the completion of design work and delaying the contract schedule. In August 2019, MTACC continued its effort to address the contractor's Notices of Change (NOC) and the issuance of Contractor Proposal Requests (CPRs) for those NOCs deemed to be warranted. As of the end of August 2019, the number of CPRs agreed to, but not yet issued is at seven (7); two (2) less than in previous reports. However, the number of unanswered contractor NOCs increased again from 11 to 14 as of the end of August 2019. The completion of Final Design (FD) for all 10 Control Systems, which was scheduled for completion 40 months ago, has not occurred yet, with two (2) of the Control Systems (Fire Life Safety and Security Management) still under design development; and, as of the end of August 2019, two (2) of the FDs (Voice Communications and Centralized Train Control) that had already received approval by LIRR are now undergoing some minor design modifications. Further, the completion of FD for all 19 Non-Control Systems continues to be delayed. The full impact of the Control and Non-Control System FD delays on contract progress remains undetermined at this time.

CS084, Traction Power Systems Package 4: Some design issues related to water remediation methodologies in spaces designated for CS084 equipment and other identified field construction issues remain open. A plan for remediation of specification non-conformance issues related to the track monuments continues to be developed and remediation has begun. Discussions with NYCT related to cathodic protection are continuing. The LIRR recently indicated that the methodology designed for activation of the "blue light" system is not what it wants. The contractor indicates that the methodology designed was previously approved when the design drawings were reviewed and approved by the MTA; and, any change in design at this time will require further changes to the PLC software. Internal discussions at MTACC are underway regarding what action will be taken.

VS086, Systems Package 3 – Signal Equipment Procurement: Work on the design to incorporate Positive Train Control (PTC) requires a contract modification that must still be developed and negotiated. In July 2019, MTACC transmitted the MTA's PTC design documents to the contractor and, based on the review of the documentation, the contractor indicates that the scope of the required work must still be finalized. Meetings between the contractor and MTA personnel are required to finalize the contractor's PTC design work scope. Several other previously identified design issues (light-out protection, train departure testing, and changes to Application Logic software) remain under discussion.

CS086, Tunnel Systems Package 2 – Signal Installation: As of the end of August 2019, the only design issues noted by MTACC on this contract revolve around issues related to installation of equipment in the field. Specific problems include the ability to properly install signal cases and signal heads in the designated locations – there are some noted obstructions – and the mounting of impedance bonds to the track bed, where mounting plate attachment points appear to be out of tolerance. A contract modification to address the changes incorporated into the conformed contract documents is still required.

b. Procurement

The ESA June 2019 MPR shows that total procurement for the ESA Program is 86.0% complete, with total awards at \$9,573 million. Since the ESA July 2018 MPR, the PMT calculates summary procurement progress as a percentage of the \$11,133 million ESA program April 2018 EAC forecast. Active procurements include:

CH063 Electric Traction Catenary Work, 3rd Party: This will be a negotiated procurement using the RFP process. The scope of work will include ET catenary relocation work for the Mid-Day Storage Yard, catenary construction work for the new W crossover in Harold Interlocking, and other miscellaneous catenary work. The contract was advertised online in January 2019 and responses were received in March 2019. Of the 7 responses received, 4 were deemed “Pre-Qualified” and will be solicited for the “Cost/Schedule” portion of the procurement. ESA is currently revising the scope of work to include the alternate MDSY track connection, previously included in Contract CH064, and to reduce the catenary work due to continued improvement in Amtrak’s electric traction construction for the ESA project. This solicitation was scheduled to be sent to the four “Pre-Qualified” vendors in early August 2019, but was delayed while MTACC continued to finalize the scope of work. It is presently scheduled for early September 2019 with award and NTP scheduled for mid-to-late Q4 2019.

c. Construction

The ESA June 2019 MPR states that the total construction progress reached 82.7% complete compared with 83.7% as-planned. Since the ESA July 2018 MPR, the PMT calculates summary construction progress as a percentage of the \$8,014 million April 2018 construction 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
CM007	709.3	667.6	41.7	499.4	717.4	84.6%	74.8%	1/28/20	9/15/20	
	nc	+0.8	(-0.8)	+15.0	(-1.3)	+2.1%	+2.1%	nc	+28cd	
	709.3	666.8	42.5	484.4	718.7	82.5%	72.7%	1/28/20	8/18/20	
CM014B	578.2	529.4	48.8	408.5	591.2	81.9%	77.2%	8/18/18	9/4/20	
	nc	+0.4	(-0.4)	+4.7	(-3.0)	+1.7%	+0.9%	(-678cd)	+70cd	
	578.2	529.0	49.2	403.8	594.2	80.2%	76.3%	6/26/20	6/26/20	
VM014	46.9	34.9	12.0	32.4	48.6	NA	92.8%	10/25/19	3/23/20	
	nc	nc	nc	+1.3	nc	NA	+3.7%	nc	nc	
	46.9	34.9	12.0	31.1	48.6	NA	89.1%	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.

CM007 – GCT Station Caverns and Track:

Schedule: The ESA Q2 2019 MPR indicates that Milestone #5 (Substations US1 and US2 Complete) was forecast for July 22, 2019, but not achieved as of August 31, 2019.

Construction Progress: North and South Back of House, East and West: Continue electrical and MEP work; continue CMU wall installation; continue bathroom tile work (SE).

Cross Passages: Continue glass tile work.

East Cavern: Continue electrical work lower and mezzanine levels; Continue sprinkler piping; Continue miscellaneous framing, duct, and painting; Continue installation of escalators 51, 52, 55, 56, and 66, and continue installation of elevator 6.

West Cavern: Continue electrical work lower and mezzanine levels; Continue miscellaneous framing, and ceiling; Continue installation of elevators 8 and 19.

Track: Continued track and turnout construction and third rail installation in the Tunnel Track areas. Qualification testing of Special Trackwork DFF assemblies was completed in July 2019. As of August 31, 2019, ESA reports overall Track Construction at 70.8% completion.

The CM007 contract reports, in their Weekly Summary ending August 25, 2019, there are 450 total monuments under their survey, covering contracts CM005, CM006, CM007 & CQ032. Of the total 450, 138 remain to be constructed and 224 are out of tolerance. Remediation is underway in CM005 and CM006 contract zones.

Architectural: Through August 31, 2019, Architectural Wall work was approximately 22.3% complete. Architectural Ceiling progress was at approximately 21.4%. Architectural Floor progress was approximately 22.3% complete.

MEP – Mechanical: Through August 31, 2019, HVAC Duct Progress remained 78.7% complete; HVAC piping remained at 75.3% complete.

MEP – Fire Protection and Plumbing: Through August 31, 2019 fire protection work remained at 69.5% complete; Plumbing progress remained at 93.1%.

MEP – Electrical: Through August 31, 2019, electric conduit installation was approximately 64.9% complete; electric fixtures installation was approximately 90.3% complete.

CM014B – Concourse and Facilities Fit-Out:

Schedule: The ESA May 2019 MPR reports that this contract was 77.2% complete vs. 81.9% planned. This change is the result of the re-baselining reported by MTACC in its April 2019 MPR. The schedule impact is that the contractor is now on a 7-Day Construction Acceleration Plan. The new contract date for Substantial Completion is June 26, 2020, excluding completion of LIRR concourse within the footprint of foundation work for 270 Park Avenue.

Construction Progress: Through August 31, 2019, the structural steel erection remained at 75% complete vs. 100% planned, has been proceeding very slowly, and has impacted the schedule and the CS179 contract. HVAC Piping (Chilling System) remained at 45% complete.

Electricians continued with installation of branch and device conduit, Lighting, Security Conduits, 45th St. Node lights, Ticket Area conduits, and wiring. Plumbers continued installation of domestic water piping, gutter drains, and sewage ejection. Mechanical work continues with CCU Inspections, pulling communications wiring, panel terminations, and Chilled Water Plant water testing. Installation of the marble stone wall finish is ongoing in public areas from south to north. Installation of the suspended ceiling system continues throughout the Concourse from south to north.

Chiller Plant: Installation of temporary maintenance valves is complete. Revisions to the chiller vent pipe routing are underway to accommodate the new JPMC Shear Walls.

Wellways: Wellway escalator maintenance is ongoing, one day every 2 months. In Wellway #1, installation dismantling of the scaffolding is nearing completion. In Wellway #2, installation for glass tile curtainwall is complete.

Elevators: Elevator #11 (3-Story Bldg.) Installation continues. Elevator #14 (TM01): The installation of the elevator enclosure is underway.

47th Street Cross Passage: At Elevator #13, installation is complete and acceptance by MNR is pending. The work at Tracks 36/35 at the MNR Express Track is underway for the construction of the modifications/additions to the Passageway “U Tub”, needed to install Escalator #32. Construction of the formwork for the new stairs from the Concourse to the Cross Passageway continues.

270 Park Building: The independent contractor for JPMC is scheduled to begin work between 47th and 48th Streets on the foundations and shear walls in Q3 2019. The CM014B contractor is digging the test pits and re-routing chilled water piping for the JPMC independent contractor.

VM014 – Vertical Circulation Elements (Escalators and Elevators):

Schedule: 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: For CM007, freight Elevators #18 and #19 have been placed into temporary “construction” service. For CM014B, Elevator #13 (47th St. Cross Passage) is being wired into the MNR system and will resume service to MNR.

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	263.6	1.8	261.5	264.6	100.0%	99.2%	9/6/16	3/1/19	1
	nc	nc	nc	nc	nc	nc	nc	nc	nc	
	265.4	263.6	1.8	261.5	264.6	100.0%	99.2%	9/6/16	3/1/19	
CQ033	326.1	316.8	9.3	217.0	348.2	77.6%	68.5%	8/10/20	10/6/20	
	nc	+2.1	(-2.1)	+7.0	(-2.4)	+2.2%	+1.8%	nc	(-25cd)	
	326.1	314.7	11.4	210.0	350.6	75.4%	66.7%	8/10/20	10/31/20	

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.

1. Substantial completion declared.

CQ032 – Plaza Substation and Queens Structures:

Schedule: The ESA Q1 2019 MPR reported that Milestone MS#6, Substantial Completion (SC), was achieved as of March 1, 2019. ESA reported the CQ032 contract will complete corrective action work for open NCRs: tunnel bench repairs, concrete defects, traction power monuments, and PAC at Plaza Structure. Remaining base contract work items were turned over to the CM007 and CS179 contracts. Ten NCRs remain open.

CQ033 – Mid-Day Storage Yard Facility:

Schedule: The ESA Q2 2019 MPR projects Milestone MS#6, Substantial Completion (SC) for October 6, 2020, -57 days.

Construction Progress: The contractor continued construction/installation of the following yard facilities: CAM Platform, Storage Building, Cart Storage Building, Toilet Service Building,; Personnel Access Bridge fire standpipe, Water main and Sanitary Sewers, Yard Lighting fixtures, and Traction power conduit, cables, and track monuments. Preparation work for B15 substation; Concrete slab and wall construction work at Tunnel D Approach continued. Under deck light fixture installation: Honeywell Bridge. Signal Location CIL MID-6 building was set in August 2019. New track and turnout construction continued.

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	690.4	675.3	15.2	529.5	714.1	78.2%	78.4%	7/1/20	7/9/21	1
	nc	nc	nc	+6.5	+5.9	+1.0%	+1.0%	(-364cd)	+10cd	
	690.4	675.3	15.2	523.0	708.2	77.2%	77.4%	6/30/21	6/29/21	
CS084	79.7	73.8	6.0	35.8	83.2	94.0%	48.4%	12/2/19	3/30/21	1
	nc	nc	nc	+2.2	nc	+1.9%	+2.9%	nc	(-29cd)	
	79.7	73.8	6.0	33.6	83.2	92.1%	45.5%	12/2/19	4/28/21	
CS086	60.9	53.0	7.9	2.3	62.8	18.1%	nc	2/21/21	5/8/21	
	nc	nc	nc	nc	+1.7	NA	nc	nc	+40cd	
	60.9	53.0	7.9	2.3	61.1	TBD	nc	2/21/21	3/29/21	
VS086	21.8	20.2	1.7	17.0	22.5	NA	83.6%	10/14/19	7/2/20	1
	nc	nc	nc	nc	+0.9	NA	(0.9%)	nc	+84cd	
	21.8	20.2	1.7	17.0	21.6	NA	84.5%	10/14/19	4/9/20	
VH051	30.2	29.7	0.5	29.6	30.2	NA	99.8%	4/30/15	7/13/21	
	nc	nc	nc	nc	nc	NA	nc	nc	nc	
	30.2	29.7	0.5	29.6	30.2	NA	99.8%	4/30/15	7/13/21	

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.

CS179 – Systems Package 1 – Facilities Systems:

Schedule: As part of its plan to complete the ESA Project, MTACC developed an Integrated System Test Plan (ISTP) to meet the testing requirements of the Project. ESA presented an outline of its Incremental ISTP to the PMOC at the end of June 2019. The PMOC was hoping that the presentation would enable it to assess if the new ISTP addresses the contractual testing requirements and if the schedule addresses the concerns previously noted with the CS179 contract schedule. Those concerns were if the schedule:

1. Was based on the premise that all submitted designs are final;
2. Implied that all field work is ready-to-go as currently understood;
3. Took into consideration any impact from the open NOCs; and
4. Addressed any impacts to the contract work from SWOs that remained in effect past the data date of the schedules.

The Incremental ISTP presented was, in the PMOC’s opinion, an outline of what would be accomplished and did not include details regarding the system tests, the testing methodologies, or

testing schedule for all the systems provided under this contract. Detailed information from MTACC regarding the June 2019 Incremental ISTP presentation is pending.

Design Progress: The completion of Final Design (FD) for all 10 Control Systems, which was due 40 months ago, has not occurred yet, with two (2) of the Control Systems (Fire Life Safety and Security Management) still under design development. As of the end of August 2019, two (2) of the FDs (Voice Communications and Centralized Train Control) that had already received approval by LIRR are now undergoing some minor design modifications. 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 continues to contend that the lack of resolution on open items (e.g., the open NOCs and Stop Work Orders) 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 and submission of test plans.

Construction Progress: In August 2019, the CS179 contractor continued to actively progress installation work efforts in the tunnels and at the ventilation and various substation facilities where access was available and conditions warranted. Local testing of installed equipment and cabling also continued. Coordination issues with other contractors, unexpected field conditions, unresolved design issues, water infiltration remediation efforts, open NOCs/CPRs, and numerous Stop Work Orders (16 as of the end of August 2019) continue to impact further and efficient progress. Environmental conditions regarding water and moisture in the various equipment rooms remain as an unresolved item of discussion between MTACC, LIRR, and the contractor. Factory testing for the last 4 of the 10 Control Systems and 8 of the 19 Non-Control Systems continues to remain incomplete due to either the lack of a completed design or the lack of approved test procedures for those systems. The contractor contends that the test procedures for these 12 systems are either “on-hold” or still in development pending the resolution of contract interface coordination issues, Stop Work Orders, and resolution of RFIs and NOCs.

CS084 – Tunnel Systems Package 4 – Traction Power Systems:

Schedule: The original SC date was May 2019. However, despite MTACC’s forecast of March 2021 as the new SC date, the CS084 contract schedule is out of date and contract milestones – and the SC date – will need to be adjusted after an approved track installation phasing plan is developed for CM007 and room access and other construction issues are resolved with the CS179 contract. The contractor continued to indicate that all of the delays are as a result of late approval of substation designs, unresolved issues, and obstructions in CS084 work areas from other ESA contractors, SWOs, and site access restraints. MTACC and the contractor continued to disagree on the contractor’s development of a “recovery” schedule, which the contractor contends it cannot reliably do until it receives necessary direction from MTACC.

Design Progress: The design focus continues to be 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. The most significant of these design issues concern the water remediation in the traction power rooms and non-compliant track monuments.

One other previously identified design related issue remains as an open item – that of agreement between the SCADA software designer and MTA regarding the submission of the “source code”, which is a commercial issue.

MTACC recently identified another design issue related to the “blue light” system being utilized to de-energize the 3rd rail, which LIRR indicates does not utilize the methodology that it wants.

The contractor's rebuttal is that LIRR already approved the design and methodology of this system when it approved the final design drawings and that any change to the design will impact the already completed PLC design. MTACC will investigate the merits of any change to the current implementation methodology.

Construction Progress: Equipment installations are complete in the C04 and C05 substations and a considerable amount of equipment for the remaining substations has been fabricated and delivered to storage, where it will remain until the respective TPSS rooms for those substations are ready. The contractor continues to cite coordination issues, water infiltration issues, access restraints, stop work orders (SWOs), and differing site conditions as its reasons why work at the various locations cannot progress. Progress on addressing the issues continues to be slow, as a significant number of the cited issues involve coordination with other contracts and require the development and issuance of contract modifications to various contracts.

MTA had the contractual obligation to provide 26 Inductive Reactors to the contractor for installation at various locations; and, these reactors were stored in an MTA storeroom waiting for the contractor to take possession of them. However, the contractor noted that many of the reactors in storage showed some evidence of damage and refused to accept them. Considerable discussions regarding the condition and utilization of the reactors ensued and after the GEC conducted follow up reviews of substation design drawings, MTACC advised that two of the reactors were no longer needed. As of the end of August 2019, only one of the remaining required reactors had been installed. The rest of the reactors are still required and no further inspection of their condition has been made as of the end of August 2019.

The PMOC previously reported significant quality issues related to the failure of two transformers while undergoing hi-pot testing; failures that necessitated a modification of the fabrication process to resolve this issue. Previously reported discussions and decisions regarding the long-term viability of the 10 transformers manufactured and tested prior to the modification of the fabrication process remain to be finalized between the LIRR and MTACC.

Corrective action to address non-conformance issues with track monuments (conduit turn ups at track level for routing of traction power cables) continues to be a major significant issue impacting the progression of work on this contract. As of August 31, 2019, there are at least 224 of approximately 450 total track monuments already constructed that are out of tolerance (although many of the monuments have not been surveyed yet). MTACC and the contractor continue to develop individual corrective action plans for each location and have already begun remediation in those locations where possible.

MTACC continues to report that the C03 substation rooms are still impacted by significant water infiltration and no solution is apparent at this time. Other water issues have been identified at the C01/C02, C05, and C06/C07 substations and are being evaluated to determine the causes and to develop remediation plans. Significant work on conduit repair/re-installation from the C04 substation to the Con Edison manhole is needed and permits to work in 63rd Street are required to perform the work. Other issues, caused by other ESA contractors regarding floor levelness and condition, are apparent at several locations, requiring remediation efforts.

Delivery of the C08 substation pre-fabricated sections commenced in mid-July 2019 and was completed in August 2019. The substation manufacturer will now begin the required interconnect cable wiring work in the various substation sections. CS084 installation of traction power cables from the C08 substation to the main line tracks in Harold Interlocking is scheduled to begin in September 2019.

As previously reported, in July 2019, the CS084 contractor attempted to install the C06/C07 transformers only to find that the shaftway between the upper and lower levels at this location was out of plumb by approximately one (1) foot, causing the transformer casing to hit one of the side walls of the shaftway. MTACC, the contractor, and the transformer manufacturer agreed that the only way to lower the transformer is to remove the outer casing of the transformer during the lowering process and then re-install the outer casing once the transformer is in place. The LIRR has raised a concern about this solution and discussions between MTACC and LIRR continue.

The PMOC remains concerned about many issues, including:

1. TPSS equipment delivery methodology (means and methods);
2. Transformer installation at C06/C07;
3. Transformer hi-pot testing failures and long-term viability of the transformers;
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;
7. Extent of non-conformance of track monuments;
8. Water infiltration issues in the facilities; and
9. Continuing design changes or re-evaluations to equipment or implementation methodology.

VS086 – Systems Package 3, Signal Equipment Procurement:

Schedule: At present, there continues to be no approved contract schedule by which MTACC or the PMOC can accurately gauge progress on this contract. Further, the milestones for this contract must still be modified to incorporate all the outstanding and added contract work. MTACC continues to indicate that a contract modification for incorporation of PTC requirements and incorporation of construction phase services to assist the CS086 contractor during installation and testing of the signal equipment will extend the October 2019 contract substantial completion date. The current forecast by MTACC shows a July 2020 S/C date, three (3) months later than that reflected in MTACC's previous monthly report.

Design Progress: Discussions regarding the methodology and scheduling of the Factory Integrated Acceptance Test (FIAT), which is performed after the FAT to test the interlocking designs and equipment as a composite systems package, were started in August 2019 between MTA and the VS086, CS086, and CS179 contractors (the CS179 contractor is providing design data for the testing). MTACC indicates that the FIAT cannot be completed until all the signal equipment is installed in the field.

Four design issues continue to need resolution or direction: 1) PTC design and incorporation; 2) direction from MTACC on requested PTC Application Logic changes; 3) Electromagnetic Interference (EMI) testing requirements; and 4) direction from MTACC on commercial issues regarding the "light-out" protection design. MTACC provided the contractor with a PTC work scope for review. However, MTA subsequently identified a request to alter the PTC Application Logic to address a train operation issue, which MTACC must decide if it is warranted and then direct the contractor appropriately. The contractor must still provide a justification for an EMI testing waiver for its ATT-20 track circuit equipment, and discussions between the contractor and MTACC continue on the "light-out" protection issue.

Equipment Fabrication and Delivery Progress: The contractor provided a plan to retrofit and/or replace any equipment that was damaged in transit to the ESA staging areas. The damaged

equipment was to be returned to the VS086 facility for repairs and re-delivery by the end of August 2019. Additionally, three (3) racks of equipment from Plaza Interlocking were to be returned to the factory for the installation of the ATT-20 track equipment. The goal was to re-deliver that equipment in August 2019, but that did not occur, however.

CS086 – Tunnel Systems Package 2 – Signal Installation

Schedule: MTACC is currently forecasting a May 2021 S/C date, a 3-month slippage in the contractual S/C date. The contractor's last monthly update of its schedule also indicates a May 2021 S/C date; but, shows delays of up to 6 months on individual contract milestones. Further, the contractor continues to cite room and track access issues that are, per the contractor, causing day-to-day delays in the progression of the work.

Design/Construction Progress: The contractor continued to advise that the Plaza Interlocking equipment room and a number of cable vaults have major water infiltration issues that need to be addressed – MTACC must still investigate.

The backlog of submittal responses by MTACC continues to be an issue.

The contractor and MTACC performed joint surveys of the GCT-4, GCT-5, and GCT-6 areas and agree that, per the contract language, the rooms are not ready for turnover from the other ESA contracts because of water infiltration, power problems, and incomplete equipment installations. MTACC needs to coordinate with the other contractors to identify and develop a plan to resolve the numerous issues delaying room turnovers to CS086.

The contractor continued with some surveys using its “mock-up” signal cases and signal heads in areas where it could obtain track access. The results of those surveys continue to indicate that there are numerous obstructions precluding the installation of signal equipment at the various locations surveyed. As of mid-August 2019, only 5 signal head locations surveyed are ready for installation without any modifications. MTACC will need to address all of the obstruction issues, including physical conflicts and inadequate space for signal equipment.

In its June 2019 report, the PMOC reported one significant issue that was identified during the surveys that could have a negative impact on the timely progression of CS086 contract work. That issue is the mounting of signal impedance bonds in the track area and the contractor's contention that there are numerous locations where the pre-installed holes in the track invert for the impedance bond mounting plates do not align with the standard impedance bond mounting plate. MTACC must still investigate the extent of this finding and any impact the remediation of this condition will have on this and other ESA contracts.

In August 2019, the contractor advised MTACC that the CIRs. Presently, the CIRs have only “temporary” power systems in use and those systems are under the control of the CS179 contractor, who continually turns the power on and off, without any prior notice, in the various CIRs to perform its work. The CS086 contractor's position is that these power shut-offs will impact the environmental conditions in the room and this would cause the risk of damage to the new signal equipment. The automatic power transfer/backup systems for the CIRs will only be operational when “permanent” power is installed in the rooms. This is not scheduled to be completed until the spring of 2020, which will delay the CS086 contractor.

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
CH058A	66.9	62.2	4.7	18.6	70.5	31.1%	30.0%	3/17/21	3/17/21	
	nc	(-1.7)	+1.7	+4.0	(-2.4)	+5.7%	+7.1%	nc	nc	
	66.9	63.9	3.0	14.6	72.9	25.4%	22.9%	3/17/21	3/17/21	

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.

CH058A – Harold Structures – B/C Approach

Schedule: The contractor completed Milestone #6, Complete C08 Ductbanks, on schedule on August 22, 2019.

Construction Progress: During August 2019, the contractor completed construction of the C08 ductbanks and continued excavation to “intervene” with the TBM cutting head west of 39th Street, excavation of the Tunnel B/C Approach Structure east of 39th Street, demolition of the old G02 Substation and Harold Interlocking CIL buildings and appurtenances, and began demolition of Pier #6 supporting the 39th Street overhead bridge (after the load was temporarily transferred).

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. Additionally, since adoption of the “ESA First” schedule, ESA discontinued references to the former “Stages” of Harold construction, although it has not done so for the cost components of Harold work.

	Current Budget	Appr'd Contract	Rem Budget	Invoice Cost	EAC	Planned Comp	Invoice Comp	Current BL SC	Forecast SC	Notes
FHA02	61.4	61.4	--	61.0	54.7	100.0%	99.5%	8/15/17	1/24/21	1
	nc	nc	nc	nc	nc	nc	+0.1%	nc	nc	
	61.4	61.4	--	61.0	54.7	100.0%	99.4%	8/15/17	1/24/21	
FHA03	14.3	5.2	9.2	7.1	15.7	100.0%	49.6%	7/25/18	6/2/25	1
	nc	nc	nc	+0.2	(-0.9)	+1.0%	+1.3%	nc	nc	
	14.3	5.2	9.2	6.9	16.6	99.0%	48.3%	7/25/18	6/2/25	
FHL02	123.1	123.1	--	119.9	126.4	100.0%	97.4%	11/25/16	8/30/21	1
	nc	nc	nc	+0.2	(-0.2)	nc	+0.1%	nc	nc	
	123.1	123.1	--	119.7	126.6	100.0%	97.3%	11/25/16	8/30/21	
FHL03	20.6	2.7	17.9	23.5	47.6	100.0%	65.2%	8/14/17	4/28/24	1
	nc	nc	nc	+0.1	nc	nc	+0.2%	nc	nc	
	20.6	2.7	17.9	23.4	47.6	100.0%	65.0%	8/14/17	4/28/24	

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. Invoice percent complete is calculated using the current approved budget.

FHA02 and FHA03 – Harold Stage 2 and Stage 3 Amtrak:

Construction Progress: During August 2019, Amtrak Electric Traction (ET) personnel continued to make catenary modifications on Subs 3 and 4 Tracks in “Q” Interlocking that will eventually enable the CQ033 contractor to construct Mid-Day Storage Yard tracks and continued to make miscellaneous necessary catenary modifications at various locations in Harold Interlocking.

Amtrak Communications & Signal (C&S) personnel continued to install signal trough and cables adjacent to Loop A Track between Loop and “T” Interlockings.

FHL02 and FHL03 – Harold Stages 2 and 3 LIRR:

Construction Progress: During August 2019, LIRR Electric Traction (ET) and Signal personnel continued to make miscellaneous necessary ESA electric traction and signal improvements, respectively, in Harold Interlocking and continued to support the CH058A contractor.

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 Q2 2019 Report. The PMOC continues to monitor developments regarding the following concerns:

1. 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. No final resolutions were achieved during August 2019.
2. Potential out of tolerance as-built bench wall clearance for railcars in ESA tunnels. See Section 7.0 (CQ032) for details of survey and remediation.
3. Potential out of tolerance as-built conditions for the new track monuments that house the conduits for the traction power cables at the track connection locations. See Section 1.0c (CM007; CS084) for details of survey and remediation.

2.0 SCHEDULE DATA

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The IPS schedule is based on MTACC's plan for Incremental IST, which has been incorporated in the IPS now that contract modifications for CS179 and CM014B were approved in April 2019. Additional schedule adjustments may be made for CM007, VS/CS084, and CS086 when/if contract modifications for IST are issued for these contracts.

Although not currently on the ESA program critical path through the Manhattan/Systems scope of work, contracts CS084 and CM014B have activities with no float and could therefore appear on the critical path.

MTACC continues to add coordination point milestone activities to the IPS schedule to track and monitor the progress of inter-contract coordination for the ESA program. These activities had experienced month-to-month changes that reduced their usefulness in monitoring progress. At this point in time, MTACC has added milestones and updated its dates to match the syndicated IST schedule, to which the CS179 and CM014B contractors have agreed. MTACC has confirmed that these milestones form its plan for progressing the ESA program and can now be monitored going forward to measure progress. No new coordination points were added in IPS 119, no points were completed, and the reforecast dates generally showed a one month slip. There remains the risk that the lack of progress through coordination points will increase the need for more concurrent work in the period leading up to and during IST than had been planned, which may further complicate and impede progress.

Discussion of Progress along the Critical Path

The Manhattan/Systems critical path completion date in IPS 119 is July 9, 2021, approximately 2 weeks later than as was shown in IPS 118.

The scope that comprises the Manhattan/Systems path in IPS 119 has changed and is best represented by two co-critical paths. Path one begins now begins with CS086 resolution of deficiencies at GCT6 CIR and wayside locations; prep GCT6 CIR and deliver and install equipment; prep GCT5 CIR and deliver and install equipment; pull signal cables, terminate and test/install relays; and Plaza CIR testing. This is followed by CS179 start of IST for track including radio testing, then CS179 substantial completion, and the end of the Manhattan/Systems path on July 9, 2021. Path two runs through CM007 installation of the signage and universal support system GCT west cavern upper platform; electrical work in the west cavern, upper; and ceiling framing and finishes. This is followed by CS179 electrical work in upper level of the caverns; Phase 3 IST for Field Network and BMS; Phase 3 IST for Fire Life Safety System; and then CS179 substantial completion. From this point, the paths pass through LIRR FRA testing for signals and power; final LIRR testing and previews; and concludes with the Target RSD in February 2022. There are an approximately 10 additional months of float to the Public RSD.

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 119.

Sub Program Longest Path – Harold Interlocking

IPS 119 shows that the Harold Interlocking work path is the second longest ESA program path. The Harold Interlocking work path concludes on August 2, 2021, in IPS 119. The float on this path is 90 calendar days. The Harold Interlocking work path begins with CH058A installing soldier piles; fabrication and installation of precast wall panels; and preparation for and completion of track work for RT, VX, and WX tracks. This is followed by force account turnout and signal work, CH063 catenary work, and force account cutovers until August 2021. At the completion of the

Harold work path, there are 3 months of float to the LIRR final testing activity, at which point the path joins the ESA program critical path.

Sub Program Longest Path – Queens

IPS 119 shows that the Queens (Mid-Day Storage Yard) work path is the longest program path. The finish date for the Queens path is October 31, 2020, in IPS 119 and is approximately one month earlier than as was shown in as in IPS 118. The Queens path currently runs through CQ033 demolition of catenary foundations; construction of low voltage signal power and traction power communications duct banks; cable pulling; testing; commissioning; and completion of IST and CQ033 substantial completion in October 2020. From the end of the Queens path, there are approximately 9 months of float to the LIRR FRA testing activity on the ESA program critical path (Manhattan/Systems work).

Upcoming Contract Procurements

Table 2.4 shows the status of current and upcoming contract procurements as reported in IPS 119 (July 1, 2019).

Table 2.4: Procurement Schedule

Contract Description	Advertise Date	Bid Date	NTP	Project Length	Substantial Completion
CH063 ET Catenary Work – 3 rd Party	Aug. 19	9/21/19	12/27/19	25 mos.	2/5/22

CH063 Electric Traction Catenary Work, 3rd Party: MTA issued an RFP on January 4, 2019, for the design-build contract. Seven “Qualification” submittals were received in March 2019, after which 4 vendors were selected to be “Pre-Qualified”. Solicitations for the “Cost/Schedule” portion of the procurement were scheduled to be issued in early August 2019, but were delayed while MTACC continued to finalize the scope of work. The solicitation is now scheduled for early September 2019, with award and NTP scheduled for mid-to-late Q4 2019.

PMOC Concerns

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

1. The PMOC has ongoing concerns about the significant schedule changes that resulted in shifts in scope on the Manhattan/Systems schedule path, which drives the ESA Program Critical Path. MTACC has recognized this and has initiated monitoring two co-critical paths. The scope on the critical path continues to shift, which is more due to changes to schedule logic than to schedule progress. While MTACC has reduced the uncertainties concerning the Incremental IST schedule with contract modifications to CM014B and CS179, further agreements are needed with secondary contractors. Risks due to the redevelopment of 270 Park Avenue have been reduced due to the MTACC-JPMC Construction Agreement. While MTACC has reached agreement with the CS179 and CM014B contractors for the Incremental IST schedule, other Manhattan/Systems contracts remain near critical and may exert a significant influence on the critical path.



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3. Progress on CS084, Tunnel Systems Package 4 – Traction Power, is slow and is currently reported as 48.4% complete compared with as-planned progress of 97.1%. The PMOC observes that work on CS084 continues to be delayed each quarter. For substations still

requiring equipment submittal approvals, fabrication is being delayed, impacting installation and energization. While many of the delays appear to have been absorbed and/or mitigated in the schedule, float to the program is being lost to this important sub-critical work. The PMOC notes that MTACC continues to work with the contractor to develop a realistic and updated schedule.

4. The PMOC has been concerned about the lack of progress to advance IST as indicated by not achieving the scheduled coordination point completion dates. With the incorporation of the syndicated schedule for IST into the ESA IPS, MTACC reestablished the coordination point activities. While additional coordination points will be added to the plan when contract modifications are completed for other contracts, they now form the backbone of a reliable execution plan. If not addressed, the lack of progress will result in the need to perform more concurrent work leading up to and during IST than had been planned, which will further complicate and impede progress. A few substations continue to have equipment fabrication issues. It is the PMOC's understanding that MTACC must provide information to the CS084 contractor, and lack of this information is impacting the contractor's schedule. With five out of the eight traction power substations still requiring equipment submittal approvals, fabrication is being delayed, impacting installation and energization. While many of the delays appear to have been absorbed and/or mitigated in the schedule, float to the program is being lost to this important sub-critical work. It is noted that MTACC continues to work with the contractor to develop a realistic and updated schedule.

3.0 COST DATA

Budget/Cost

In the ESA June 2019 MPR, MTACC reported that the ESA program is 78.9% complete compared to planned progress of 79.6% of the \$11,133 million April 2018 EAC forecast. The report also shows that construction progress reached 82.7% complete compared with planned progress of 83.7%. Since the ESA July 2018 MPR, the PMT calculates summary construction progress as a percentage of the \$8,014 million April 2018 construction EAC forecast.

Contingency

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Change Orders/Budget Adjustments

The ESA June 2019 MPR lists 7 change orders with magnitudes greater than \$100,000 that were executed in June 2019. The net value of these change orders was \$1.1 million.

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

Contract	Description / Mod No.	Amount
CM007	US1 & US2 Breakers Replacement - Installation (mod. 92)	193,292
CM007	NOC-103: Permanent Power to Elevators and Escalators (mod. 93)	318,091
CM014B	NTS - Civil Adds (mod. 257)	235,000
CS179	DC Power Supply for 9010 ASR Routers at WIN & PENN (mod. 218)	114,961
CS179	55 th Street Plenum Curbs (mod. 217)	175,000
VS086	Miscellaneous Signal System Changes (mod. 7)	225,000
CM014A	CM014A Stantec Repairs Reconciliation (mod. 61)	(144,266)

Funding

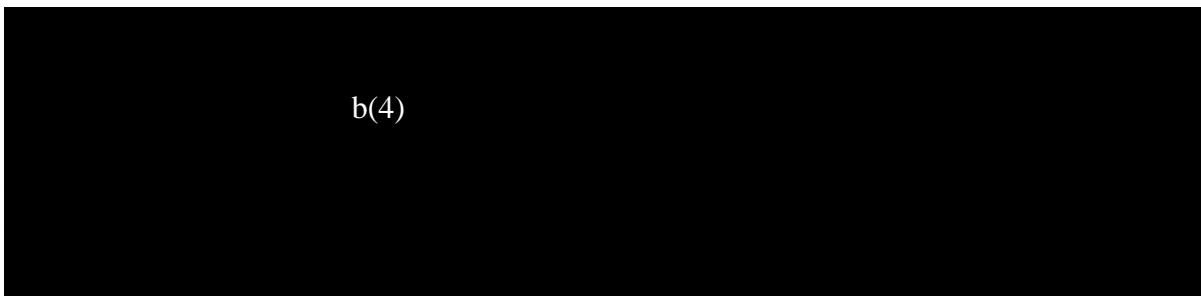
Budget Amendment 3 to the 2015–2019 Capital Plan has been incorporated into the ESA program budget established funding of \$10,335 million for the ESA program through December 2020. MTACC anticipates requesting an additional approximately \$800 million in September 2019 to fund the ESA program through completion.

Federal Funding: The total Federal funding commitment to the ESA project is \$2,698.8 million, of which all of the funds have been effectively drawn down as of July 1, 2019.

Local Funding: The budget for Local Funding is \$7,636.4 million, of which \$6,084.1 million has been expended through July 1, 2019. Financing costs are funded separately from other local sources.

PMOC Concerns and Recommendations

1.



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- [REDACTED]
2. MTACC is preparing its 2020–2024 Capital Plan, which is anticipated to include approximately \$800 million to complete the ESA program and replenish contingencies. MTACC anticipates submitting the capital plan request to the MTA board in September 2019. The MTACC cost plan forecasts drawing contingencies down to approximately \$117 million at the end of December 2020, which, should it occur, would be less than the ELPEP minimum. This future potential funding constraint could be a major risk.
 3. MTACC has executed modifications for contracts CS179 and CM014B to resolve the major open cost and schedule issues and to incorporate Incremental IST. MTACC is working with CM007 to incorporate the schedule changes in that contract. The implications of the changes on contracts CS084, VS/CS086, and CQ033 are yet to be determined. Additionally, ongoing and possible future delays may result in increasing costs for the following contracts:
 - 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.

4.0 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 August 2019, MTACC continued to adjust the “ESA First” Harold Re-Sequencing plan, as required, to accommodate any identified railroad force account constraints. The PMOC notes that the noticeable improvements for LIRR direct Force Account work and Amtrak ET support had been reported starting in Q1 2019 appeared to have been sustained through August 2019.

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. During March 2019, MTACC indicated that Amtrak may advance ERT 2 reconstruction to 2023, although this has not yet been confirmed. 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 December 2022 RSD. Should this occur, remaining ESA construction work in Harold Interlocking, as well as systems testing, start-up, and commissioning for Tracks A, B/C, and D, could be delayed and potentially impact the MTACC RSD of December 2022. There is less likelihood that it would impact the FFGA RSD of December 2023.

LIRR Positive Train Control (PTC) Risk

This risk has two distinct elements, as discussed here.

- a.) LIRR may divert some force account resources away from support for the ESA work to provide support for LIRR’s system-wide, i.e., non-ESA, PTC work currently underway.
- b.) MTACC-ESA will be installing, testing, and commissioning PTC for all of the new track and signal systems built under the ESA Program. LIRR did not complete PTC design in

either Q1 2018, as earlier projected, or January 2019, as more recently projected, due to resolution of GEC/LIRR comments on the GCT3 and GCT4 application logic submittals and reaching scope concurrence with Contracts VS086, CS086, and CS179. As of August 31, 2019, LIRR has reportedly provided most of the PTC design information to the GEC, however there remaining outstanding items required for completion of the additional scope of work for the three contracts noted above. See Section 1.0 for details. MTACC is currently working through the CPR and contract modification process with both the CS179 and CS086 contractors for incorporation of the PTC work scope. MTACC has already acknowledged that the contract modification for incorporation of PTC requirements will impact the substantial completion date for Contract VS086.

Capital Funding Risk

MTACC has forecasted a need for approximately \$800 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. MTACC will request the additional funds for the ESA program in September 2019.

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 MTACC’s RSD. Through August 2019, the LIRR continued to evaluate proposals for the vehicles during the second of its two-step RFP procurement process, the contract for which it originally expected to award in June 2019. During July 2019, however, ESA informed the PMOC that the award in not expected until October 2019 and that delivery of the first vehicle would not be until April 2023. This would be after MTACC’s Target (February 14, 2022) and Public (December 13, 2022) RSD dates, but before the FFGA RSD date of December 31, 2023. If that occurs, MTA will need to determine how to supply vehicles from its existing fleet in order to begin LIRR service into GCT. The revised Service Plan, expected in December 2019, will detail how this delay will be accommodated.

Manhattan/Systems Performance Risk

The Manhattan/Systems path is at risk for future open/unresolved issues. Contract modifications for CS179 and CM014B have been issued to address Incremental IST, which has been incorporated in the IPS but not in necessary contract modifications for interfacing contracts. Although not on the ESA program critical path through the Manhattan/Systems scope of work, contracts CS084 and CM014B have work that has no float and therefore could appear on the critical path. Contracts CS007, CS084, CS086, and CM014B all have work that has no float and therefore could appear on the critical path.

JP Morgan Chase Redevelopment at 270 Park Avenue

The foundation and substructure systems required for the planned new JP Morgan Chase (JPMC) building at 270 Park Avenue will impact the ongoing construction of the new LIRR Concourse at Grand Central Terminal. Potential impacts to the ESA design and construction work are significant. Ongoing MTA, MTACC-ESA, and JPMC discussion continued through August 2019. All MTA costs-to-date have been reimbursable by JPMC and all related MTACC-ESA work is being performed by a dedicated team so not to impact the management and technical services being provided for the ESA program. MTACC has taken the position that there will be no schedule delays to the forecast RSD and no additional costs to MTA as a result of this work. The MTA/MTACC – JPMC Memorandum of Understanding was executed by both parties on March

31, 2019. The follow-on MTA/MTACC-JPMC Construction Agreement was approved at the July 2019 MTA Board meeting and executed by both parties on July 31, 2019. With this action, MTACC believes that it has mitigated the risks of schedule delays and additional costs. Once the Construction Agreement is made available, the PMOC will evaluate the agreement, the JPMC construction schedule, and the MTA/JPMC integrated schedule, as well as the construction documents. The PMOC does note that MTACC has advised that the current CS179 Substantial Completion date of June 30, 2021, will be delayed as a result of construction of the new foundations and substructures and the associated extended systems testing.

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 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 updated the TCC Plan in Q3 2017. In April 2018, FTA advised MTACC to incorporate its current updates and 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 that was anticipated, but not met, in December 2018. MTACC provided the draft TCC Plan during May 2019.
- **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 in 2017.

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The PMOC notes that, with completion and approval of the Schedule Management Plan and Cost Management Plan updates currently in use, 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: 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. An updated draft was issued in December 2018.
- **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. An updated draft was issued in December 2018.

- **Risk Management Plan:** ESA submitted the updated Risk Management Plan in Q4 2017. 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. An updated draft was issued in December 2018.
- **Project Quality Manual:** ESA submitted the updated Project Quality Manual in February 2018. 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.

The updates of the Project, Cost, Schedule, Risk Management, Contract Packaging, and Technical Capacity and Capability Plans will document the changes called for by the incorporation of the MTACC Six-Point Plan for ESA to reduce future programmatic risks. MTACC issued updated drafts for the CMP, SMP, and RMP in December 2018, the CPP in January 2019, as well as the TCC in May 2019. The PMP will be updated based on changes made to the revised Sub-Plans.

Revisions to the ELPEP Document: MTACC submitted an updated ELPEP with suggested revisions in Q3 2017. 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 to reduce risk on the ESA project.

6.0 SAFETY AND SECURITY

Based on safety information supplied by MTA, the PMOC-calculated ESA Injury Ratios for July 2019 were 1.64 for Lost Time Injuries (LTI) and 2.46 for Recordable Injuries (RI). The LTI was above Bureau of Labor Statistics (BLS) 2019 Safety Guideline of 1.5 for LTI and the RI ratio was below the guideline of 2.5 for RI. Additionally, MTACC did not report any significant security issues in its May 2019 MPR.

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 as well as cost and schedule impacts to construction activities.

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.

Water Infiltration:

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. The CS179, CS086, and CS084 contractors continue to advise MTACC of additional water infiltration issues in areas where work access is available. In addition, water and PAC remediation issues remain in several areas under Contract CQ032.

Contract CQ032: There remain seven NCRs related to potential out of tolerance as-built railcar clearances in newly constructed ESA tunnel bench walls that require remediation. Current status: Three field changes were executed in July 2019 for the remediation of duct bench at the Bellmouth, GCT 7, and Tunnel D to maintain adequate train envelope clearances, with forecast completion December 2019.

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

- Timely delivery and discussion about the contractor's 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: The PMOC remains concerned about the following issues:

1. Equipment delivery methodology (means and methods);
2. Transformer installation at C06/C07;
3. Transformer hi-pot testing failures and long-term viability of the transformers;
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;
7. Extent of non-conformance of track monuments;
8. Water infiltration issues in the facilities; and
9. Continuing design changes or re-evaluations to equipment or implementation methodology.

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. The PMOC recommends that MTACC expedite completion of discussions regarding the development of such a schedule that addresses all the issues currently identified on this contract. Issues regarding the light-out protection design and PTC Application Logic design incorporation need to be expeditiously addressed.

Contract CS086: MTACC needs to address the noted water infiltration issues and expeditiously correct any deficiencies noted during inspections of the work sites to enable the timely progression of the contract work. The completion of an accelerated track installation phasing and usage plan for remaining trackwork with the CM007 contract needs to be expedited to avoid any further access restraint delays. The extent of the contractor-noted issue regarding the impedance bond mounting plates must be quantified by MTACC and a resolution must be expeditiously identified and implemented.

Project Funding: The project is at risk due to the anticipated need for approximately \$800 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. MTACC plans to request additional funds for the ESA program in September 2019.

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 302 calendar days that is only 27 calendar days above the ELPEP minimum. IPS 119 shows that in addition to continuing CM007 electrical work in the west cavern, work on CS086 is also now considered critical to the program by ESA. Additionally, Manhattan/Systems contracts that are not on the critical path, but are quite near to it, include CM014B and CS084, each of which has its own schedule challenges which may impact the program schedule.

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 achieving any meaningful schedule recovery, especially for Contracts CM014B, CS179, CS086, 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 (long term risk realized in Q2 2018);
2. Recovery of lost time due to significant schedule delays on 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 and effectiveness of Incremental IST;
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 (Improved performance noted through August 2019);
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 will impact construction of the new LIRR Concourse at GCT.

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

1. Funding: Funding constraints (risk realized in Q2 2018; short-term risk resolved through December 2020; long-term risk remains).
2. Amtrak Support: Ongoing/future Regional Projects requiring extensive Amtrak support.
3. Reconstruction of Existing Amtrak ERT Lines 1 and 2: Earlier deferred until 2025 after the ESA program; now possibly rescheduled to 2023, just after ESA RSD of December 2022 (public date). The risk now is from the impact of unplanned emergency tunnel repairs.

APPENDIX A – ACRONYMS

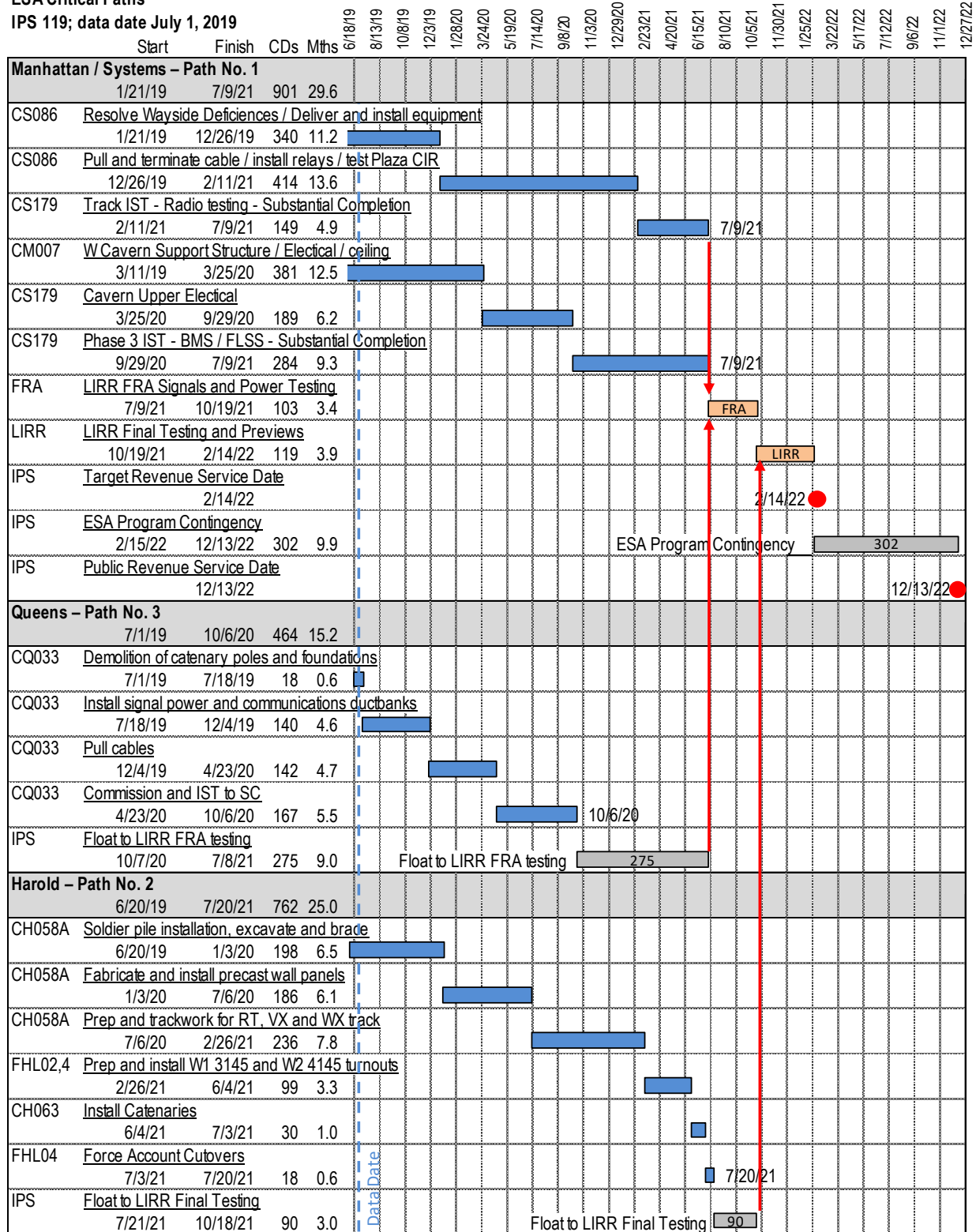
AFI	Allowance for Indeterminates	IPS	Integrated Project Schedule
ARRA	American Recovery and Reinvestment Act	IST	Integrated System Test
AWO	Additional Work Order	JPMC	J. P. Morgan Chase
BIM	Building Information Model	LIRR	Long Island Rail Road
BLS	Bureau of Labor Statistics	LSZH	Low Smoke Zero Halogen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

APPENDIX B – CHARTS AND TABLES

Chart 1: ESA Critical Paths – IPS 119 – July 1, 2019

ESA Critical Paths

IPS 119; data date July 1, 2019



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 July 1, 2019	
	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%	10,189.9	11,451.5	100.0%	9,218.1	80.5%
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%	9,572.3	10,335.1	90.3%	8,600.5	83.2%
		10,922.0	90.7%					
Federal Share	2,683.0		36.3%	2,698.8	2,698.8	23.6%	2,698.8	100%
		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	100%
		2,436.7	20.2%					
Non New Starts share	51.0		0.7%	66.6	66.6	0.6%	66.6	100%
		66.6	0.6%					
ARRA	0.0	195.4	1.6%	195.4	195.4	1.7%	195.4	100%
Local Share	3,667.0		49.6%	6,873.5	7,636.2	66.7%	5,901.7	77.3%
		8,223.2	68.3%					

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

Elements	Baseline Budget June 2014	April 2018 EAC Forecast	July 1, 2019			
			Current Budget (interim)	Actual Awards	Invoiced Costs	Inv. Pct. of Budget
Construction Subtotal	7,379.3	8,014.1	7,629.7	7,381.2	6,629.3	86.9%
Soft Costs Subtotal	2,359.5	2,852.2	2,705.4	2,192.2	2,153.5	79.6%
Engineering	720.6	871.8	795.3	766.5	756.9	95.2%
OCIP	282.6	457.4	379.2	379.2	372.6	98.2%
Project Mgmt.	972.2	1,117.3	1,053.6	924.4	905.9	86.0%
Real Estate	182.1	203.7	124.9	119.2	117.9	94.4%
Rolling Stock	202.0	202.0	7.5	2.7	0.2	3.1%
b(4)						
Total w/o Financing	10,177.8	11,133.3	10,335.1	9,573.4	8,782.8	85.0%

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	Apr 2019 CBB	May 2019 CBB	Jun 2019 CBB	CBB / FFGA Var.	CBB / Amend FFGA Var.
10 - Guideway & Track Elements	1,988.7	3,405.5	3,353.4	3,448	3,409	3,409	71.4%	1.6%
20 - Stations, Stops, Terminals, Intermodal	1,168.7	2,238.2	2,326.8	2,378	2,378	2,378	103.5%	2.2%
30 - Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	565.9	565.9	565.9	58.9%	25.6%
40 - Site Work and Special Conditions	205.1	610.6	562.5	530.9	499.8	518.7	152.9%	-7.8%
50 - Systems	619.3	605.6	627.7	737.0	712.7	712.7	15.1%	13.5%
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	2,152	2,136	2,228	88.2%	23.2%
b(4)								
Subtotal	6,349.9	10,177.8	10,922.0	10,335	10,335	10,335	62.8%	-5.4%
100 - Finance Cost	1,036.1	1,036.1	1,116.5	1,116	1,116	1,116	7.8%	0.0%
Total	7,386.0	11,213.9	12,038.5	11,452	11,452	11,452	55.0%	-4.9%

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

Standard Cost Category	FFGA	June 2014		July 1, 2019		
		Project Budget	Amended FFGA	Current Budget	Awarded Value	Paid to Date
10 - Guideway & Track Elements	1,988.7	3,405.5	3,353.4	3,408.6	3,340.2	3,069.9
20 - Stations, Stops, Terminals, Intermodal	1,168.7	2,238.2	2,326.8	2,378.5	2,297.1	1,954.4
30 - Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	565.9	556.4	431.3
40 - Site Work and Special Conditions	205.1	610.6	562.5	518.7	473.9	488.6
50 - Systems	619.3	605.6	627.7	712.7	668.5	475.3
60 - ROW, Land, Existing Improvements	165.3	219.4	192.2	162.3	156.6	155.2
70 - Vehicles	494.0	209.9	879.5	15.4	10.6	5.8
80 - Professional Services	1,184.0	1,975.4	1,809.0	2,228.2	2,070.2	2,019.9
b(4)						
Subtotal	6,349.9	10,177.8	10,922.0	10,335.1	9,573.4	8,600.5
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 119 – July 1, 2019

Act. Id.	Name	Start	Finish	Float
CS179	Systems Package 1 – Facilities Systems			
GCT-6-WLK30	MTACC Address Deficiencies found on Surveys of GCT-6 CIR & Wayside	21-Jan-19 A	12-Jul-19	0d
GCT6-CTRAY-1100	Prep & Submit GCT-6 CIR Layouts and/or Shop Dwgs	13-Jul-19	09-Aug-19	2d
GCT6-CTRAY-1110	MTACC Rev/Approv GCT-6 CIR Layouts and/or Shop Dwgs	10-Aug-19	8-Sep-19	2d
GCT6-CIR-760	Room Prep – GCT-6 CIR	9-Sep-19	20-Sep19	2d
GCT6-CIR-770	Deliver CIR Equipment to Site (Delivery from VSO86 Predecessor) – GCT-6 CIR	23-Sep-19	2-Oct-19	2d

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	b(4)				
	b(4)				
Schedule	RSD	Dec. 31, 2013	Dec. 31, 2023	Dec. 2022	April 30, 2018
Total Project Percent Complete		Based on Invoiced Amount	78.9% actual vs. 79.6% planned (ESA calc. †)		
Project Performance Rate Since 2014 ESA Re-Plan		Based on Earned Value	83.0% (PMOC calculation of construction spending at Q3 2019 planned vs. actual since re-baselining)		
Contracts	Total contracts awarded to date		\$9,573.4 m	86.0% (PMOC calculation†)	
	Total construction contracts awarded to date		\$7,381.2 m	92.1% (PMOC calculation†)	
Major Issue	Status		Comments		
Project Funding and Budget	<p>The total program budget is \$10,335.1 million, b(4) MTACC will request \$800 million in additional funding for ESA in September 2019.</p>		<p>b(4) will be used to fund contracts that are not currently fully budgeted.</p>		
Project Cost	<p>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, not including Rolling Stock Reserve. The Amended FFGA Baseline Cost Estimate is \$10,922 million and includes full cost of Rolling Stock.</p>		<p>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. Concerns remain about the time elapsed in resolving the open Cost and Schedule issues and, ultimately, their cost impacts.</p>		
Project Schedule	<p>b(4)</p>		<p>b(4) The PMOC is concerned that, until uncertainties related to Incremental IST performance and redevelopment of 270 Park Avenue are addressed, future schedules may show the shifts in the critical path, further delays, and may impact the program schedule contingency.</p>		
Manhattan/Systems Schedule Path	<p>IPS 119 shows that the ESA Program Critical Path runs through the Manhattan/Systems contracts. This work path has several major areas where contractor performance may have potentially significant schedule impacts: incremental IST and the major redevelopment of 270 Park Avenue.</p>		<p>Concerns continue for the ESA program Manhattan/Systems critical path. The Manhattan/Systems path completion date is July 9, 2021, in IPS 119. Acceptable work progress along this schedule path relies heavily on the effectiveness of MTACC/ESA coordination efforts across the seven area contracts for IST and coordination with the redevelopment of 270 Park Avenue.</p>		

Notes: *

b(4)