PMOC COMPREHENSIVE MONTHLY REPORT

East Side Access (MTACC-ESA) Project

Metropolitan Transportation Authority
New York, New York

Report Period September 1 to September 30, 2019

PMOC Contract No. DTFT60D1400017

Task Order No. 0002, Project No. DC-27-5287, Work Order No. 9

Urban Engineers of New York, D.P.C., 2 Penn Plaza, Suite 1103, New York, NY 10121
PMOC Lead: E. Williamson, 212-736-9100; ejwilliamson@urbanengineers.com
Length of time on project: Thirteen years on project for Urban Engineers

TABLE OF CONTENTS

TABLES

APPENDICES

Third Party Disclaimer

This report and all subsidiary reports are prepared solely for the Federal Transit Administration (FTA). This report should not be relied upon by any party, except FTA or the project sponsor, in accordance with the purposes as described below.

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

EXECUTIVE SUMMARY

This summary highlights key events and important issues for the 3rd Quarter of 2019.

	Q2 2019	Q3 2019	Notes
Program Status[1]	78.6% actual 78.4% as-planned	78.9% actual 80.2% as-planned	1.3% behind the April 2018 spending plan.
Construction Status[1]	82.4% actual 82.3% as-planned	82.7% actual 84.4% as-planned	1.7% behind the April 2018 spending plan.
Construction Progress Issues	CM014B, CS084, VS086, CS179.	CM014B, CS084, CS086, CS179.	Access restraints for CS086.
Funding	$10,335 m	$10,335 m	No change.
[redacted]	[redacted]	[redacted]	[redacted] Exemption b(4)
IPS Schedule	Target RSD Feb. 2022 Manh./Systems = Crit.	Target RSD Feb. 2022 Manh./Systems = Crit.	No change.
Risk Management	12 major risks	13 major risks	New risk for Q3 2019: Unacceptable as-built condition of track monuments and rail.
Construction Safety	0.39 LTI 0.78 RI	1.46 LTI 2.31 RI	Safety ratios increased from Q2 to Q3 2019.
ELPEP Compliance	[redacted] Exemption b(4)	[redacted]	[redacted]
Buy America	One issue	One issue	Potential issue from Q1 2019 resolved.

Contracts Awarded-/Completed:	No contract awarded/completed in Q3 2019.
Harold Interlocking:	Pre-fabricated C08 Electric Traction Substation assembly completed in place and Tunnels B/C and D construction continued.
Key Stakeholder Issues:	Late LIRR completion of Positive Train Control design, late LIRR approvals for CS179 final control and non-control systems designs, JPMC development of 270 Park Ave. all remained issues during Q3 2019.
Project Management Plan:	Drafts for Sub-plans SMP, CMP, and RMP submitted during Q4 2018. Revised CPP issued Q1 2019. Revised Draft TCC issued May 2019.
Organization:	The Sr. Vice President and Program Executive, Harold Systems/ Start-Up, and the Program Manager, Design Management and Support, have retired and left the program; no replacements have been identified.

All Project Sponsor cost and schedule data included in this report is based on the MTACC East Side Access Monthly Progress Report for July 2019, referenced in this report as the ESA July 2019

[1] Based on invoice cost and April 2018 EAC forecast.

MPR, which has a cost and schedule data date of August 1, 2019. Unless otherwise noted, all progress percentages in this report are based on invoiced costs and 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 Sponsor's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the 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.

QUARTERLY SUMMARY

1. PROJECT DESCRIPTION

The East River tunnels in Manhattan are at capacity. The ESA project is anticipated to improve LIRR tunnel capacity constraints and enable the growth of the overall system. The project comprises a 3.5 mile commuter rail extension of the Long Island Rail Road (LIRR) service from Sunnyside, Queens, to Grand Central Terminal (GCT), Manhattan, utilizing the existing 63rd Street Tunnel under the East River and new tunnels in Manhattan and Queens, including new power and ventilation facilities. The project includes a new eight track terminal constructed below the existing GCT and a new surface rail yard in Queens for daytime train storage. Future ridership forecast is 162,000 daily riders (27,300 new riders). The project will provide increased capacity for the commuter rail lines of the LIRR and direct access between suburban Long Island and Queens and a new passenger terminal in GCT in east Midtown Manhattan.

2. CHANGES DURING 3rd Quarter 2019

a. Engineering/Design Progress

In the ESA July 2019 MPR, the PMT reported the overall engineering effort at 86.8% complete compared to planned completion of 87.5%. 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.

b. New Contract Procurements

CH063 Electric Traction Catenary Work, 3rd Party, will be a negotiated RFP procurement. 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 issued the Cost/Schedule solicitation on September 11, 2019, and plans to award the contract and issue the NTP in January 2020.

c. Construction Progress

In the ESA July 2019 MPR, MTACC reported that total construction progress reached 82.7% complete compared with planned progress of 84.4%. 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.

d. Continuing and Unresolved Issues

Harold Re-Sequencing Plan ("ESA First"): During 2016, the ESA First Harold Re-sequencing Plan was adjusted to accommodate railroad force account resource constraints. The impacts caused by insufficient Amtrak support were reduced during 2016 through 2018, but not totally eliminated, by ESA frequent program re-planning and re-sequencing. Amtrak access and protection for third-party contractors improved measurably during the second half of 2018 and continued to be very good through Q3 2019. Further improvement is needed for Amtrak direct labor construction work in order to meet all ESA requirements.

Amtrak Preparation for Extended East River Tunnel Outages: The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to repair and harden the East River Tunnels (ERT) to complete Hurricane Sandy reconstruction work.

The work had originally been planned for 2019, was later rescheduled for 2025 and, during March 2019, MTACC indicated that Amtrak may advance ERT Line 2 reconstruction to 2023, although this has not yet been formally confirmed. The PMOC notes, however, that LIRR's current future plans include the start of Amtrak's work on ERT Line 2 in early 2023, immediately after the MTA RSD of December 2022. The risk remains that tunnel reliability or safety issues might require Amtrak to make emergency repairs at any time until the Public RSD of December 2022. The PMOC's concern is based on Amtrak's historic reactions to service disruptions in the tunnels, which have resulted in suspending ESA Harold work until the service disruptions are resolved.

LIRR Positive Train Control (PTC): There are two potentially significant impacts of PTC implementation.

- There is the risk that LIRR may divert some level of force account resources away from support for the ESA work to provide support for LIRR's system-wide, i.e., non-ESA, PTC work that is currently underway.
- The required PTC design changes for the associated ESA Contracts VS086, CS086, and CS179 cannot be finalized until LIRR completes the PTC design, which remains incomplete and is now over 20 months late. MTACC has already acknowledged that the contract modification for incorporation of PTC requirements will impact the substantial completion date for Contract VS086.

Late Design Approval and RFI Closure on Contracts CS179, CS084, and VS086: The PMOC has been reporting delays in the process of GEC/LIRR review and approval of the contractor final designs and RFI closure. Periodic improvements have been noted, but increased attention to this issue continues to be needed. Based on the original baseline schedule, full CS179 design completion of the 10 control systems is now delayed 41 months.

Manhattan/Systems Performance Risk: The PMOC remains concerned that delays in completing the Manhattan/Systems work may impact the completion of the overall ESA program and the start of revenue service. The critical path of the program runs through the Manhattan/Systems area, and multiple other Manhattan/Systems paths of work are very close in criticality. The risk to the Program Schedule increases each month as less schedule mitigation options become available due to the amount of work that needs to be completed to achieve revenue service.

Advancement of the MTACC Plan for Incremental Integrated Systems Testing: Due to increasing schedule pressure, MTACC had decided to implement the IST program incrementally, i.e., starting portions of the IST program prior to final completion of all systems installation and local testing. The original plan for IST would have started after all systems installation work and local testing was complete and would have lasted between 15 and 22 months. The PMOC notes that Incremental IST had earlier been scheduled to start in April 2019, but has most recently been reported delayed until early 2020. During Q1 2019, ESA made important changes to the testing plan to reduce the risk of regression testing and this required additional changes to the testing schedule. Cost and schedule negotiations continued into Q2 2019 and the CS179 contract modification for the final Incremental IST plan and schedule was executed in June 2019. A similar contract modification for CM014B, executed in May 2019, includes alignment with the revised CS179 schedule. MTACC continued negotiations with CM007 through Q3 2019 to align the CM007 schedule, particularly regarding acceleration of completion of the remaining track work, with the revised CS179 schedule. MTACC will follow up with the associated contract modifications for the CS084, VS086, CS086 and CQ033 contracts.

e. New Cost and Schedule Issues

The MTACC's proposed ESA budget of $11,133 million was approved by the MTA Board in September 2019 for the 2020-2024 Capital Plan. MTACC is managing the ESA program to the $10,335 million interim budget established in April 2018 EAC, which addresses program funding through December 2020.

MTACC continues to use the alternative methodology for the IPS schedule wherein its dates are informed by the MCS schedule. The forecast Target RSD in IPS 120 (August, 2019) remained February 14, 2022 and the Late RSD remained December 13, 2022, during Q3 2019. The Manhattan/Systems completion date remained largely unchanged based on the schedule update and now includes CS086 and CS084 in addition to CS179 and CM014B. The Harold and Queens completion dates improved by approximately 3 weeks.

3. PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Sponsor Management Capacity and Capability

The Senior Vice President, Program Executive, Harold Systems and Start-Up left the project effective July 1, 2019, the Program Manager, Systems left the project as of March 31, 2019 and the Program Manager, Design Management and Support, left during September 2019. No replacements have been identified.

The PMOC remains concerned as to the ability of MTACC to manage the GEC's and LIRR's timely review of systems designs by the CS179 contractor and the prompt response to systems contracts' RFIs and field change requests as well as completion of the necessary re-designs. Delays in these areas have adversely impacted program costs and schedules due to work stoppages resulting from the lack of contract modifications needed for continued progress. The PMOC is also concerned about the increase in incidents where the work performed by earlier contractors is either incomplete or improperly executed, thus delaying the follow-on contractor. This raises a concern that MTACC may have an insufficient number of field inspectors to ensure that the contractor work is properly completed in accordance with the contract plans and specifications.

Additionally, the time to process and approve contract modifications program-wide has been excessive. The PMOC notes that MTACC continues implementing organization and process changes to improve these issues and to minimize their recurrence, which have reduced the time needed for contract modification approvals. MTACC continues to be challenged to prevent the backlog from growing due to the ongoing need for new contract modifications. The PMOC believes that continued, long-term effort is required to reduce the backlog and prevent recurrence of this problem.

b. Real Estate Acquisition

In its ESA July 2019 MPR, MTACC reported that MTA Real Estate continued to work with JPMC to develop the construction agreement for JPMC's new world headquarters building at 270 Park Avenue and the impacts it will have on the new LIRR GCT concourse between 47th and 48th Streets. The MTA/JPMC MOU was executed on March 31, 2019. The MTA/JPMC Construction Agreement was executed on July 31, 2019. 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. The current plan is for the owner of 415 Madison Avenue to construct the 48th Street Entrance core and shell and to complete the facility fit-out.

c. Engineering/Design

The GEC and PMT continue missing target dates to complete design and re-designs due to scope transfers between contract packages, the inability to provide definitive requirements, late responses to contractor RFIs, and other issues involving MTA and outside stakeholders, including LIRR.

Additionally, LIRR was late completing design reviews on CS179 Facilities Systems, VS086 Signal Equipment Procurement, and CS084 Traction Power Systems contracts. Project-wide, late MTACC responses to RFIs and Change Requests and MTACC's long processing time for contract modifications continue to impact the construction schedules. The PMOC notes that MTACC recognizes that extended time executing modifications has affected progress. MTACC instituted a Change Management Group, which was intended to prioritize change orders based on the schedule needs to achieve the forecast RSD. The backlog of outstanding contract changes for CM007, CM014B, and CS179 has been decreasing. However, the rate that new modifications are being created is only marginally lower than the rate that existing modifications are executed or closed and this tends to reduce the rate of backlog reduction. The PMOC is concerned that the backlog of outstanding submittal approvals and contract changes for CS179 has increased significantly during 3Q 2019.

d. Procurement

The ESA July 2019 MPR shows that total procurement for the ESA Program is 86.0% complete, with total awards at $9,579 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. Contract CM015, 48th Street Entrance, is on hold pending an agreement between MTA and the owner of 415 Madison Avenue.

Active procurements include:

CH063 Electric Traction Catenary Work, 3rd Party, will be a negotiated RFP procurement. RFQ advertised online on January 4, 2019; documents were originally due on February 27, 2019, but MTACC extended the deadline to March 13, 2019, due to many vendor questions. 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 issued this solicitation on September 11, 2019 and plans to award the contract in January 2020.

e. Railroad Force Account (Support and Construction)

During September 2019, LIRR Electric Traction (ET) personnel continued to make miscellaneous 3rd rail reconfigurations in Harold Interlocking. LIRR Signal personnel continued to make miscellaneous signal revisions in Harold Interlocking and supported the CH058A contractor's Tunnel B/C construction. Amtrak ET personnel continued to make catenary revisions on Subs 1, 2, 3, and 4 Tracks in "Q" Interlocking to support the CQ033 contractor's construction of the Mid-Day Storage Yard (MDSY). Amtrak C&S personnel continued to install signal trough and cables along Loop 2 Track between Loop and "T" Interlockings.

f. Third-Party Construction and Procurement

Manhattan

CM007 GCT Station Caverns and Track: In its July 2019 MPR, MTACC reported that the contractor completed 76.4% of the work compared to the plan of 87.2%. The monthly plan was 1.7% and the actual was 2.5%. Construction continued for the north and south back of house facilities on all levels of the East and West Caverns. Track work continued in the Caverns and Tunnel tracks. Qualification testing of special trackwork components was completed in Q3 2019.

Architectural finish work (walls, floors, and ceilings) and MEP work is proceeding aggressively at various stages of completion.

CM014B GCT Concourse and Facilities Fit-Out: In its July 2019 MPR MTACC report that, through July 31, 2019, cumulative progress was 78.91% vs 82.15% planned. Architectural finish work is advancing aggressively in all of the concourse except the area between E 47th to E 48th. In this area, the contractor has demobilized and MTA has authorized JPMC to mobilize into the area for the new 270 Park Building foundation and substructure work starting October 1, 2019.

VM014 Vertical Circulation Elements: For CM007, all of the 16 Escalators and 6 Elevators have been delivered to the site. For CM014B, all 22 escalators have been fabricated and delivered. All elevators have been fabricated and delivered, except EL #10 (50th Street Vent Building). EL #22 (Biltmore Connection) has been fabricated but delivery has been delayed due to as-built issues in the elevator shaft. All work continues at various levels of completion and In-Contract Maintenance (ICM).

Queens

CQ032 Plaza Substation and Queens Structures: In Q2 2019, ESA reported the CQ032 contractor achieved SC in Q1 2019. The contractor continued NCR corrective action during Q3 2019.

CQ033 Mid-Day Storage Yard Facility: Construction continued on yard work, Track D East Approach Structure to existing Harold Interlocking grade, utility work, yard lighting, catenary structure work, traction power work, personnel access bridge work, and various building and car appearance maintenance platform work. Track and turnout construction continued through Q3 2019. Signal CIL building installation continued.

Harold Interlocking

CH058A – Harold Structures Part 3 – Tunnel B/C Approach Structure: During September 2019, the contractor completed demolition of existing piers #6 and #7 supporting the 39th Street overhead bridge and the above ground portion of the existing G02 Substation, continued excavation to "intervene" with the Tunnel B/C tunnel boring machine (TBM) cutting head and the East Approach Structure east of 39th Street, and began demolition of the TBM cutting head.

Systems

CS179 – Systems Facilities Package No. 1: During Q3 2019, the contractor continued installing conduit, cable, equipment, fire stopping, fire standpipe, lighting, etc., in the tunnels and at the various facilities where there were no SWOs and where access was available. Testing of installed equipment and cable splicing was also performed. Water infiltration, Buy America, and access restraint issues continue and must still be remedied. The completion of FD for all 10 control systems, originally scheduled for completion 41 months ago, has not occurred yet and the completion of FD for all 19 non-control systems continues to be delayed. Additionally, during Q3 2019, the contractor continued to contend that a significant number of NOC submissions with the potential for cost and design impacts remained open and are impacting progress on the execution and completion of contract work. While MTACC previously made an improvement in issuing Contractor Proposal Requests (CPRs) for the previously approved contractor's Notices of Change (NOC), prompt action on the review and comment of other contractor NOCs is still an area where MTACC needs improvement. This inability to address NOCs on a timely basis continues to be a significant issue that is impacting progress. A previously noted Buy/Ship America issue that could impact design and construction completion also remains unresolved. In Q3 2019, MTA determined that the motors on small ventilation fans that were identified in Q1 2019 as a potential

Buy/Ship America issue are in compliance with the Buy/Ship America provisions and are no longer an issue.

CS084 Traction Power Systems Package 4: During Q3 2019, substantial work on this contract has occurred. The delivery of the C08 pre-fabricated substation occurred and the various sections of the substation structure are being assembled and interconnected with wiring. One of the transformers for the C06/C07 substation complex was lowered into place and the other one is scheduled for installation in early October 2019. Arrangements are being made to deliver equipment to other substation locations and testing procedures for the various substations are being submitted for review. The installation of traction power feeder cables from some of the substation to the track has commenced. Previously reported issues at some of the substations are in the process of being addressed, but water infiltration and access restraint issue continue to affect work progress (see Appendix L). Contract modifications to the CS084 and other contracts that address the open issues will be needed to achieve a timely completion of this contract. Two major quality issues – one related to the appearance of damage to MTA-supplied inductive reactors and the second involving compliance of track monuments to LIRR specifications – remain as significant open issues. One additional issue regarding access to the C03 substation location – due to unresolved water infiltration issues – remains as an item of major concern impacting equipment installations.

VS086, Systems Package 3 – Signal Equipment Procurement: 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. Given the understanding that the VS086 contractor will have to support the CS086 contractor's installation and testing of signal equipment, and that the current S/C date for the CS086 contract is shown as July 2021, it is unclear to the PMOC how this July 2020 S/C date was determined. There are four outstanding design issues that could have a significant impact on the completion of the signal design under this contract. They are: 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.

CS086, Tunnel Systems Package 2 – Signal Installation: As of mid-September 2019, no significant construction work has commenced on this contract. MTACC is currently forecasting a July 2021 S/C date, a 9-month slippage in the contractual S/C date and a 2-month slippage since the last PMOC report. 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. In Q2 2019, the contractor completed surveys of the various work sites to determine the condition of sites and if access for work was possible. While a full list of site issues must still be submitted to MTACC, numerous issues regarding site accessibility and equipment layouts were identified by the contractor as items delaying its commencement of work on the contract. Issues noted include water infiltration, equipment layout conflicts, and other obstructions and misalignments inconsistent with existing contract drawings. Three significant issues, other than water infiltration issues, that could have a negative impact on the timely progression of CS086 contract work were identified during the surveys – they are identified in Section 2.3 of this report.

g. Vehicles

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. Through September 2019, the LIRR continued development of a "Best and Final Offer" (BAFO) solicitation which it plans to issue to the "Pre-Qualified" proposers in early October 2019. LIRR continues to anticipate contract award for the vehicles in December 2019.

h. Commissioning and Start-Up

Discussion in this report related to the commissioning and startup of the ESA revenue service is based on information obtained during the most recent Operational Readiness briefing, which was held on October 11, 2019, and subsequent meetings with LIRR personnel. Commissioning of the work and startup of ESA service is governed by the ESA Rail Activation Plan (RAP) that is currently being developed by the ESA Operational Readiness Group; a group consisting of 11 Task Working Groups (TWGs). Refer to Appendix Q, Operational Readiness, for a more detailed discussion.

i. Project Schedule

The IPS 120 (data date August 1, 2019) update shows that the Target RSD forecast date of February 14, 2022, and the Public RSD forecast date of December 13, 2022, have not changed since IPS 117, and the primary critical path still runs through Manhattan/Systems work. During May, June and July 2019, the Manhattan/Systems path generally held its completion date and float; the Harold path gained three weeks of float; and the Queens path gained about 2 weeks of float.

Table 1 provides a summary of critical milestone dates including PMOC and Sponsor forecasts.

Table 1: Summary of Critical Dates

Program Milestone	FFGA	Forecast (F) Completion, Actual (A) Start		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 (F) Revenue Operations Date per presentation to the MTA CPOC, June 2014.
** Source – PMOC 2014 schedule trending analysis representing a medium degree of mitigation.
*** Source – Amended FFGA, August 2016

j. Project Cost

Table 2 provides a summary of FFGA budgets and MTA July 2018 interim budgets and expenditures through July 2019.

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

	FFGA			MTA Current Budget (Interim)			Expenditures July 2019	
	Original FFGA	Amended FFGA	Pct. of FFGA	Obligated	CBB	Pct. of CBB	Expenditures	Pct. of CBB
Grand Total	7,386.0	12,038.5	100.0%	10,196.3	11,451.5	100.0%	9,278.7	81.0%
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%	9,578.7	10,335.1	90.3%	8,661.1	83.8%
		10,922.0	90.7%					
Total 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	21.9%					
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%	6,879.9	7,636.2	66.7%	5,962.3	78.1%
		8,223.2	68.3%					

k. Project Risk

The Manhattan/Systems program schedule path remains the ESA Program Schedule critical path. The ESA Program Schedule critical path major risks include: the final Incremental IST plan and schedule incorporated into Contracts CS179 and CM014B will still need to be added to Contracts CM007, CS084, VS/CS086 and CQ033; and, inadequate construction progress on CM014B and CS084. The PMOC remains concerned about the overall progress of the ESA program. The PMOC is also concerned about potential schedule risks resulting from the impacts that the redevelopment of 270 Park Avenue could have on the ESA program, especially with regard to the ongoing construction of the LIRR Concourse. The foundations for the new office tower at 270 Park Avenue will be located at the northern end of the LIRR Concourse and will require demobilization of the ESA Contract CM014B in Zone H4 followed by mobilization of the 270 Park Avenue owner's construction contractor to build the new foundations and then complete the balance of the ESA work scope in that part of the LIRR Concourse. Although ESA program float remained constant from May 2019 through July 2019, future changes are likely to arise due to the concerns noted above.

MONTHLY UPDATE

The information contained in the body of this report is in accordance with Oversight Procedure 25, to "inform the FTA of the most critical project occurrences, issues, and next steps, as well as professional opinions and recommendations".

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. MTACC planned to include all aforementioned updates in the draft TCC Plan submitted 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. The PMOC also notes that MTA and MTACC have been proactive and diligent in managing the situation with a key stakeholder, JP Morgan Chase, and the impacts that this stakeholder's plans for a new office tower at 270 Park Avenue will have on completing construction of the new LIRR Concourse at Grand Central Terminal.
- **Project Management Plan:** MTACC is using the current version of the PMP, Rev. 10, that the PMOC reviewed and the FTA accepted in 2017.
- **Cost/Schedule Contingency:** MTACC, FTA, and the PMOC agree on the planned 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 the schedule contingency remains only 27 CDs above ELPEP minimum. The total cost contingency is $241 million above the ELPEP minimum contingency of $260 million.

The PMOC notes that, with completion of the most recent Schedule Management Plan and Cost Management Plan updates, as well as the amended FFGA, 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, 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 as well as the CPP in January 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.

1.0 SPONSOR'S CAPABILITIES AND APPROACH

1.1 Management Capacity and Capability

a. Organization

The PMOC has not noted any significant change in the Sponsor's ability to generally maintain the required level of Management Capacity and Capability. The PMOC, however, has observed continuing problems in the following areas:

- GEC and LIRR support of the review and approval process for the contractors' final designs for systems and equipment submittals under Contracts CS179, CS084, and VS086 has not been sufficient to adequately meet the program schedule needs.
- ESA-PMT/CM has not effectively coordinated many of the Manhattan/Systems contractors' activities to avoid conflicts and delays and the associated cost and schedule impacts.
- Earlier construction problems have resulted in current as-built issues and deficiencies that impact the scope of work for the follow-on contracts. Resolution and correction of many of these problems is delaying follow-on construction work.
- PMT, CM and GEC's responsiveness to RFIs, Notices of Change and Field Change Requests on contracts has often been slow and has impacted construction progress and increased costs. This is becoming an increasing problem on Contract CS179.
- Processing and approval of construction contract modifications is taking too long and this creates cost and schedule impacts. The PMOC acknowledges recent improvements in this area, but continued effort is required to continue to reduce approval times.

Although management focus on all of these issues has resulted in some improvements, the PMOC notes that these issues have continued to significantly challenge the ESA Program through Q3 2019. The MTACC President, together with the ESA Executive VP/Sr. Program Executive and the ESA-PMT/CM, have made significant changes to the ESA project organization, management, and operational processes to better focus efforts on improving the effectiveness of management decision making, execution of critical required actions, and coordination with LIRR, the primary

project stakeholder. The performance of the new ESA project organization and operation through Q3 2019 has demonstrated where adjustments are needed. ESA continues to evaluate and adjust processes to improve its effectiveness in achieving identified program goals.

b. Staffing

The Senior Vice President/Program Executive, Harold Systems and Start-Up, retired and left the project effective July 1, 2019. The Program Manager, Systems, left the project earlier in 2Q 2019. The Program Manager, Design Manager and Support, retired and left the project in 3Q 2019. Replacements have not been named for any of the three positions as of the end of September 2019.

The PMOC is concerned about the CM staffing for Contracts CS084, VS086 and CS086 that together are valued at $147 million. The Deputy CM for CS086 resigned several months ago and the single Construction Manager for all three contracts continues to only have two staff personnel remaining to assist in the management of these three Systems-related contracts. The PMOC notes that capacity limitations caused by insufficient staffing might be one contributing factor to the issues discussed above in "Section a.) Organization", above, and may become a more significant issue as the coordination requirements increases among the three contract named above and Contracts CM007, CM014B and CS179. The PMOC notes that correcting issues with regard to GEC and LIRR support of the review and approval of submittals for the CS179, VS086, CS084, and CS086 contracts, along with the timely processing and approval of construction contract modifications, may require additional staffing adjustments.

1.2 Project Management Plan

a. History of Performance

The MTACC has re-planned the ESA program three times since the 2006 FFGA, resulting in higher budgets and longer schedules. The June 2014 re-plan budget was $10,177 million and the Public RSD was December 2022. The PMOC notes that, since June 2014, ESA has encountered schedule set-backs primarily due to: lack of funding for award of contracts and systems contract options; poor performance by the CM006 and CM014B contractors; insufficient progress on CS179, CS084, and VS086; late NTP for CM007 and CQ033; significant delays to complete CM015 and CS086 designs; and ongoing challenges in Harold Interlocking caused by lack of adequate railroad force account support. As a result, MTACC and the ESA-PMT completed a program re-assessment in April 2018 as a fourth "re-plan" that determined the need to increase the EAC to $11,133 million and extend the Target RSD to February 2022, with no change to the Public RSD in December 2022. Until full funding can be obtained in the 2020–2024 Capital Plan, the ESA program is working with an interim budget of $10,335 million, which was funded in Budget Amendment 3 to the 2015-2019 Capital Plan. The MTACC's proposed ESA budget of $11,133 million was approved by the MTA Board in September 2019 for the 2020-2024 Capital Plan.

b. PMP

MTACC is using Revision 10.0 to the East Side Access Project Management Plan, dated June 2016, which was accepted by the FTA in early 2017. MTACC is planning to update the PMP during Q4 2019 to reflect the recent changes in the ESA project organization, management, and operational processes as reflected in the recent PMP sub-plan updates.

1.3 Project Controls

a. Schedule

MTACC re-baselined the ESA program schedule in June 2014 with a Public RSD of December 2022, which had a 22 month Program level contingency from the February 2021 Target RSD. The

PMT submitted a schedule contingency drawdown plan and hold point values in December 2014 as required by the ELPEP agreement.

The ESA program IPS 120 has a February 14, 2022 Target RSD, which has remained unchanged since IPS 117. The program level schedule contingency is 302 CDs, which is 27 CDs above the 275 CD ELPEP minimum and 692 CDs less that the 994 CDs as established in the July 1, 2014 IPS re-baseline. The alternative IPS methodology, which is informed by the MCS, is MTACC's effort to capture schedule issues and unknowns. In the PMOC's opinion, the risks associated with execution of Incremental IST and redevelopment of 270 Park Avenue could likely consume a significant amount of the program contingency in the 31 months remaining until the target RSD.

The controlling work on the critical path for the ESA program, as reported in the IPS, continues to change every month due to revisions and updates to the IPS with new activities, milestones, and logic, which contribute to a lack of schedule stability along the program critical path.

b. Cost

In June 2014, MTACC re-baselined the ESA program with a budget of $10,177 million (excluding financing costs and Rolling Stock Reserve). MTACC completed a reassessment in April 2018 that forecasted the ESA program estimate-at-completion as $11,133 million, which totals to the MTA ETPC $11,596.3 million with the addition of the $463 million MTA ESA Rolling Stock Reserve. MTACC continues to comply with the minimum cost contingency requirements as agreed with the FTA/PMOC and to report on the contingency drawdowns in their Quarterly Progress Reports to the FTA. ELPEP FTA Hold Point 1A was achieved and the minimum contingency is $260 million. Currently, the ESA program is 86.0% bid ($9,578.7 million awarded) and 79.5% complete ($8,851.4 million invoiced). Total ESA program contingencies are $501.3 million (allocated plus unallocated). Since the ESA July 2018 MPR, the PMT calculates summary progress as a percentage of the $11,133 million ESA program April 2018 EAC forecast.

1.4 Federal Requirements

a. FFGA

The Amended FFGA budget is $12,038 million, which includes $10,922 million for construction and revenue vehicles, and $1,116 million for financing costs. The MTACC reassessment of April 2018 forecast the ESA program at $11,133 million for the portion of the program that the MTACC is managing for the MTA, and it is the subject of their reporting (as agreed in December 2009). The April 2018 forecast includes costs for 50 of the 160 FFGA revenue vehicles. The cost for the balance of 110 revenue vehicles, which are being procured for MTA by LIRR, is funded separately through a dedicated MTA ESA rolling stock reserve of $463 million. The full cost of the ESA program for construction and revenue vehicles – the MTA Estimated Total Project Cost (MTA ETPC) – is $11,596 million (refer to table 5.1).

The $11,596 million MTA ETPC exceeds the amended FFGA $10,922 million Baseline Cost Estimate (BCE) by approximately $674 million (6.2%, net of financing). MTA/MTACC has discussed the cost forecast with the FTA and had issued its draft Recovery Plan for the ESA program in June 2019. MTA/MTACC had earlier indicated that the plan will include impacts resulting from the acceleration plan and the MTA/JPMC integrated approach for construction of the foundations/substructures for the new building at 270 Park Avenue as well as the revised Incremental IST plan and schedule reflected in the recent major contract modification to CS179. During July 2019, the FTA forwarded the MTACC draft Recovery Plan to the PMOC and the PMOC returned review comments to the FTA on July 29, 2019. The MTACC reassessment of

April 2018 held both the December 2022 Public RSD date and the amended FFGA Revenue Operations Date of December 2023.

b. Federal Regulations

As a Full Funding Grant recipient, MTA is required to meet the requirements of the Buy America Act. The PMOC outlines current and new issues regarding this requirement in this section with additional details in Section 2.3 and Appendix G. On Contract CS179, Systems Package 1, there is currently one potential Buy/Ship America issue affecting proposed mechanical equipment.

1.5 Safety and Security

a. Safety and Security Certification Process

The Q2 2019 Operational Readiness Briefing was delayed by MTACC and was held on October 11, 2019. During Q2 2019, MTACC continued to effectively catch up on the Safety and Security Certification processes with a significant number of contract packages closed out and numerous Safety and Security Certifications being completed. (See Appendix T for a Summary Status of the Safety and Security Certifications). MTACC also refocused its efforts to produce a consolidated ESA Emergency Action Plan by early 2020 and continued holding workshops with contractors to discuss and implement certification completions.

b. Project Construction Safety Performance

Through August 2019, ESA project safety statistics for lost time accident and recordable injuries on active construction contracts continued to trend below the Bureau of Labor Statistics (BLS) national average with a CY2019 project wide ratio of 1.14 versus 1.5 (2019 BLS average) lost time accidents per 200,000 work hours. The ESA recordable ratio for CY2019 was 1.83 versus 2.5 (2019 BLS average). ESA safety ratios for August 2019 were 1.64 for lost time and 3.28 for recordable injuries.

c. Security

ESA did not report any significant security issues in its ESA July 2019 MPR.

1.6 Project Quality

Quarterly Quality Oversights (QQOs): There were no QQO audits completed during Q3 2019.

Nonconformance Reports (NCRs): Table M located in the Appendix provides a summary of the NCR status on the major active contracts for ESA, as per the September 2019 contractor logs. The table shows the closed NCRs, NCRs open for less than 90 days, and NCRs open for over 90 days for each ESA contract over the past four quarters.

The PMOC has continuing concerns regarding 3 quality issues:

1. The new traction power substation transformers being manufactured by the CS084 contractor and the MTA-provided inductive reactors that the CS084 contractor will install as part of the new traction power systems for ESA. See Section 7.0 for details. **[ESA-130-Sep18]**
2. Potential out of tolerance as-built railcar clearances with the newly constructed bench walls in the ESA tunnels. See Section 7.0 for details. **[ESA-131-Dec18]**
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 7.0 for details. **[ESA-132-Dec18]**

During the September 2019 reporting period, a potentially significant problem was identified by MTACC. ESA will reportedly need to replace some portion of the rail installed to date by the

CM007 contractor due to observed deterioration involving pitting and corrosion. See Section 7.0 for details. **[ESA-134-Sep19]**

1.7 Stakeholder Management

a. Railroads

MTACC's East Side Access Project involves nearly $500 million in construction in Harold Interlocking performed by third-party contractors requiring railroad access and protection provided by both Amtrak and LIRR. In addition, Amtrak and LIRR track, signal, and traction power construction work totaling over $400 million will be accomplished using railroad Direct Force Account labor. Construction progress requires an extraordinary level of detailed planning, coordination, and communication for which MTACC has assumed the risk. Significant current challenges are summarized below:

Long Island Rail Road

As the agency that will operate the new ESA facilities, LIRR is the primary project stakeholder. The project is now in the next phase of construction to complete the GCT station facility, install all the trackwork and systems, and complete the testing, start-up, and commissioning. LIRR's level of direct involvement with the ESA project has increased and will continue to do so through commencement of revenue service. LIRR will need to commit the resources and management availability to work with MTACC in support of the ESA project needs and to provide timely decisions in response to design, construction, or operational issues.

During Q3 2019, several key ESA issues involving LIRR continued to challenge the project:

- LIRR review of GEC proposed corrective repairs to out-of-tolerance track monuments (traction power duct turn-up concrete pedestals) installed by previous construction contracts.
- Review and concurrence by LIRR of the final designs for two of the 10 control systems (Contract CS179) has progressed much slower than scheduled. MTACC management continues to indicate that only 8 of the 10 control system final designs are approved. As of September 30, 2019, completion and approval of the final two Control System final designs is 41 months late compared to the original contract baseline schedule.
- LIRR's plan for Positive Train Control (PTC) design, installation, testing, and commissioning has presented a number of challenges to ESA for planning the remaining work in Harold Interlocking and incorporation of PTC in the ESA tunnels and GCT terminal. The required PTC design changes for the associated ESA Contracts VS086, CS086, and CS179 cannot be finalized until LIRR completes the PTC design, which remains incomplete and is now 21 months late. MTACC has already acknowledged that the contract modification for incorporation of PTC requirements will impact the substantial completion date for Contract VS086.
- LIRR review of MTACC's evaluation, recommendations and plan for replacement of some portion of the MTACC provided rail material by the CM007 contractor due to concerns about the condition of the rail based on observed deterioration involving pitting and corrosion. (New Issue)

Amtrak

As the agency that jointly, with LIRR, operates and maintains Harold Interlocking in Long Island City, Queens, Amtrak is a key project stakeholder. Based on Amtrak's historical inability to provide sufficient force account support, especially Electric Traction (ET) personnel, ESA has

significantly revised the Harold construction schedule twice since 2014. As a result, the ESA PMT produced the "ESA First" construction schedule which re-prioritized work elements in Harold to operate new LIRR service into GCT and delayed some of the FRA-funded work, categorized as Regional Investment, not specifically required for LIRR operation into GCT. Through September 2019, the earlier noted improvements in Amtrak's support for the ESA work have been sustained, especially in providing access and protection to the third party contractors.

In 2016, Amtrak announced plans to reconstruct, starting in 2019, its East River Tunnels (ERT) Line 1 and Line 2 that were damaged by Superstorm Sandy in 2012, but later postponed it until 2025. During March 2019, MTACC indicated that Amtrak may advance ERT Line 2 reconstruction to 2023, although this has not yet been formally confirmed. This work does, however, remain a potential risk based on the necessary predecessor work to harden ERT Lines 1 and 4 in preparation for the extended tunnel outages required for ERT Lines 1 and 2. Operational reliability or safety issues as well might require Amtrak to make emergency repairs on either Lines 1, 2, or 4 at any time between now and the forecast RSD of December 2022. The PMOC's concern is based on Amtrak's historic reactions to service disruptions in the tunnels which have resulted in suspending ESA Harold work until service disruptions are resolved.

The PMOC recognizes MTACC's efforts to work with Amtrak to develop specific mitigations for certain risks and to deal with these issues as they arise. The PMOC also recognizes MTACC's development of a resource loaded schedule for all regional force account commitments, including Amtrak and LIRR, to assist in both short-term and long-term resource allocation planning and decision-making. This has been very useful in enabling ESA to better execute planned work in Harold Interlocking. MTACC was able to successfully execute the ambitious 2018 ESA track work program for the Harold Interlocking through innovative development of third-party construction contracts to address historical force account resource shortcomings. Going forward, the PMOC recommends that the PMT continue to actively engage executive management in MTACC and the MTA to assist with resolution of any new problems.

Other Stakeholders

Construction of the foundation and substructure systems required for the planned new JP Morgan/Chase (JPMC) building at 270 Park Avenue will significantly impact a portion of the new LIRR Concourse currently under construction at GCT. The foundations for the new office tower at 270 Park Avenue will be located at the northern end of the LIRR Concourse and will require demobilization of the ESA Contract CM014B in Zone H4 followed by mobilization of the 270 Park Avenue owner's construction contractor to build the new foundations and then complete the balance of the ESA work scope in that part of the LIRR Concourse. Ongoing MTA, MTACC-ESA, and JPMC discussion continued through September 2019. The MTA/MTACC-JPMC Construction Agreement was executed on July 31, 2019 and with this action, MTACC believes that it has mitigated the risks of schedule delays and additional costs. See discussion in Section 6.0 of this report. [ESA-133-Dec18]

1.8 Local Funding

a. MTA/New York State (Capital Plan)

The MTACC's proposed ESA budget of $11,133 million was approved by the MTA Board in September 2019 for the 2020-2024 Capital Plan. The MTA had previously approved additional local funds in Budget Amendment 3 (2015-2019 Capital Plan) to increase the ESA program funding to a total of $10,335 million, which is sufficient for MTACC forecasts through December 2020. Until the 2020-2024 Capital Plan is approved by the NYS Capital Plan Review Board and incorporated in ESA budgets, the PMT will use contingencies to cover budget gaps as necessary.

The PMOC is concerned about potentially significant impacts that this future funding risk could have on the program budget and schedule.

b. Other Sources

The total FTA funding commitment for the ESA program is $2,698.8 million, of which all funds have been effectively drawn down.

1.9 Project Risk Monitoring and Mitigation

a. Risk Management Plan (RMP)

The current MTACC RMP, Rev. 2, is a sub-plan within the ESA Project Management Plan (PMP), which was updated to incorporate FTA/PMOC comments to bring it into compliance with ELPEP principles and requirements. It was conditionally accepted by the FTA on March 4, 2013. ESA submitted the updated Risk Management Plan in Q4 2017. In April 2018, the FTA advised MTACC to incorporate its current updates and commence with a subsequent revision that addresses any changes resulting from implementation of the MTACC Six-Point Plan for ESA. In December 2018, MTACC resubmitted a revised draft of the RMP update.

b. Monitoring

The ESA Risk Manager continues to update, track, and issue program level risk updates to the Risk Register on a regular basis. The MTACC is focusing on project activities through the current ESA Program critical path along the Manhattan/Systems schedule path.

c. Mitigation

ESA continues to identify and implement risk mitigation strategies in a number of project areas. Risk mitigation efforts are focused on activities through the current ESA Program critical path along the Manhattan/Systems schedule path. Critical ESA program elements on the Manhattan/Systems path include the Integrated Systems Testing and the reconstruction of 270 Park Avenue. MTACC plans on completing a comprehensive risk review of the ESA project once agreement is reached with the CS179 contractor regarding the Incremental Integrated System Test plan, which will serve as the primary basis for the ESA Program schedule through completion of construction, systems testing, commissioning and start-up to revenue service. The PMOC notes that the CS179 contract modification that includes the revised Incremental IST plan and schedule and the CM014B contract modification that includes alignment of the schedule with the revised Incremental IST plan and schedule were executed during Q2 2019.

2.0 PROJECT SCOPE

2.1 Engineering/Design and Construction Phase Services

In the ESA July 2019 MPR, the PMT reported the overall Engineering effort as 86.8% complete compared to planned completion of 87.5%. 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, 3rd Party, will be a negotiated RFP procurement. 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 contractors were solicited on September 11, 2019, and ESA intends to award the CH063 Contract in January 2020.

Status of Construction Packages Not Advertised

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 and with the FTA's August 2019 concurrence, the owner of 415 Madison Avenue will construct the 48th Street Entrance core and shell and will complete 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.

Positive Train Control Design by LIRR

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 earlier reported that LIRR had been expected to complete the PTC design in January 2019, but this was 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 had 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; and LIRR PTC test plans and procedures, including FRA testing.
- The GEC has prepared preliminary 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 at the various design stages 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. The PMOC notes, however, that these changes cannot be finalized until LIRR completes the PTC design. MTACC has already acknowledged 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 System Package 1 - Facilities Systems: The CS179 contractor continues to work on the completion of the final designs of the various contract required systems; a process that, as of the end of Q3 2019, is 41 months late. Additionally, the PMOC is aware of LIRR's formal approval of only eight of the ten Control System Final Designs (FDs) as of the end of Q3 2019. Further, the contractor continues to contend that the resolution of a number of NOCs submitted, but still

unresolved, could further impact design completion and is continuing to impact progression of equipment and rack fabrication.

CS084 Tunnel Systems Package 4 – Traction Power: The only reported design issues are those related to the correction of problems identified during field surveys (e.g., track monuments). The contractor is still working on the designs for bus ducting at several of the substations. All the other equipment designs are complete, with equipment in various stages of fabrication or delivery.

VS086 Systems Package 3 – Signal Equipment Procurement: Per MTACC, the incorporation of PTC into the signal design will impact the cost and completion date of the contract. The addition of PTC into the VS086 signal system design cannot be accomplished until the GEC completes its design of the PTC work scope is completed by LIRR and a contract modification is developed and issued to the VS086 contractor. Another major design issue was identified in Q1 2019, that of "light-out" protection for the signal system. LIRR rejected the contractor's design approach for this portion of the overall signal design, indicating that the proposed methodology used to provide this protection is not what LIRR wanted. Although the contractor contended that its approach was in compliance with the contract requirements and that the proper protection is provided with its current design, MTACC directed the VS086 contractor to provide this protection using the methodology acceptable to LIRR. The contractor continues to indicate that any changes to this completed design element will require extensive design changes and delays to the completion of the contract. All parties continue discussions regarding this issue. An additional issue dealing with Application Logic for the signal control system, identified during 2Q 2019, remains under discussion. During Q3 2019, it became apparent that one additional minor design element was required – that related to the design and provisioning of train departure test equipment. A contract modification to develop this design and provide the equipment is under discussion and development.

PMOC Overall Engineering/Design/CPS Observations

Since the June 2014 re-baselining, the GEC and PMT have frequently missed target dates for completion of planned design activities that have caused procurement and construction start delays, some very significant, for some contracts. The PMOC acknowledges that some of the delays resulted from excessive time needed for outside stakeholder reviews and final approvals, particularly with Amtrak and LIRR. The result is that schedule float is used during procurement and is not available during construction, when it is needed to mitigate future risks. The PMOC notes that the GEC and PMT are challenged to provide adequate Construction Phase Services (CPS) to support the ever increasing project demands that result from needed redesigns, contractor RFIs, and coordination among the contractors.

PMOC Overall Engineering/Design/CPS Concerns and Recommendations

MTACC needs to focus on updating and achieving intermediate milestones in a timely fashion and to work closely with all parties to achieve this. MTACC management needs to more effectively engage outside stakeholders such as building owners, Amtrak, and the LIRR to resolve lingering design issues. The PMOC remains concerned about potential impacts to the CS179, VS086, CS084, and CS086 contract schedules that may result from the lack of timely design decisions and the lengthy turn-around time to review and respond to contractor design submittals and contractor inquiries. The PMOC notes the ESA PMT and senior management's efforts to resolve issues related to Systems design reviews with GEC and LIRR management; however, more improvement and continued focus is needed. The PMOC notes that the new project organization and operation has shown some process improvements that address these concerns, but improvements need to be expedited program-wide **[Ref: ESA-125-Sep16]**.

2.2 Procurement

The ESA July 2019 MPR shows that total procurement for the ESA Program is 86.0% complete, with total awards at $9,579 million. Since the ESA July 2018 MPR, the PMT calculates summary procurement progress as a percentage of the $11,133 million April 2018 ESA program EAC forecast.

Status: The current active procurements during Q3 2019 include:

- CH063 Electric Traction Catenary Work, 3rd Party, will be a negotiated RFP procurement. 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 issued the Cost and Schedule solicitation to those four contractors on September 11, 2019. ESA intends to issue the award and NTP in January 2020.

Concerns and Recommendations: MTACC updated the Contract Packaging Plan and submitted Revision 13 in January 2019. This update needs to account for all of the remaining third-party contracts and railroad force account packages, along with all anticipated scope transfers and a procurement timeline.

2.3 Construction

The PMT reported in the ESA July 2019 MPR that the total construction progress reached 82.7% complete compared with 84.4% 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 allocated in the MTA Impact accounting system and are used for percentage calculations for individual contracts. Refer to Appendix J for the budget, cost, and schedule status of each contract and force account package discussed below.

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 nc 709.3	667.6 nc 667.6	41.7 nc 41.7	510.5 +11.1 499.4	745.8 +28.4 717.4	87.2% +2.6% 84.6%	76.5% +1.7% 74.8%	1/28/20 nc 1/28/20	8/26/20 (-20cd) 9/15/20	
CM014B	578.2 nc 578.2	531.3 +1.9 529.4	46.9 (-1.9) 48.8	419.3 +10.8 408.5	575.9 (-15.3) 591.2	82.1% +0.2% 81.9%	78.9% +1.7% 77.2%	6/26/20 +678cd 8/18/18	10/9/20 +35cd 9/4/20	
VM014	46.9 nc 46.9	34.9 nc 34.9	12.0 nc 12.0	32.4 nc 32.4	47.5 (-1.1) 48.6	NA NA NA	92.8% nc 92.8%	10/25/19 nc 10/25/19	3/23/20 nc 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 July 2019 MPR indicates that Milestone #5 (Substations US1 and US2 Complete) was forecast for August 22, 2019, but not achieved as of September 30, 2019.

Construction Progress: North and South Back of House, East and West: Continue mezzanine and lower level electrical work, and continue MEP work upper and lower levels; continue CMU wall installation (SW); continue bathroom tile work (NW and SE).

Cross Passages: Continue glass tile work.

GCT 6: Access to lower level on hi-rail equipment via ramp from this location.

East Cavern: Continue light fixture installation lower and mezzanine levels; Continue mezzanine level sprinkler piping; continue miscellaneous. framing, duct, and painting; Continue installation of escalators 51, 52, 57, and 58, and continue installation of elevators 5, 6, and 18.

West Cavern: Continue light fixture installation lower and mezzanine levels; Continue miscellaneous framing, duct, and painting; and continue installation of elevator 19, and continue installation of escalators 63, 64, and 66.

Track: Continued track construction in the upper level East and West Caverns and Tunnel Track; Continued third rail installation. Continued turnout construction. Completed qualification testing of Special Trackwork DFF assemblies. As of September 30, 2019, ESA reports overall Track Construction at 73.0% completion.

Monuments: Surveying/review of the monuments continues. The CM007 contract reports, in their Weekly Summary through September 15, 2019, there are 450 total monuments under their survey, covering contracts CM005, CM006, CM007 and CQ032. Of the total 450, 224 are out of tolerance and 135 remain to be constructed in the CM007 contract.

Architectural: Through September 22, 2019 Architectural Wall work was approximately 27.0% complete. Work included installation of marble stone tiles to knee walls, West Cavern, Mezzanine Level; installation of HSS tube frames for Upper Level stair enclosures, East Cavern at Escalator nos. 57 and 65; erection of CMU walls for Smoke Shaft, East Cavern, Upper Level; room nos. 202 and 203, East Cavern, Upper Level and nos. 144, 144B and 145, West Cavern, Mezzanine Level. Architectural Ceiling progress was at approximately 23.3% complete and included installation of finish rails for Upper Level, West Cavern drop ceiling, intermediate rails for Mezzanine Level, West Cavern drop ceiling and diagonal bracing for Mezzanine Level East Cavern drop ceiling. Architectural Floor progress was approximately 22.9% complete and consisted of installation of floor tile over the center drain in Room nos. 178 and 181.

MEP – Mechanical: Through September 22, 2019 HVAC Duct Progress remained approximately 78.7% complete; HVAC piping remained at 75.3%.

MEP – Fire Protection and Plumbing: Through September 22, 2019 fire protection work remained at 69.5% complete: Plumbing progress remained at 93.1%.

MEP – Electrical: Through September 22, 2019 electric conduit installation was approximately 66.3% complete; electric fixtures installation 91.1% complete.

Observations/Analysis: ESA and the contractor appear to be working well together.

Concerns and Recommendations: The PMOC is concerned about the length of time it is taking to negotiate a revised CPM schedule. .

CM014B – GCT Concourse and Facilities Fit-Out

Schedule: In the ESA July 2019 MPR ESA reports that this contract was 78.91% complete vs. 82.15% planned. As previously reported, 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 per week Construction Acceleration Plan. The new forecast date for Substantial Completion is now October 9, 2020 from the previous June 26, 2020, excluding completion of LIRR concourse within the footprint of foundation work for 270 Park Avenue. The Biltmore Room Substantial Completion date has been pulled back to September 18, 2020, from the previous October, 2020.

Through June 24, 2019, the structural steel erection remained at 75% complete by piece and 69% by weight. As previously reported, this work is proceeding very slowly and is impacting the schedule and the CS179 contract. Cumulative metal deck progress also remains at 28% complete. The HVAC Chilled Water Pipe work is approximately 45% complete.

Construction Progress: Electricians continued with installation of branch and device conduit, Ticket Area systems wiring, Wellway lights, 45th Street Node lights, rough-in and overhead racks.

Plumbers continue installation of domestic water piping, CCU testing, and installation of gutters/downspouts throughout the Concourse Mechanical work continues with the installation of air plenums, AHU units, ducts, and sprinkler piping and heads. Chilled water piping continues throughout the Concourse, including re-routing in the 47th Street to 48th Street zone. 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.

Biltmore Connection: MNR outage for tracks 39/40 continues. Forming and placement of concrete encasement of new beams was completed at the MNR Tracks 39/40. Installation of the Q deck and new steel for the partial Biltmore slab was completed. Placement of this portion of the Biltmore slab was completed.

Wellways: Track #115 is used for material/equipment/services into and out of the site. The PMOC has been advised that use of Track #115 will not be allowed after December 2020.

Electricians continued with installation of branch and device conduit, Lighting, Security Conduits, 45th Street Node lights and Ticket Area conduits and wiring. Plumbers continue 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 chilled water testing. Installation of the marble stone and glass tile 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. LIRR is making design changes to the Ticket Area.

Chiller: Installation of bypass valves and temporary maintenance valves continues in Zones 1 and 2. Installation of the Impurity Eliminator nears completion. Revisions to the chiller vent piping routing are underway.

Biltmore Connection: MNR outage for tracks 39/40 continues. Flagging at MNR Tracks 39/40 has resumed. Installation of the switchgear at the MNR Express Level is complete and electricians are installing conduit.

Wellways: In Wellway #1 removal of the scaffolding is complete. In Wellway #2 installation for glass tile curtainwall is complete. In both Wellways #1 and #2 the VM014 contractor is waiting for direction from MTACC so that they can begin removing the escalator stairs for the required cleaning before In-Contract Maintenance (ICM) can begin. The stairs must be removed from the bottom of the escalators, and will be stored on the Mezzanine Level of the Caverns in the CM007 contract area. This work will take approximately 9 weeks (1 week per line of stair). Wellway #3

has been turned back over to CM014-B for curtainwall corrective work. In Wellway #4 the ICM Readiness Review is scheduled for October 2019.

Elevators: Elevator #11 (3-story building) installation continues. Elevator #14 (TM01) installation of the elevator enclosure is underway.

47th Street Cross Passage: At Elevator #13 installation is complete and acceptance by MNR is pending. This unit is to be turned over to MNR and the paperwork and processes for that turnover is being negotiated very slowly. The work at Tracks 36/35 at the MNR Express Track for the construction of the modifications/additions to the Passageway "U Tub", needed to install Escalator #32 and stair, is complete. Installation of beam supports and stair stringers is underway. Construction of the formwork for the new stairs from the west Concourse to the Cross Passageway continues.

50th Street Vent Facility: The Vent Building continues in full fit-out mode. Extension of the Filtration Unit Pad continues.

270 Park Building: MTA and JPMC have completed the Construction Agreement for the new work between E. 47th and E. 48th Streets MTACC has advised the PMOC that the CM014-B contractor had demobilized from that area by the scheduled September 28, 2019 date and that MTA has issued the required authorization to JPMC to mobilize at the site October 1, 2019.

Observations/Analysis: The PMOC observes that the work to bring a new entrance into the Concourse, by a separate contractor, from the new 1 Vanderbilt Building at East 42nd Street and Vanderbilt is ongoing.

Concerns and Recommendations: The PMOC is concerned about the upcoming 270 Park Building erection and construction of the required shear walls and foundation work in part of the ESA Concourse and the potential impact to the ESA RSD should JPMC not meet its schedule commitments.

VM014 –Vertical Circulation Elements (Escalators and Elevators)

Schedule: In its July 2019 MPR, MTACC reports that, through July 31, 92.8% of the contract value was invoiced and 88.4% paid. 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. For CM007, all of the 16 Escalators and 6 Elevators have been delivered to the site. For CM014B, all 22 escalators have been fabricated and delivered. All elevator fabrication has been completed and delivered, with the exception of EL #10 (50th Street Vent Building). EL #22 (Biltmore Connection) has been fabricated, but delivery has been delayed due to issues in the elevator shaft.

Construction Progress: 48th Street Entrance Installation – A contract modification is required for this work, which consists of fabrication and installation of 9 escalators. Elevator #20 is included in the base contract.

CM014B Installation – Installation of Elevators #1 and #2 was completed under an accelerated schedule. This allows for removal of the Alimak in Shaft 5. At Elevators #3 and #4 (Shaft 4), The contractor has completed the review of steel changes. At Elevator #11 (3-Story Building), installation of hoist way door equipment and doors is underway. Elevator #13 (47th Cross Passage), is complete. The current issue is completion of the turnover paperwork to MNR. At Elevator #14 (TM01) the contractor remains demobilized. At Elevator #20 (48th Street Entrance) the contractor remains demobilized until CM014-B completes waterproofing. Elevator #22 is ready for delivery to the site. At Escalators #1 and #2 Installation is pending CM014-B direction.

Escalator #32 rigging plan has been submitted. See above for Wellway Escalators. In-Contract Maintenance – Elevators #1, #2, #9, #12, #17, and #21, Escalators #30 and #31.

CM007 Installation – At Elevator #5 installation of shaft way finishes, conduits and traveling cables is underway. Elevator #6 cab architectural finishes continues with entrance sub-frames. At Elevators #7 and #8 the CM007 contractor has taken over the cars for their use. At Escalator #53 balustrade glass and upper profile were installed. At Escalators #54 and #56 installed balustrade glass and installation of upper profile continues. At Escalator #55 balustrade installation is complete and installation of handrails and floor plates is underway. Escalators #57, #58, #61, #62 and #63 are prepped for architectural finishes. At Escalator #51, Elevators #18 and #19 In-Contract Readiness Reviews were held September 16, 18 and 19, 2019. In-Contract Maintenance is underway with Escalators #59 and #60.

Observations/Analysis: The PMOC observes that although Elevator nos. 1 and 2 are complete and placed into service for FDNY emergency use, FDNY has not, reportedly, accepted the units for their use. Additionally, the Alimak has not been removed and start of work is being delayed.

Concerns and Recommendations: The PMOC is concerned that, in the CM014B contract, the delays in elevator access and installation will delay the commencement of Incremental IST.

Queens Third-Party 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
CQ033	326.1	317.8	8.3	226.2	349.3	74.1%	71.2%	8/10/20	10/14/20	
	nc	+1.0	(-1.0)	+9.2	+1.1	(3.5%)	+2.7%	nc	+8cd	
	326.1	316.8	9.3	217.0	348.2	77.6%	68.5%	8/10/20	10/6/20	

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: The ESA July 2019 MPR reported this contract close-out status as open. Open issues to be completed include: tunnel bench remediation, Plaza grouting, and PAC defects at Plaza Structure. Eleven NCRs remain open.

CQ033 – Mid-Day Storage Yard Facility

Schedule: The ESA July 2019 MPR projects Milestone MS#6, Substantial Completion (SC) for October 20, 2020, -65 days.

Construction Progress: The contractor continued construction/installation of the following yard facilities: CAM Platform, Storage Building, Cart Storage Building, Toilet Service Building; Building #7 demo prep; Personnel Access Bridge fire standpipe; Fire/water, sanitary and underdrain; Catenary; Medium voltage cable work, traction power conduit, cables, and track monuments; B15 substation underground construction; Track D approach construction continued, soon to be followed by track construction; underdeck light fixture installation, Honeywell Bridge. Signal Location CIL MID-7 building being stored since August 2019 at factory pending environmental issue resolution. New track and turnout construction continued. Preparation work for CIL MID-8 is on hold pending resolution of site access coordination issues with CM007 and CS179.

Observations/Analysis: ESA and the contractor continued to work well together.

Concerns and Recommendations: A CPR was issued to re-structure CPM schedule/milestones. Access Restraint 2 (AR #2) was resolved in early September 2019.

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	678.8	11.6	538.5	733.9	81.5%	79.4%	6/30/20	7/2/21	1
	nc	+3.5	(-3.6)	+9.0	+19.8	+3.3%	+1.0%	(-1cd)	(-7cd)	
	690.4	675.3	15.2	529.5	714.1	78.2%	78.4%	7/1/20	7/9/21	
CS084	79.7	73.9	5.8	45.2	83.3	95.9%	61.2%	12/2/19	4/30/21	1
	nc	+0.1	(-0.2)	+9.4	+0.1	+1.9%	+12.8%	nc	+31cd	
	79.7	73.8	6.0	35.8	83.2	94.0%	48.4%	12/2/19	3/30/21	
CS086	60.9	53.0	7.9	2.7	62.9	24.8%	5.1%	2/21/21	4/28/21	
	nc	nc	nc	+0.4	+0.1	+6.7%	+5.1%	nc	(-10cd)	
	60.9	53.0	7.9	2.3	62.8	18.1%	nc	2/21/21	5/8/21	
VS086	21.8	20.4	1.5	17.4	22.4	NA	85.3%	10/14/19	7/2/20	1
	nc	+0.2	(-0.2)	+0.4	(-0.1)	NA	+1.7%	nc	nc	
	21.8	20.2	1.7	17.0	22.5	NA	83.6%	10/14/19	7/2/20	
VH051	30.2	29.7	0.5	29.6	30.1	NA	99.8%	4/30/15	7/13/21	
	nc	nc	nc	nc	(-0.1)	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. The PMOC believes that addressing open issues will have significant negative impact on SC dates.

CS179 Systems Package 1 – Facilities Systems

Design Progress: The backlog of needed reviews and decisions continues to remain as a serious issue and contributes to delay of change orders needed to progress work and to facilitate the design completion of the Control and Non-Control Systems. MTACC management acknowledges that only 8 of the 10 Control system final designs (FDs) are approved. As of the end of Q3 2019, the completion and approval of all 10 Control System final designs is 41 months late. Progress on Non-Control Systems designs also continues to be delayed and the contractor continues to assert that open issues and NOCs (25 at last count) that remain unaddressed are responsible for delaying its ability to complete these designs and continue with, and complete, equipment rack production. Additionally, a previously noted Buy/Ship America issue that could impact design and construction completion also remains unresolved. In Q3 2019, MTA determined that the motors on small ventilation fans that were identified in Q1 2019 as a potential Buy/Ship America issue are in compliance with the Buy/Ship America provisions and are no longer an issue. (See Appendix G for details).

Construction Progress: In Q3 2019, the contractor continued work on conduit, cable, fire stopping, fire standpipe, equipment, lighting, etc., in the tunnels and substation facilities to which it had access and where there were no SWOs impacting the work. Testing of installed equipment (e.g., ventilation fans) and splicing and termination of fiber optic cables also occurred. While the resolution of coordination issues with other contractors that are working or have worked in CS179 contract facilities continues to be an issue impacting the progression of work on multiple contracts, some improvement in resolving the issues has been observed as a result of weekly coordination

meetings between the CS179 and CS084 contractors. The contractor continues to advise MTACC that the numerous open SWOs (14 at last count) and access restraints (due to water infiltration, as-built site conditions, etc.) are severely impacting the progress of construction work. Water infiltration into various work areas continues to be an issue impacting construction progress. Equipment rack production continues to be delayed due to NOCs that remain as open issues.

Incremental Integrated Systems Testing Plan: During Q1 2018, MTACC identified the need to implement Integrated Systems Testing (IST) incrementally to meet the schedule requirements for RSD. This approach was significantly different than originally planned under Contract CS179. The new Incremental IST Plan required an agreement on the plan and schedule among the ESA PMT, LIRR, the CS179 contractor, other contractors installing systems-type equipment, and several other organizations – both internal and external to MTA. The PMOC notes that a significant modification to the CS179 contract was executed in May 2019 that included these key changes: 1) a revised CS179 baseline schedule updated to implement the final negotiated Incremental IST plan and schedule, and 2) an improved Substantial Completion date of June 2021. This new testing approach will also require associated contract modifications for the CS084, VS086, CS086, and CQ033 contracts. Based on discussions at contract progress meetings for the CS084, CS086, and VS086 contracts, it does not appear that MTACC has engaged these contractors in the development or agreement of this new testing plan. In response to the PMOC request that MTACC provide the Incremental IST plan and schedule for review, MTACC gave the PMOC a briefing on the revised IST Plan on June 25, 2019, but did not supply any documentation regarding the plan or the testing schedule at that time. The PMOC requested a copy of the presentation documentation along with details about the testing that will be performed and the schedule associated with that testing. **[Ref: ESA-129-Jun18]**

Concerns and Recommendations: The PMOC remains concerned about the lack of a realistic schedule for this contract that details all remaining work and durations, including new activities that may result from the NOCs, and delays due to SWOs. The PMOC also has significant concerns about the unresolved Buy/Ship America issue, as delays in acquiring a suitable alternative could have an adverse impact on the schedule. Additionally, the PMOC remains very concerned about late completion of design reviews and approvals. The PMOC notes that, despite the appearance in the above table that the contract's Actual progress is essentially the same as the Planned progress, actual progress of this contract is significantly behind schedule. The progress percentages presented in the table are based on actual versus projected costs, not physical design or construction efforts. The lack of detail regarding the comprehensiveness of the testing plan and the schedule of the Incremental IST is a major concern for the PMOC. Further, the uncertainty that an agreement by all stakeholders (contractors, LIRR, MNR, Amtrak, NYCT, Con Edison, FDNY, etc.) on the implementation of any proposed Incremental IST Plan has been made raises concerns about MTACC's ability to achieve effective and successful completion of all testing in time to meet the current forecast ESA RSD. MTACC/ESA needs to continue working with all stakeholders to expedite finalization and approval of any Incremental IST Plan and schedule.

CS084 Tunnel Systems Package 4 – Traction Power

A comparison of actual and planned completion percentages in the Table above indicates that this contract is significantly behind schedule; a trend that has been noted each month. Lack of access to facilities and non-approval of equipment designs impacting equipment procurement and fabrication contributed to the contractor's inability to make progress. During Q3 2019, some of the access restraint issues were resolved and substantial physical work on this contract has occurred. The delivery of the C08 pre-fabricated substation occurred and the various sections of the substation structure are being assembled and interconnected with wiring. One of the

transformers for the C06/C07 substation complex was lowered into place and the other one is scheduled for installation in early October 2019. Because of previously reported issues with the access shaft alignment at the C06/C07 substation location, the contractor had to remove the outer casing of the transformer to lower it into place. The contractor reports that the removal of the outer casings of 7 other transformers at various substation locations will be required due to various access issues. Arrangements are being made to deliver equipment to other substation locations and testing procedures for the various substations are being submitted for review. The installation of traction power feeder cables from some of the substation to the track has commenced. Previously reported issues at some of the substations are in the process of being addressed, but water infiltration and access restraint issue continue to affect work progress (see Appendix L). Contract modifications to the CS084 and other contracts that address the open issues will be needed to achieve a timely completion of this contract. Two major quality issues – one related to the appearance of damage to MTA-supplied inductive reactors and the second involving compliance of track monuments to LIRR specifications – remain as significant open issues. One additional issue regarding access to the C03 substation location – due to unresolved water infiltration issues – remains as an item of major concern impacting equipment installations.

Design Progress: A number of the reported design issues are those related to the correction of problems identified during field surveys (e.g., track monuments). The contractor is still working on the designs for bus ducting at several of the substations. Except for the "blue-light" issue noted below, all the other equipment designs are complete, with equipment in various stages of fabrication or delivery. In Q2 2019, MTACC identified a design issue related to the "blue light" system being utilized to de-energize the 3rd rail. LIRR indicated that the system being deployed does not utilize the methodology that it wants. The contractor's rebuttal was that LIRR already approved the design – and implementation methodology – of this system when it approved the final design drawings; and, any change to the design would impact the already completed PLC design. MTACC continues to investigate the merits of any change to the current implementation methodology. 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 software "source code" to the MTA. The designer contends that submission of the source code for this proprietary software is neither required nor acceptable to them and MTA (LIRR) insists that it be provided. Negotiations between the parties are on-going with no forecasted completion date available at this time.

Construction Progress: During Q3 2019, significant equipment installations on MTA property progressed, despite some SWOs and obstructions from other contractor's equipment installations. 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. Despite the contractor and MTACC continued diligence to work together to address these issues, progress on 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. A list of those issues (See Appendix P) is updated each month and discussed at weekly coordination and monthly progress meetings. The PMOC previously reported significant Quality issues related to 2 of the 18 required substation transformers (those for the C03 and C05 substations) in which there were 3 failures related to foreign debris in the windings while undergoing hi-pot testing. As of the end of June 2019, both of those transformers had successfully passed additional hi-pot testing; completing all testing of the required transformers. As previously reported, during Q3 2018, an additional quality-related issue was identified; that of potential damage to the 26 MTA-supplied inductive reactors. In Q4

2018, the contractor accepted two of the reactors and installed one in the Vernon substation. The installation of the second reactor needed for this location continues to be deferred due to obstructions at the site from another ESA contractor. Subsequent design investigation by LIRR and the GEC indicates that several of the original 26 reactors are not needed to provide broken-rail protection; however, further inspection of the extent of any damage to the remaining required reactors in the MTA warehouse remains as an unresolved issue. Significant schedule impacts could result if any of the remaining required inductive reactors is determined to be unacceptable for use. **[ESA-130-Sep18]**

In Q4 2018, the contractor identified, and MTACC verified, specification non-conformance issues with several track monuments (conduit turn ups at track level for routing of traction power cables). Corrective action to address non-conformance issues with track monuments continues to be a major significant issue impacting the progression of work on this contract. MTACC continues to indicate that there are approximately 450 to 453 track monuments that required traction power feeder cable connections. As of the latest data provided to the PMOC (data dated 9/29/19), of the 275 monument locations that were inspected to determine if they conform to LIRR measurement standards, 232 (84.4%) were found to be out of tolerance. Based on the findings of initial inspections of some of the existing monuments, MTACC issued an RFP to the contractor to develop "mock-up" traction feeder cables for three different types of monument layouts identified during the inspections. As of mid-September 2019, joint teams of MTACC, GEC, and the contractor performed limited field visits to try out the mock-ups at several locations. To date, no acceptable solution has been identified that will finally address this major issue. The PMOC notes that, if any of these non-standard mock-ups are deemed acceptable by LIRR, then any decision that provides feeder leads (jumper cables) of lengths or configurations that are inconsistent with current LIRR standards could present a problem for long-term maintenance to the LIRR. There are almost 2,100 traction power feeder leads required throughout the ESA territory; and, the contractor indicates that there is a 20-week lead time for fabrication and delivery of the leads. The contractor further indicates that an order for the leads cannot be placed until the field measurements and acceptability of the feeder lead configurations are determined. In September 2019, MTACC advised the CS084 contractor that 47 remediated monuments were ready for turn over to the CS084 contractor. The CS084 contractor performed inspections of these locations and attempted to "ball and brush" the conduits to see if cables could be readily installed. The contractor reported that 66% of the monuments and conduits that inspected were deemed unacceptable due various reasons – most of which involved the inability to pull cable through the conduits. Further development of workable solutions to this problem is urgently needed.

Concerns and Recommendations: At contract meetings, the PMOC continues to inquire about verification of manhole and conduit systems at CS084 substation locations to avoid a repeat of the issue that exists at C08. In June 2019, MTACC directed the contractor to begin surveying these systems to determine their condition – that surveying continues. The need for a modification of the fabrication process for the transformers that resulted from the testing failures raised questions and concerns from the PMOC and MTA personnel regarding the long-term viability of the 10 transformers built before the modified fabrication process was implemented. The LIRR and MTACC continue discussions related to those concerns. 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 – Tunnel Signal Procurement

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. Given the understanding that the VS086 contractor will have to support the CS086 contractor's installation and testing of signal equipment, and that the current S/C date for the CS086 contract is shown as July 2021, it is unclear to the PMOC how this July 2020 S/C date was determined.

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. MTACC management needs to determine if this change in Application Logic is warranted and then give the contractor the appropriate direction. Further, MTACC acknowledges that the LIRR's PTC design is incomplete and that any contract modifications needed cannot be determined until the design is completed. 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; however, as of mid-September 29019, the contractor indicates it is still waiting for approval from MTACC to pick up the specified equipment from ESA property and return it to the contractor's factory.

Concerns and Recommendations: The PMOC remains concerned about the number of unresolved items with potential cost and schedule impacts. Since time to make and implement decisions for

open issues is not in the schedule, the PMOC is concerned about the validity of the forecast contract and MTACC schedule completion dates.

CS086 Tunnel Systems Package 2 – Signal Installation

MTACC is currently forecasting an April 2021 S/C date, a 2-month slippage in the contractual S/C date and an approximate 1-week improvement since the last PMOC report. 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. In response to a PMOC question regarding the validity of the current schedule update, the contractor continues to indicate that it cannot accurately update the schedule because of the outstanding and unresolved room access issues.

Work Activities: As of mid-September 2019, no significant construction work has commenced on this contract. In Q2 2019, the contractor completed surveys of the various work sites to determine the condition of sites and if access for work was possible. While a full list of site issues must still be submitted to MTACC, numerous issues regarding site accessibility and equipment layouts were identified by the contractor as items delaying its commencement of work on the contract. Issues noted include water infiltration, equipment layout conflicts, and other obstructions and misalignments inconsistent with existing contract drawings. Three significant issues, other than water infiltration issues, that could have a negative impact on the timely progression of CS086 contract work were identified during the surveys. They are: 1) the mounting of signal impedance bonds in the track area 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; 2) there are numerous obstructions precluding the installation of signal equipment at the various locations surveyed; and, 3) there are several areas where the proposed signal equipment was to be located that appear to be too small for the proposed signal equipment, necessitating the identification of an alternate installation site. MTACC needs to investigate these findings and identify remediation efforts as may be necessary. MTACC will also need to determine the extent of any impact the remediation of reported findings will have on this and other ESA contracts. The contractor continues to request as-built drawings and equipment assembly and testing instructions from the VS086 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	68.7	63.9	4.8	25.3	90.3	40.2%	39.6%	3/17/21	3/17/21	
	+1.8	+1.7	+0.1	+6.7	+19.8	+9.1%	+9.6%	nc	nc	
	66.9	62.2	4.7	18.6	70.5	31.1%	30.0%	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 Part 3 – Tunnel B/C Approach Structure

Construction Progress: During September 2019, the contractor completed demolition of existing piers #6 and #7 supporting the 39th Street overhead bridge and the above ground portion of the existing G02 Substation, continued excavation to "intervene" with the Tunnel B/C TBM cutting head west of 39th Street and the East Approach Structure east of 39th Street, and began demolition of the TBM cutting head. No contract milestones were scheduled for or achieved during September 2019.

Observations/Analysis: ESA and the contractor continue to work very well together, which has resulted in construction remaining on schedule. During September 2019, ESA was also authorized to issue a limited NTP for the construction of the Eastbound Re-Route Tunnel (EBRR) to CH058A, although no actual construction began. This is an Owner Initiated Contract Modification (OIC) to begin construction of the EBRR that will include installation of piles and excavation of the East Approach Structure only. The West Approach Structure and the tunnel itself will be constructed by a future contract.

Concerns/Recommendations: The PMOC has no concerns about this contract at this time and recommends that the parties continue their excellent working relationship.

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	61.4	100.0%	99.5%	8/15/17	1/24/21	1
	nc	nc	nc	nc	+6.7	nc	nc	nc	nc	
	61.4	61.4	--	61.0	54.7	100.0%	99.5%	8/15/17	1/24/21	
FHA03	8.9	5.2	3.7	8.0	10.2	100.0%	89.4%	7/25/18	6/2/25	1
	(-5.4)	nc	(-5.5)	+0.9	(-5.5)	nc	+39.8%	nc	nc	
	14.3	5.2	9.2	7.1	15.7	100.0%	49.6%	7/25/18	6/2/25	
FHL02	123.1	123.1	--	120.2	126.3	100.0%	97.7%	11/25/16	8/30/21	1
	nc	nc	nc	+0.3	(-0.1)	nc	+0.3%	nc	nc	
	123.1	123.1	--	119.9	126.4	100.0%	97.4%	11/25/16	8/30/21	
FHL03	20.6	2.7	17.9	23.6	37.6	100.0%	90.5%	8/14/17	4/28/24	1
	nc	nc	nc	+0.1	(-10.0)	nc	+25.3%	nc	nc	
	20.6	2.7	17.9	23.5	47.6	100.0%	65.2%	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 Early Stage 2 and Stage 3 – Amtrak F/A

Construction Progress: During September 2019, Amtrak Electric Traction (ET) personnel continued to make catenary modifications on Sub 1, 2, 3, and 4 Tracks in "Q" Interlocking in order to facilitate future CQ033 MDSY track construction. Amtrak C&S personnel continued to install signal trough and cables along Loop A and Loop 2 Tracks between Loop and "T" Interlockings.

Observations/Analysis: During Q3 2019, Amtrak was able to continue its improvement to supply direct force account and Access and Protection personnel to adequately cover all ESA contract construction, although track usage time for ET work in "Q" Interlocking remained extremely limited because all trains going into Penn Station pass through the area, which makes it difficult to obtain track usage.

Concerns/Recommendations: The PMOC has no significant concerns about the Amtrak ESA Support issues, although it will continue to monitor them closely. The PMOC recommends that ESA and Amtrak continue to work closely together.

FHL02 and FHL03 Harold Early Stage 2 and Stage 3 – LIRR F/A

Construction Progress: During September 2019, LIRR Electric Traction (ET) personnel continued to make miscellaneous 3rd rail and traction power modifications in Harold Interlocking. LIRR Signal personnel continued to make miscellaneous signal revisions throughout Harold Interlocking and to support the CH058A contractor.

Observations/Analysis: Since the major 3rd rail, signal, and track construction that began in early 2018 is now complete, LIRR ET and Signal personnel have been concentrating their work efforts on miscellaneous future work and other important work in Harold Interlocking that was not required during the period when the 2018/19 major work was performed.

Concerns/Recommendations: The PMOC has no significant concerns about the LIRR Force Account support of Harold construction at this time, but will continue to monitor future work closely. The PMOC recommends that ESA and LIRR continue to work closely together.

2.4 Operational Readiness

Status: The most recent quarterly Operational Readiness (OPR) briefing, held on October 11, 2019, was the update for Q2 2019; and, the data presented reflected the status of Task Working Group (TWG) activities up to that date. The next Quarterly update (Q3 2019) has yet to be scheduled. Details of the progress of the Rail Activation Plan (RAP) and specific TWGs are contained in Appendix Q; and, are based on information provided at the Q2 2019 briefing.

Observations and Analysis: The primary responsibility of the Operational Readiness (OPR) Group is to develop the ESA Rail Activation Plan (RAP) that will be used to progress the ESA project from construction efforts through commissioning and into revenue service. It is being developed through the use of 11 separate Task Working Groups (TWGs) that each focus on specific separate aspects of work activities needed to bring the ESA project to and into revenue service. The structure of the OPR Group has undergone several modifications during the past year; with the most current update being the establishment of a LIRR Senior ESA Transition Team to identify activities needed to implement and maintain ESA service. To address staffing issues related to the planning, operation, and maintenance of ESA service, LIRR requested the approval to hire 40 individuals to augment its Senior ESA Transition Team and OPR Staff. As previously reported, twenty (20) of those positions were approved and, while some positions are already filled, others are still in various stages of the hiring process. Several of the LIRR departments had their requests disapproved by LIRR Senior management and those departments have revised their requests and re-submitted them for consideration. The PMOC reiterated its request for a copy of the draft organization chart showing this staff augmentation.

MTACC previously advised that a revised ESA Revenue Service Plan (RSP) was needed because certain infrastructure might not be available by the RSD and because Amtrak work might interfere with ESA work. MTACC also indicated that a revised RSP would impact the new railcar procurement and LIRR staffing and training requirements. At the Q4 2018 briefing, MTACC noted that, while final development of the revised RSP remained projected for the end of August 2019, a general hiring freeze was impacting MTA's ability to put a fully-complemented Service Planning department in place, which could jeopardize the forecasted completion of the revised RSP. In Q1 2019, the MTA Vacancy Control Committee approved 5 new positions requested by LIRR's Service Planning department; and, LIRR indicated that, once these 5 positions were filled, it would take between 9 and 12 months to complete the revised RSP. At the 2Q 2019 OPR briefing, MTACC advised that only 3 of these approved were filled and the completion of the revised RSP would be delayed until the end of 2020.

One required RAP deliverable is a Comprehensive Systems Test Plan (CSTP). A draft partial plan was prepared several years ago and was updated in August 2018. Further updates and finalization of the CSTP depend on an acceptable ESA Integrated System Test (IST) Plan and schedule, which was only recently developed and under the CS179 contract. As of the Q2 2019 OPR briefing, the CSTP remained as an uncompleted item with no forecasted completion date available. A number of the other TWG activities are progressing satisfactorily; however, there are several (e.g., the railcar procurement and personnel hiring and training) that are significantly behind schedule. Information about the procurement of railcars is noted in Section 2.5 and details on the status of all the TWGs can be found in Appendix Q of this report.

2.5 Vehicles

Status: LIRR procurement of new vehicles is a concurrent effort with its sister MTA agency, Metro- North Railroad (MNR), to provide sufficient new vehicles for future planned service expansion. The acquisition of these vehicles is being financed using both New York State and federal funding. Two similar vehicles will be procured, designated M-9 and M-9A. The M-9 cars have already been purchased by MNR using New York State funding. The M-9A cars, which will be modified M-9 cars for use on LIRR, will be purchased using federal funds.

In September 2018, LIRR terminated its first M-9A procurement effort in order to issue a new two-step RFP which added additional scope to the original M-9A procurement: Locomotive Hauled Married Pair (LHMP) units; and the decommissioning of the existing M-3 rail-fleet. The new RFP was issued in October 2018 and LIRR received responses to the "Qualifications" portion of the RFP in December 2018, after which it was determined that there was sufficient competition to proceed to the second step, "Cost/Schedule", which LIRR issued in January 2019. The vendor's responses were received in April 2019. LIRR continued its review and analysis of the responses through September 2019 and has developed a "Best and Final" (BAFO) solicitation, which is scheduled to be issued to the qualified vendors in early October 2019. LIRR continues to plan on a December 2019 award of the contract.

Observations/Analysis: Until a revised procurement schedule based on the successful vendor's response is developed, it will not be possible to adequately analyze the impacts that these continuing delays will have on ESA's RSD. The PMOC believes that it could take several more months beyond December 2019 before LIRR can issue the award. If that is the case, MTA may need to determine how to provide railcars from its existing fleet in order to meet its scheduled RSD date for LIRR service to GCT.

Concerns/Recommendations: The PMOC remains concerned that the M-9A procurement continues to be delayed. The PMOC recommends that LIRR and the MTA do everything possible to award this contract as soon as possible.

2.6 Property Acquisition and Real Estate

Status: In its July 2019 MPR, ESA reported that MTA Real Estate executed construction agreements with JP Morgan Chase (JPMC) and with Rudin Management Company (RMC) for construction of JPMC's new world headquarters building at 270 Park Avenue and the 48th Street entrance in RMC's building at 415 Madison Avenue, respectively. Both of these are within the footprint of ESA construction of the new LIRR GCT concourse.

Observations/Analysis: The PMOC believes that MTA Real Estate continued to perform its responsibilities on behalf of the ESA project in an entirely effective manner.

Concerns/Recommendations: The PMOC has no concerns about or recommendations for MTA Real Estate at this time.

2.7 Community Relations

Status: The July 2019 MPR indicates that Community Relations continued to notify adjacent property owners of upcoming future ESA construction activities and that it conducted 10 tours of during July 2019 for various interest groups and stakeholders.

Observations/Analysis: The PMOC believes that the MTACC Community Relations staff continued to perform its outreach campaign in an entirely effective manner.

Concerns/Recommendations: The PMOC has no concerns about or recommendations for MTACC Community Relations at this time.

3.0 PROJECT MANAGEMENT PLAN AND SUB PLANS

Status: MTACC's current version of the Project Management Plan (PMP), Revision 10, is acceptable to the FTA.

Observations: MTACC plans to update several PMP sections for the next revision, including: Management, Procurement, Operational Readiness, and Systems Testing and Startup. MTACC is planning to issue the draft of the next revision to the PMP during Q4 2019 based on recent revisions to a number of PMP Sub-Plans.

3.1 PMP Sub-Plans

MTACC is updating several of the PMP Sub-Plans to document changes called for by the implementation of the MTACC President's Six-Point Plan for reducing the ESA programmatic risks.

Status: The PMOC completed its evaluation of the current revisions in use by ESA of both the Cost Management Plan (CMP) and Schedule Management Plan (SMP), concluded that the CMP and SMP are acceptable, and the FTA notified MTACC that they are acceptable.

MTACC had previously updated the following PMP Sub-Plans:

- Technical Capacity and Capability Plan (TCCP)
- Risk Management Plan (RMP)
- ESA Project Quality Manual (PQM)

In April 2018, the FTA advised MTACC to incorporate its current updates and commence with a subsequent revision that addresses changes resulting from the MTACC Six-Point Plan for ESA. MTACC issued updated drafts for the CMP, SMP, and RMP in December 2018, the CPP in January 2019, and the TCC Plan in May 2019.

Observations: MTACC is using the most recently revised Project, Cost, and Schedule Management Plans as accepted by the FTA/PMOC.

Concerns and Recommendations: MTACC should continue to ensure that the proper candidate revisions are prepared and presented to the CCC for approval before any changes are incorporated into these plans.

3.2 Project Procedures

Status: The revised PMP Sub-Plans may require updates to referenced Project Procedures. MTACC plans to create a new procedure for the management processes being used by the newly formed PMO Analytics Group.

Observations: MTACC submitted the new ESA Procedure PIP 4.01 during Q1 2019.

Concerns and Recommendations: There are no significant concerns at this time.

4.0 PROJECT SCHEDULE

4.1 Integrated Project Schedule

The schedule information in this report is based on IPS 120 (data date August 1, 2019) and the IPS Progress Report. The forecast for the Target Revenue Service Date (RSD) remains February 14, 2022, and the Public RSD remains December 13, 2022. All IPS schedules prepared during Q3 2019 were prepared using the MTACC alternative IPS procedure.

In IPS 120, the Manhattan/Systems work path has no float and it remains the most critical path of the ESA program. As shown in Appendix F, ESA Critical Path Chart, the float on the paths through the three main ESA program work areas are: 1) Manhattan/Systems (no float); 2) Harold Interlocking [redacted]; and, 3) Queens [redacted] The PMOC notes that float on the Harold Interlocking path is measured to the start of LIRR Final Systems Testing and that the float on the Manhattan/Systems and Queens (Mid-Day Storage Yard) paths is measured through LIRR FRA Testing (signals and power).

Exemption b(4)

Both the Target RSD and the Public RSD remained as previously forecast on February 14, 2022 and December 13, 2022, respectively. The program schedule contingency remains 302 calendar days to the Public RSD, which is 692 calendar days less that the 994 calendar days established in the July 1, 2014 IPS re-baseline.

Table 4.1 shows dates, remaining durations and contingencies for the Target, Public, and FFGA Revenue Service Dates.

[redacted]

Exemption b(4)

4.2 Primary Critical Path

IPS 120 forecasts that the finish date for the Manhattan/Systems longest path is July 2, 2021 (no float), approximately the same as forecast in IPS 117. Although the IPS 120 critical path still starts with CM007 and ends with CS179, the work on the path completely changed and the path now includes contracts CS086 and CS084.

The path in IPS 120 still starts with CM007 and ends with CS179, although the contract work on the path completely changed from the caverns and concourse to track and rail road systems one the CM007 universal support system was fabricated. The critical path starts with CM007 track

layout and installation in tunnel EB2 and Plaza East; completion of track monuments; followed by CS086 signal equipment installation; delivery and installation of wayside equipment for tunnel EB2 from GCT-6 to Plaza interlocking; and, cable pulling and termination. The path then shifts to CS084 pulling, termination, track connections and local testing of control cables in the areas of substations C04 and C05; followed by CS179 track phase integrated system testing, ending in July 2021 with the completion of all IST and CS179 substantial completion. From this point the path runs through LIRR FRA testing, LIRR final system testing, LIRR initial and final previews, and concludes with the Target RSD on February 14, 2022.

Table 4.2 shows the work and contracts that comprise the Manhattan/Systems work path through the Public RSD along with forecast start and finish dates as reported in IPS 120

Table 4.2 – Primary Critical Path

Activity Name	Duration	Start	Finish
CM007 - GCT Station Caverns and Track			
Mobilize/ Install track work and third rail at Plaza East	236	19-Aug-19	10-Apr-20
Complete Track Monuments at EB2	127	10-Apr-20	14-Aug-20
CS086 - Tunnel Systems Package 2 – Signal Installation			
GCT6 Plaza deliver and install equip; wire and terminate	95	14-Aug-20	16-Nov-20
CS084 - Tunnel Systems Package 4 – Traction Power Systems			
C04 pull/ terminate control cables connect to track	23	16-Nov-20	8-Dec-20
C05 brush and ball conduits, pull and terminate cables	60	8-Dec-20	5-Feb-21
CS179 - System Package 1 – Facilities Systems			
Track IST 2-way radio testing to substantial completion	148	5-Feb-21	2-Jul-21
Program Activities			
LIRR FRA Signals and Power Testing †	115	29-Jun-21	21-Oct-21
LIRR Final Testing and Previews ‡	116	21-Oct-21	13-Feb-22
Target Revenue Service Date			
[redacted]	[redacted]	[redacted]	[redacted]
Public Revenue Service Date			**13-Dec-22**

Notes: † Successor to Manhattan/Systems and Queens paths.
‡ Successor Harold Interlocking path.

Exemption b(4)

Contracts CM007, CS086, CS084 and CS179 also have other near critical work, in addition to the work described above. Additionally, contract CM014B has near critical work also.

The MTACC has been developing coordination point milestone activities in the IPS schedule to track and monitor the progress of inter-contract coordination for the ESA program. These activities have experienced month-to-month changes that have reduced their usefulness as a tool to monitor progress. MTACC has added milestones and dates to match the syndicated Incremental IST schedule that was agreed to by the CS179 and CM014B contractors. As MTACC continues to develop the schedule and identifies additional inter-contract coordination points for other contracts it is anticipated that the critical path will continue to shift to various scope elements among these contracts. There remains the risk that the lack of progress through coordination points will result in 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. (Refer to Appendix F, ESA Coordination Point Changes.)

Sub Program Longest Path – Harold Interlocking

IPS 120 shows that the Harold Interlocking work path is the second longest ESA program path. The Harold Interlocking work path concludes on July 3, 2021, in IPS 120, approximately 2 weeks earlier than as shown in IPS 117. This caused the float to decrease to 110 calendar days (18 calendar days more than IPS 117). The Harold Interlocking work path is the same as last month and begins with CH058A construction of the Track B/C Approach Structure construction and track work through March 2021, followed by switch, signal, catenary work and track cutovers through July 2021. At the completion of construction of the Harold work path, there are approximately 3.6 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 120 shows that the Queens (Mid-Day Storage Yard) work path is the longest program path. The finish date for the Queens path is October 14, 2020 in IPS 120, approximately 2 weeks earlier than as shown in IPS 117, and the float on the path increased to approximately 8.5 months. The Queens path currently runs through CQ033 demolition of catenary tower foundations; construction of shallow duct banks and storm drainage; and, construction of communications duct bank. This is followed by pulling communications cables; speaker installation; testing of the public address system; and, completion of IST and CQ033 substantial completion on October 14, 2020. From the end of the Queens path, there are approximately 8.5 months of float to the LIRR FRA testing activity on the ESA program critical path (Manhattan/Systems work).

4.3 90-Day Look-Ahead of Important Activities

An ESA program look-ahead schedule (refer to Appendix F) shows milestones and significant activities that are forecast for the next 90 days on active contracts. Table 4.3 lists upcoming procurement milestones that are forecast to occur through Q3 2019, as reported by the PMT.

Table 4.3 – Upcoming Contract Procurement Milestones

Contract Description	Advertise Date	Bid Date	NTP	Project Period	Substantial Completion
CH063 ET Catenary Work – 3rd Party	Sep. 2019A	Dec. 2019	Jan. 2020	26 mths.	Feb. 2022

PMOC Observations, Analysis, and Concerns

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

1. Concerns continue about the Manhattan/Systems work path. While MTACC has reduced the uncertainties concerning Incremental IST schedule with contract modifications to CM014B and CS 179, further agreements are needed with secondary contractors that includes CM007, CS084, VS086, CS086 and CQ033. Risks will remain for prosecution of the schedule due to the effect of construction activity stacking. Future schedules may show the shifts in the critical path, further delays, and reduction of the Issues Contingency. **[Ref: ESA-128-Sep17]**
2. 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. This is a result of the amount of work that is near critical.

3. The ESA program schedule contingency is 302 CDs, which is only 27 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; Q4 2020) is at risk due to the uncertainties about the Manhattan/Systems schedule, the greatest of which is execution of the approved plan and schedule for the Incremental IST.
4. Progress on CS084, Tunnel Systems Package 4 – Traction Power, is slow and is currently reported as 61.2% complete compared with as-planned progress of 95.9%.
5. 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. It is noted that MTACC continues to work with the contractor to develop a realistic and updated schedule and 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 with a focus on major electrical equipment submittals and layouts, identifying major issues, and, determining corrective measures.
6. The PMOC has been concerned about the lack of progress to advance Incremental IST as indicated by not achieving the scheduled coordination point completion dates. With the incorporation of the syndicated schedule for Incremental IST into the ESA IPS, the MTACC reestablished the coordination point activities. While additional coordination points will be added to the plan when contract modifications are in place 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.
7. The CM014B contractor's capability to complete the 20% of its remaining work in the 12 months prior to the forecast SC in September 2020. The PMOC believes that this is overly optimistic based on the contractor's historic construction performance.

5.0 PROJECT COST

5.1 Budget/Cost

In the ESA July 2019 MPR, MTACC reported that the ESA program is 78.9% complete compared to planned progress of 80.2% 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 84.4%. 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. Individual contract and force account package completions are calculated as a percentage of their current awarded value.

The MTACC established the revised budget of $10,178 million (excluding the rolling stock reserve and financing costs) for the ESA project in June 2014. In April 2018, MTACC forecasted a new ESA program EAC of $11,133 million, which is $956 million above the June 2014 budget. The MTA has funded an interim budget of $10,335 million for the program through December 2020. The MTACC's proposed ESA budget of $11,133 million was approved by the MTA Board in September 2019 for the 2020-2024 Capital Plan. The June 2014 budgets, FFGA budgets, and current baseline budgets are shown by standard cost category in Table 5.1.

Table 5.1: Comparison of Standard Cost Categories: FFGA, MTA ETPC, CBB
(Cost shown in millions)

Standard Cost Category	FFGA Dec 2006	June 2014 Project Budget	Amended FFGA	April 2018MTA ETPC	May 2019 CBB	Jun 2019 CBB	Jul 2019 CBB	CBB / FFGA Var.	CBB / Amend FFGA Var.
10 Guideway and Track Elements	1,989	3,405	3,353	3,479.7	3,409	3,409	3,400	71.0%	1.4%
20 Stations, Stops, Terminals, Intermodal	1,169	2,238	2,327	2,473.6	2,378	2,378	2,378	103.5 %	2.2%
30 Support Facilities (Yards, Shops, Admin)	356.3	474.2	450.8	612.7	565.9	565.9	565.5	58.7%	25.5%
40 Site Work and Special Conditions	205.1	610.6	562.5	591.9	499.8	518.7	517.6	152.4 %	-8.0%
50 Systems	619.3	605.6	627.7	810.9	712.7	712.7	712.3	15.0%	13.5%
60 ROW, Land, Existing Improvements	165.3	219.4	192.2	241.0	162.3	162.3	162.3	-1.8%	-15.6%
70 Vehicles	494.0	672.9	879.5	209.9	15.4	15.4	15.4	-96.9%	-98.2%
80 Professional Services	1,184	1,975	1,809	2,446.5	2,136	2,228	2,228	88.2%	23.2%
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal	6,350	10,641	10,922	11,596	10,335	10,335	10,335	62.8%	-5.4%
100 Financing Cost	1,036	1,036	1,116	1,116	1,116	1,116	1,116	7.8%	0.0%
Total	7,386	11,677	12,038	12,713	11,452	11,452	11,452	55.0%	-4.9%

Exemption b(4)

5.2 Project Cost Management and Control

In the ESA July 2019 MPR, MTACC reported that total construction progress reached 82.7% complete compared with planned progress of 84.4%. 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. Individual contract and force account package completions are calculated as a percentage of their current awarded value. Details of active contract budgets and expenditures are in Appendix J.

The cost curve for planned construction based on the 2014 re-baselining cost curve has been updated to include the April 2018 EAC forecast. The chart reveals that cumulative construction costs are generally trending below the straight line projection for the April 2018 EAC forecast. The project has been consistently running behind the cost curve by $30 million in each of the past 6 months and it is currently approximately $110 million behind. To remain on plan for the April 2018 EAC forecast expenditures, the ESA program needs close the current gap and then maintain a monthly average of approximately $55.8 million to December 2020, and then average $21.1 million through February 2022. Maintaining the projected average spending rates is contingent on finalizing open schedule issues (e.g. CM007, CS084, CS086) and executing the Incremental IST program as planned. The PMOC is concerned about the MTACC's ability to sustain the planned rate of construction spending, which could impact the timely achievement of revenue service.

Table 5.2: Planned vs Actual Construction Cash Flow

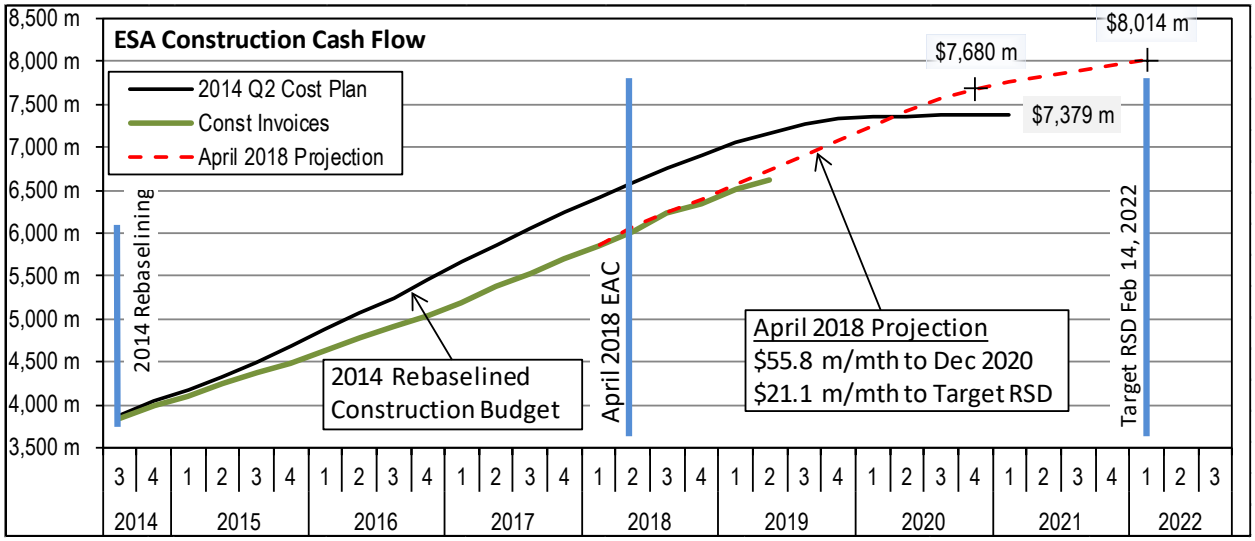


Table 5.3 shows ESA budgets, current awards and invoiced costs. Note that the percentages shown are invoiced percent of the current budget, not of the April 2018 EAC forecast.

Table 5.3: Project Budget and Invoices
(Cost shown in millions)

Elements	Baseline Total Budget June 2014	April 2018 EAC Forecast	July 2019				Invoice Pct. of Forecast
			Current Budget (interim)	Actual Awards	Invoiced Costs	Invoice Pct. of Budget	
Construction	**7,379.3**	**8,014.1**	**7,619.0**	**7,382.9**	**6,691.6**	**87.8%**	**83.5%**
Soft Cost Subtotal	**2,157.5**	**2,650.2**	**2,353.1**	**2,193.0**	**2,159.5**	**91.8%**	**81.5%**
Engineering	720.6	871.8	795.3	766.6	757.4	95.2%	86.9%
OCIP	282.6	457.4	379.2	379.2	372.6	98.3%	81.5%
Project Management	972.2	1,117.3	1,053.6	928.0	911.4	86.5%	81.6%
Real Estate	182.1	203.7	124.9	119.2	118.0	94.5%	58.0%
Rolling Stock†	665.0	665.0	7.5	2.7	0.3	3.4%	0.0%
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal	**10,640.8**	**11,596.3**	**10,335.1**	**9,578.7**	**8,851.4**	**85.6%**	**76.3%**
Financing	1,036.0	1,116.5					
Total	**11,676.8**	**12,712.8**					

Exemption b(4)

Note: † MTA ESA Rolling Stock Reserve of $463 million added to June 2014 Budget and April 2018 Forecast to account for the cost of 160 revenue vehicles.

5.3 Change Orders

Table 5.4 lists the 37 contract modifications with magnitudes greater than $100,000 that were executed during the period from May 2019 through July 2019. The net increase of these modifications was $135.8 million. The PMOC reviewed several of these change orders and found that MTACC change order procedures were generally followed. Refer to Appendix N for further information.

Table 5.4: Change Order Log (>$100,000)

Contract	Description / Mod No.	Amount
	May 2019	
CH057D	Northeast Quadrant Delays - Equitable Adjustment (mod. 6)	582,559
CM007	Deletion of Modified CWR Strings (mod. 77)	(103,437)
CM013	Final Closeout of Contract CM013 (mod. 42)	(720,000)
CM014B	Resolution Outstanding of Claims and Disputes, Deletion of North Transfer Station, and Acceleration of Work (mod. 210)	54,124,210
CM014B	B20, B30 Surge Arrestors, B30 F1 and F6 Setting (CPR-155) (mod. 248)	213,400
CQ033	Yard Lighting Modification (mod. 32)	1,485,135
CQ033	West End Camera Changes (mod. 36)	1,550,000
CQ033	West End Switch Heaters (mod. 37)	615,000
CS084	Replacement of PVC Conduit (re-lining) (mod. 15)	169,688
CS179	Public Address System Clarifications and Changes (mod. 175)	2,163,594
CS179	Two-Way radio Cables - Concourse (mod. 194)	766,312
CS179	Recovery Schedule, Revised Access Restraints and Milestones (mod. 197)	67,000,000
CS179	MHTN Security System Update (mod. 200)	682,985
CS179	GCT Caverns Security Systems Update (mod. 201)	352,535
CS179	Queens Security Systems Update (mod. 202)	252,500
	June 2019	
CM007	US1 and US2 Breakers Replacement - Installation (mod. 92)	193,292
CM007	NOC-103: Permanent Power to Elevators and Escalators (mod. 93)	318,091
CM014A	CM014A Stantec Repairs Reconciliation (mod. 61)	(144,266)
CM014B	NTS - Civil Adds (mod. 257)	235,000
CS179	55th Street Plenum Curbs (mod. 217)	175,000
CS179	DC Power Supply for 9010 ASR Routers at WIN and PENN (mod. 218)	114,961
VS086	Miscellaneous Signal System Changes (mod. 7)	225,000
	July 2019	
CM014B	EL-10 Elevator Shaft Modifications (mod. 240)	222,327
CM014B	MNR Duct Route for Transformer Rigging Frame (mod. 250)	215,078
CM014B	Revisions to CM014B Security System Conduits (mod. 254)	354,879
CM014B	MTA Corporate IT Conduits (mod. 256)	536,376
CM014B	Revised Roof Access Panels (mod. 259)	461,663
CM014B	Issue 755 OIC 215 - Replenish Payment Item 13 - Increase Allowance for Construction Manager Field Equipment (mod. 263)	100,000
CQ033	Systems Architecture Changes (mod. 38)	877,313
CS179	GCTCC Security Design and Review Update (mod. 142)	440,137
CS179	Caverns Communication Room Changes (mod. 206)	1,238,900
CS179	2nd Ave P1 Encased Conduits to ConEd Manholes (Part A) (mod. 225)	147,153
CS179	44th Street - Missing TVF Feeder Conduits (mod. 231)	210,310
CS179	47th - 48th Street Entrance Modifications (mod. 239)	212,900
CS179	2nd Ave Additional Plumbing Replacement (mod. 241)	133,429
CS179	2nd Ave Water Leaks (mod. 242)	210,624
CS179	NYPD Traffic Agents at 63rd Street (mod. 249)	232,992

5.4 Project Funding

The MTACC has sufficient funds to continue the ESA program through December 2020 as funded in the 2015-2019 Capital Plan. Budget Amendment 3 added $157 million (local funds) and increased the overall ESA program budget from $10,178 million to $10,335 million. The MTACC's proposed ESA budget of $11,133 million was approved by the MTA Board in September 2019 for the 2020-2024 Capital Plan, which will provide approximately $800 million in additional local funding to complete the ESA program. The MTA has an additional $463 million available in a ESA Rolling Stock Reserve.

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 August 1, 2019.

Local Funding: The budget for Local Funding is $7,636.4 million, of which $6,152.7 million was expended through August 1, 2019. Financing costs are funded separately from other local sources.

[redacted]

Exemption b(4)

[redacted]

Concerns and Recommendations: The PMOC remains concerned about future demands on the program's contingencies until the MTA 2020-2024 Capital Plan is approved and funded and the related ESA budget adjustments are performed. [redacted]

Exemption b(4)

The PMOC remains concerned that the ESA program additional funding of approximately $800 million in the 2020-2024 Capital Plan is pending approval by the NYS CPRB.

The PMOC notes that the MTACC is following its strategy of holding significant funding as contingencies, which is being released to specific projects on an as-needed basis, commensurate

with construction progress and other needs. While this strategy retains maximum flexibility for the MTACC, it differs from the generally accepted practice of committing to budgets for known program costs, tends to artificially inflate the program contingency, and reduces the accuracy of contract completion percentages.

6.0 RISK MANAGEMENT

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

Harold Interlocking – ESA Risk

Harold Re-Sequencing Plan ("ESA First"): To reduce the impacts of Amtrak's force account resource constraints, especially limited Electric Traction (ET) personnel, ESA has re-sequenced its Harold construction schedule on three separate occasions and developed what is known as the "ESA First" schedule as a result. Although this has helped to reduce the impact of insufficient Amtrak support, it has not eliminated it entirely and it continues to be a challenge for MTACC. The PMOC has, however, noted improvements for Amtrak ET support during Q4 2018 and continuing through Q3 2019.

Amtrak Preparation for Extended East River Tunnel Outages: 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 then later 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 formalized. 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. The PMOC's concern is based on Amtrak's historic reactions to service disruptions in the tunnels, which have resulted in suspending ESA Harold work until the service disruptions are resolved. Should this occur, the remaining ESA construction work in Harold Interlocking, as well as the 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, however, that this could impact the FFGA ROD of December 2023 that is 12 months later than the MTACC RSD.

Positive Train Control:

This risk has two distinct elements:

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 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 subsequently projected, due to resolution of GEC/LIRR comments on the GCT3 and GCT4 application logic submittals and the Wayside Interface Units. This delay continued through September 2019 based on some incomplete design as well as outstanding LIRR items required for completion of the additional scope of work for the three contracts noted below. The GEC acknowledges that the required associated design changes for ESA Contracts VS086, CS086, and CS179 cannot be completed until the PTC design is finalized. The PMOC notes that this continued delay increases the schedule risk to the three cited ESA contracts and may also require modifications to the final CS179 Integrated System

Testing plan and schedule. MTACC has already acknowledged that the contract modification for incorporation of PTC requirements will impact the substantial completion date for Contract VS086 and this may delay completion of installation of the signals under Contract CS086.

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. **[Ref: ESA-127-Jun17]**

ESA Vehicle Risk

The PMOC will remain concerned about the LIRR's procurement of the M-9A vehicles until a schedule is developed based on results of its revised RFP. Late delivery of the vehicles could potentially have a negative effect on MTACC's Revenue Service Date and the PMOC believes that any further delay in the procurement could likely bring this risk much closer to realization. The procurement has been delayed since early Q2 2019 while LIRR develops the legal and procurement parameters needed to issue a "Best and Final" solicitation to the pre-qualified bidders.

Manhattan/Systems Performance Risk

The PMOC remains concerned that continued delays in completing the Manhattan/Systems work that is the ESA Program Critical Path may adversely impact the completion of the overall ESA program and the start of revenue service based on the following **[Ref: ESA-128-Sep17]**

- Contract CS084 is reported at only 61.2% complete (actual) vs. 95.9% as- planned; correction of as built out-of-tolerance track monuments increases delay risk.
- Contract CM014B is reported at 78.9% complete (actual) vs. 82.1% as-planned.
- Contract CS086 received NTP in December 2018. Delays to the start of this contract have used significant schedule float and access issues continue to delay work in many areas.
- Adequate schedule progress for executing the finalized Incremental IST plan.
- The critical stakeholder issue with JPMC has developed involving its plans to construct a 70-story office tower replacing its existing office building at 270 Park Avenue. Impacts to the ongoing ESA construction of the new LIRR Concourse at GCT are significant.
- Managing inter-contract handoffs and interfaces has become a significant issue that will be increasingly challenging and represents a significant MTACC-retained risk.

Due to contractor work site time and access constraints, there is very limited opportunity for the contractors to make up the time lost to interface delays. Should delays continue to accumulate, a meaningful recovery would likely not be possible.

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 GCT. Potential impacts to the ESA design and construction work are significant. The foundations for the new office tower at 270 Park Avenue will be located at the northern end of the LIRR Concourse and will require demobilization of the ESA Contract CM014B in Zone H4 followed by mobilization of the 270 Park Avenue owner's construction contractor to build the new foundations and then complete the balance of the ESA work scope in that part of the LIRR Concourse.

- MTA/MTACC and JPMC continued technical engineering/design, construction, legal and contractual discussions through September 2019. MTA/MTACC has reached agreement on a schedule approach to integrate the remaining ESA work in the LIRR Concourse with the JPMC foundation and substructure work in the LIRR Concourse.
- The Memorandum of Understanding between MTA/MTACC and JPMC includes both binding and non-binding clauses and was approved by the MTA Board at the March 2019 meeting. The MOU was approved by the MTA Board and was executed by both parties on March 31, 2019.
- The Construction Agreement between MTA/MTACC and JPMC includes work scope, schedule and cost sharing. The agreement was approved by the MTA Board and was executed by both parties on July 31, 2019.
- MTACC/ESA has developed a Contingency Plan, as part of the Construction Agreement, which would be triggered by a significant JPMC delay in advancing the work that could delay the ESA Revenue Service Date. A significant element of the Contingency Plan is the requirement for JPMC to provide temporary pedestrian corridors through the JPMC construction sites to allow full planned use of the LIRR Concourse for revenue service. This would complicate later completion of the remaining ESA work for the LIRR Concourse in the affected area(s).

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.

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. With execution of the MTA/MTACC – JPMC Construction Agreement, MTACC believes that it has mitigated the risks of schedule delays and additional costs and the PMOC will close issue **ESA-A33-18** in Section 7.0 of this report.

6.1 Risk Process

Status/Observations: The PMOC observes that the ESA Risk Manager continues working to strengthen the ESA risk management process so that it serves as a key element for the PMT's decision making process. Over the past 22 months, the Risk Manager conducted a Contract CM014B Risk Refresh workshop and a comprehensive Risk Review for the remaining ESA work in Harold Interlocking that was facilitated by an experienced outside consultant. Also, the Risk Manager submitted a revised Risk Management Plan to the FTA and the PMOC during Q4 2017 and reissued a subsequent update in December 2018.

Concerns and Recommendations: The PMOC believes that the risk management process could be improved through increased involvement by the Construction Management staff to provide its input for development and implementation of more effective risk mitigation measures, especially with regard to construction coordination risks.

6.2 Risk Register

Status/Observation: The most recent Risk Register update was issued in August 2019 as the Q2 2019 update.

Concerns and Recommendations:

1. ESA should continue to issue regularly scheduled updates of the Risk Register as called for in the Risk Management Plan.

2. 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; ESA budget approved by MTA, September 2019);
    2. Recovery of lost time due to significant schedule delays on CM014B and CS084;
    3. Successful execution of multiple hand-off interfaces across 6 major contracts;
    4. Contractor access and work area coordination in Manhattan;
    5. Duration of integrated systems testing and effectiveness of Incremental IST plan;
    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 September 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;
    12. Foundation/substructure systems required for the new JP Morgan/Chase (JPMC) building at 270 Park Avenue will impact the LIRR Concourse at GCT.
    13. Correction of out-of-tolerance and unacceptable as-built conditions: traction power track monuments built under 3 earlier contracts; rail installed in tunnels by CM007. (New Risk)
3. Specific remaining risks for the Harold Interlocking work, previously identified by MTACC, include the following:
    a) Funding: Funding constraints [risk realized in Q2 2017; long-term risk remains].
    b) Amtrak Support: Ongoing/future Regional Projects requiring extensive Amtrak support.
    c) 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. The risk now is from the impact of unplanned emergency tunnel repairs.

6.3 Risk Mitigations

Current Risk Mitigation Efforts:

The PMOC notes that the PMT is implementing mitigation strategies for a number of the current identified risks. Examples include:

- Advancing procurement of the eight CILs for the Mid-Day Storage Yard;
- Actively engaging Amtrak and LIRR to develop some specific strategies to mitigate many of the identified risks;
- Labor clearance initiatives with Amtrak and LIRR to release selected ESA work normally claimed by the railroad unions to permit the work to be done by a third-party contractor;
- Implementation of the Harold schedule re-sequencing to support the "ESA First" initiative to prioritize work need for LIRR access to GCT;
- The Harold Management Team has consistently worked to effectively re-plan, re-schedule, and re-sequence both third-party contractor and force account work to reduce impacts of railroad personnel constraints;

- LIRR formally requested a waiver of the December 31, 2018, deadline for PTC implementation in Harold Interlocking from the FRA; MTACC has deemed that this is no longer a risk as of February 25, 2019.
- Establishment and implementation of an integrated schedule for planning deployment of Amtrak and LIRR Force Account resources across all Regional capital and railroad projects. This schedule process allows different projects in the Metropolitan area to identify conflicts that affect their respective track outages well in advance, thus making it possible to mitigate negative impacts on each project and allows ESA to better execute planned work in the Harold Interlocking.
- The PMOC notes that the ESA project is currently transitioning to a new organization with revised operations and processes in order to better manage and mitigate current and future risks. These changes represent the implementation of the MTACC president's ESA Six-Point Plan to reduce future risk.
- Foundation/substructure systems required for the planned new JPMC building at 270 Park Avenue will impact the ongoing ESA construction of the new LIRR Concourse at GCT. MTA, MTACC-ESA and JPMC efforts over the last 12 months has resulted in the Memorandum of Understanding and the Construction Agreement that minimizes changes to ESA designs, minimizes the schedule impacts to the ongoing ESA construction of the LIRR Concourse at GCT, and significantly reduces the cost risk to MTA/MTACC.

Concerns and Recommendations

1. The PMOC recognizes that MTACC and ESA have been proactive in dealing with railroad force account and track outage issues over a very long period of time and also recognizes ESA's efforts to re-baseline the remaining work in Harold Interlocking to reflect more realistic expectations of Amtrak and LIRR support. Although recent improvements have been noted, the situation still needs to be very closely monitored and the PMOC recommends that the PMT continue to actively engage executive management in MTACC and MTA to assist with resolution of outstanding issues with Amtrak and LIRR. **[Ref: ESA-124-Jun16 (Amtrak)]**

2. The PMOC is concerned about current delays on the ESA Program critical path through Manhattan/Systems contracts and future contract coordination issues, especially with regard to the installation, integration, and testing of the 10 control systems, 19 non-control systems, train signal system, and the MDSY systems. **[Ref: ESA-128-Sep17]** Managing the many inter-contract turnovers and interfaces is increasingly a challenge and represents a significant MTACC retained risk. Mitigating schedule risk for work along the Manhattan/Systems path is particularly challenging because it now involves six third-party contracts, a significant number of contract interfaces for room/area turnovers and the coordination of systems installation, testing, and integration. The PMOC had previously recommended that MTACC-ESA consider establishment of a dedicated coordination team to work closely with the Construction Managers, Project Management Team, the GEC, and LIRR to assist with resolution of issues with minimum cost and schedule impacts. MTACC has acknowledged the need to address this situation and, during Q3 2018, started the transition to a new organization and new processes to manage and mitigate current and future risks. The PMOC recommends that the PMT thoroughly evaluate the results to date of their efforts to mitigate current and future risks. Based on this evaluation, the PMT should make any organizational, operational, or procedural adjustments necessary to achieve the desired process outcomes and goals.

3. The PMOC is concerned about the potentially significant cost and schedule impacts resulting from construction of the required foundation and substructure systems for the planned new JP Morgan/Chase (JPMC) building at 270 Park Avenue that will affect the ongoing ESA construction of the new LIRR Concourse at GCT. With execution of the MTA/JPMC Construction Agreement on July 31, 2019, MTACC believes that it has mitigated the risks of schedule delays and additional costs. Accordingly, this this PMOC Concern/Recommendation will be closed. **[Ref.: ESA-133-Dec18]**
4. During the September 2019 reporting period, a potentially significant problem was identified by MTACC. ESA will need to replace some portion of the rail installed to date by the CM007 contractor due to observed deterioration involving pitting and corrosion. The PMOC notes that this rail was provided by MTACC and installed by the CM007 contractor as part of the base scope of work. MTCC acknowledges that this is a significant problem and that MTACC will be completing a comprehensive review and analysis of the issue and will make recommendations for a solution. **[Ref.: ESA-134-Sep19]**

[redacted]

Exemption b(4)

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	Exemption b(4) [redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted] Exemption b(4) [redacted]	


Exempt
ion
b(4)

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted] Exemption b(4)	
[redacted]	[redacted]	[redacted]	

[redacted]

Exemption b(4)

[redacted]

Exemption b(4)

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

APPENDIX A - LIST OF ACRONYMS

ARRA	American Recovery and Reinvestment Act
BIM	Building Information Management
CBB	Current Baseline Budget
C&S	Communication and Signals
CCC	Change Control Committee
CCM	Consultant Construction Manager
CM	ESA Construction Manager assigned to each contract
CMP	Cost Management Plan
CPOC	Capital Program Oversight Committee
CR	Candidate Revision
CIH	Central Instrument House (Amtrak designation)
CIL	Central Instrument Location (LIRR designation)
CPR	Contractor Proposal Request
CPRB	Capital Program Review Board
CPP	Contract Packaging Plan
CSTP	Comprehensive System Test Plan
DCB	Detailed Cost Breakdown
DFF	Direct Fixation Fasteners
ELPEP	Enterprise Level Project Execution Plan
ERT	East River Tunnel
ESA	East Side Access
ET	Electric Traction
F/A	Force Account
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GCT	Grand Central Terminal
GEC	General Engineering Consultant
GUI	Graphic User Interface
HTSCS	Harold Tower Supervisory Control System
IEC	Independent Engineering Consultant (to MTA)
IFB	Invitation for Bid
IPS	Integrated Project Schedule
IST	Integrated System Testing
JPMC	JP Morgan Chase
LIRR	Long Island Rail Road
LTA	Lost Time Accidents
MEP	Mechanical/Electrical/Plumbing
MNR	Metro-North Railroad
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority Capital Construction
N/A	Not Applicable
NOC	Notice of Change
NTP	Notice to Proceed
NYCT	New York City Transit
NYSPTSB	New York State Public Transportation Safety Board
OR	Operational Readiness
PE	Preliminary Engineering
PEP	Project Execution Plan
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PMT	Project Management Team
PQM	Project Quality Manual
PWE	Project Working Estimate
QA	Quality Assurance
RAMP	Real Estate Acquisition Management Plan
RAP	Rail Activation Plan
RFP	Request for Proposal
RMP	Risk Management Plan
ROD	Revenue Operations Date
ROW	Right of Way
RSD	Revenue Service Date
RSP	Revenue Service Plan
RTB	Resilient Tie Block
SC	Substantial Completion
SCC	Standard Cost Category
SMP	Schedule Management Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSPP	System Safety Program Plan
STRTB	Special Trackwork Resilient Tie Block
TBD	To Be Determined
TBM	Tunnel Boring Machine
TCC	Technical Capacity and Capability
WBS	Work Breakdown Structure
WBY	Westbound Bypass Tunnel

APPENDIX B - PROJECT OVERVIEW AND MAP

Project Overview and Map – East Side Access

East Side Access Project Map

MTA/LIRR East Side Access Project

Scope

Description: This project is a new commuter rail extension of the Long Island Rail Road (LIRR) service from Sunnyside, Queens to Grand Central Terminal (GCT), Manhattan, utilizing the existing 63rd Street tunnel under the East River and new tunnels in Manhattan and Sunnyside yard. Ridership forecast is 162,000 daily riders (27,300 new riders).

Guideway: This two-track project is 3. 5 route miles long, it is below grade in tunnels and does not include any shared use track. In Harold interlocking, it shares ROW with Amtrak and the freight line.

Stations: This project will add a new 8 track major terminal to be constructed below the existing GCT. The boarding platforms and mezzanines of the new station will be located approximately 90 feet below the existing GCT lower level. A new passenger concourse will be built on the lower level of the terminal.

Support Facilities: New facilities will include: the LIRR lower level at GCT, new passenger entrances to the existing GCT, the East Yard at GCT, the Arch Street Shop and Yard, a daytime storage and running repair/maintenance shop facility in Queens, and ventilation facilities in Manhattan and Queens.

Vehicles: The scope and budget for the ESA project include the procurement of 160 new electric rail cars to support the initial service.

Ridership Forecast: MTA projects that, by 2020, the ESA project will handle approximately 162,000 daily riders to and from GCT. This Ridership projection is based on a 2005 study performed by DMJM/Harris (AECOM).

Original Schedule

9/98	Approval Entry to PE	12/10	Estimated Rev Ops at Entry to PE
02/02	Approval Entry to FD	06/12	Estimated Rev Ops at Entry to FD
12/06	FFGA Signed	12/13	Estimated Rev Ops at FFGA
8/16	Amended FFGA Signed	12/23	Estimated Rev Ops at Amended FFGA
08/19	Original Revenue Service Date (MTA schedule)		

Cost

$4,300 million	Total Project Cost ($YOE) at Approval Entry to PE
$4,350 million	Total Project Cost ($YOE) at Approval Entry to FD
$7,386 million	Total Project Cost ($YOE) at FFGA signed
$11,936.0 million	Total Project Cost ($YOE) at Revenue Operations
$11,972.1 million	Total Project Cost ($YOE) as of October 31, 2017, including $1,036.1 million in Finance Charges and Regional Investment Program
$12,038.5 million	Total Project Cost ($YOE) at Amended FFGA signed
$12,712.8 million	Total Project Cost ($YOE), as of April 2018, including costs for financing and 160 revenue vehicles
$10,335.1 million	Total Project Interim Cost ($YOE) through December 2020, as of April 2018, excluding Finance Charges and Regional Investment Program
$8,851.4 million	Amount of Expenditures as shown in the ESA July 2019 MPR.
79.5%	Percent Complete, based on the ESA April 2018 EAC forecast of $11,133.3 million and invoices shown in the ESA July 2019 MPR.
[redacted]	[redacted] Exemption b(4)
82.7%	Construction Percent Complete vs. 84.4% as planned based on the ESA April 2018 EAC construction forecast of $8,014.1 million shown in the ESA July 2019 MPR.

APPENDIX C – LESSONS LEARNED

No.	Date	Phase	Category	Subject	Lessons Learned
1	Dec-12	Construction	Construction	Muck Handling	See below
	Lessons Learned: During cavern excavation, the CM019 contractor became muck-bound, which caused a project delay of several months. The PMOC recommended that the contractor make extraordinary effort to evacuate the muck. After several months, it finally did, but the schedule time could not be recovered by that point. Lesson learned was to develop a well thought out muck handling plan (including establishment of proper haul roads) before work begins and to follow it during excavation.				
2	Dec-12	Construction	Management	Stakeholder Management	See below
	Lessons Learned: The CH053 contractor incurred many months of initial construction delay because Amtrak did not approve the Electric Traction design documents on the project's schedule. A major contributing factor to this was because the MTACC had not established a contractual working relationship with Amtrak prior to letting CH053. The PMOC recommended that the MTACC and GEC more closely design the project in accordance with the comments that Amtrak was submitting. To date, the MTACC has exhibited some improvement in this matter, but there are still 2+ Stages to construct, and improvement has not been fast enough or consistent over time. Lesson learned was to develop good working relationships with all project stakeholders before any contracts are awarded.				
3	June-13	Construction	Planning/ Construction	Haul Roads	See below
	Lessons Learned: Haul roads to remove muck need to be passable (preferably paved with a mud slab) with locations pre-determined in areas of confined space such as caverns and tunnels. Deep, muck-filled haul roads contributed to the contractor's slow progress in removal of muck during construction. Lesson learned was to plan haul roads in advance and ensure that the muck haulers can travel at a specific rate of speed in order to meet production goals.				
4	June-13	Construction	Training	Operator Skill with drill rigs	See below
	Lessons Learned: Lack of proper operator training contributed to inconsistent drilling of 10' deep blast holes which resulted in under/overbreak of excavated material, thus requiring rework to achieve desired results. Lesson learned was to ensure that drill rig operators are properly trained before being allowed to operate a production drill rig.				
5	June-13	Procurement	Contract Development	Contract Packaging	See below
	Lessons Learned: Access to work sites, interface with other contracts, and contract staging must be considered when projects employ multiple contractors that may conflict with each other, particularly in confined spaces such as tunnels and caverns. Lesson learned is to carefully consider the access that each contractor may require, perhaps developing a scale model of the expected operation, so that expected operation of each contractor is included in its contractual requirements.				

No.	Date	Phase	Category	Subject	Lessons Learned
6	June-13	Administration	Quality	Submittals	See below
	Lessons Learned: Identification and resolution of quality issues (e.g. As-Built drawings, NCRs, etc.) must be managed on a daily basis to avoid creation of a backlog. Lesson learned is for the owner to have a well-trained staff with a consistent, coordinated approach (including appropriate pre-approved corrective action) when obtaining contractually required documents from contractors.				
7	June-13	Contract Specs/ Construction	Construction	Pneumatically Applied Concrete (PAC)/ Shotcrete	See below
	Lessons Learned: Use of PAC/Shotcrete involves consideration of site specific limitations on a case by case basis. Lesson learned is that projects which anticipate use of PAC/shotcrete should carefully examine all aspects of its use and that a careful engineering analysis of the expected use be made so that the approved use can be included in the contract documents for the project.				
8	June-13	Procurement/ Construction	Procurement	Qualified Personnel	See below
	Lessons Learned: Ensure that project key personnel are properly qualified and experienced for the positions they will fill on the project. Lesson learned is that personnel not properly qualified, experienced, or possessing the requisite credentials can adversely impact construction progress and may cause delays. The owner should ensure that it is getting the contractor's best personnel when excavating a tunnel or cavern.				
9	June-13	Scheduling	Construction	TBM Production	See below
	Lessons Learned: Project management should ensure that accurate, up-to-date, production rates for machinery are used when project schedules are developed. PMOC analysis has revealed that ESA schedules for the Manhattan Tunnel Boring Machines were based on a planned excavation rate of 53 linear feet/day. Actual TBM excavation averaged 34 LF/day, a difference of 35%. Lesson learned is that, depending on the length of excavation, inaccurate production rate estimates can have a significant impact on the project schedule.				

APPENDIX D – SAFETY AND SECURITY CHECKLIST

Project Overview	
Project mode (Rail, Bus, BRT, Multimode)	Rail
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGC, etc.)	Primarily Design Bid/Build

Project Plans	Version	Review by FTA	Status
Safety and Security Management Plan	12/2010 Rev. 2	2012	Sponsor has forwarded the revised SSMP directly to FTA.
Safety and Security Certification Plan	11/2008 Rev. 1		Is within the SSPP of LIRR.
System Safety Program Plan	11/2008 Rev. 1		N/A
System Security Plan or Security and Emergency Preparedness Plan (SEPP)	11/2010		Is within the SSPP of LIRR.
Construction Safety and Security Plan	3/2007 Rev. 1		Project Construction Safety and Security Plan, contractors' site specific safety and security plans.

Safety and Security Authority	Y/N	Notes/Status
Is the Sponsor subject to 49 CFR Part 659 state safety oversight requirements?	Y	
Has the state designated an oversight agency as per Part 659.9?	Y	The New York State Public Transportation Safety Board (NYSPTSB) is the SSOA. The SSOA has stated that they will not interface with the safety certification process for ESA until such a time as it is signed and certified by LIRR.
Has the oversight agency reviewed and approved the Sponsor's SSPP as per Part 659.17?	In Devel-opment	In Q4 2013, the SSOA has asked the FTA for guidance on approving the SSPP.
Has the oversight agency reviewed and approved the Sponsor's Security Plan or SEPP as per Part 659.21?	In Devel-opment	The New York State Public Transportation Safety Board (NYSPTSB) is the SSOA. The SSOA has stated that they will not interface with the security review process for ESA until such a time as it is signed and certified by LIRR.

Safety and Security Authority	Y/N	Notes/Status
Did the oversight agency participate in the last Quarterly Program Review Meeting?	N	The SSOA has no plans to attend these meetings. Sponsor to transmit SSMP to SSOA through the Sponsor's System Safety Dept., in accordance with new MAP- 21 provisions, the FTA recently audited the NYS SSOA. Preliminary FTA findings indicate a need for more funding in order for the SSOA to accomplish its mandate from FTA. Simultaneously, the SSOA was able to transfer an existing NYS employee into the SSOA. It is anticipated that the above events will lead to a greater ability for the SSOA to more effectively and efficiently accomplish its mission moving forward. The SSOA has stated that they will not interface with the safety certification process for ESA until such a time as it is signed and certified by LIRR**.**
Has the Sponsor submitted its safety certification plan to the oversight agency?	Y	The Sponsor has submitted its safety certification plan to the NYS SSOA.
Has the Sponsor implemented security directives issues by the Department Homeland Security, Transportation Security Administration?	N	The MTA unified threat vulnerability methodology was applied to the ESA design. A vulnerability log was developed for ESA based on the feedback from the applied methodology. Controls within the design have been implemented to reduce the relative risk of those vulnerabilities identified. Analysis indicated that the controls within design were adequate for the vulnerabilities identified.

SSMP Monitoring	Y/N	Notes/Status
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	
Sponsor reviews the SSMP and related project plans to determine if updates are necessary?	Y	Sponsor has forwarded the revised SSMP directly to FTA.

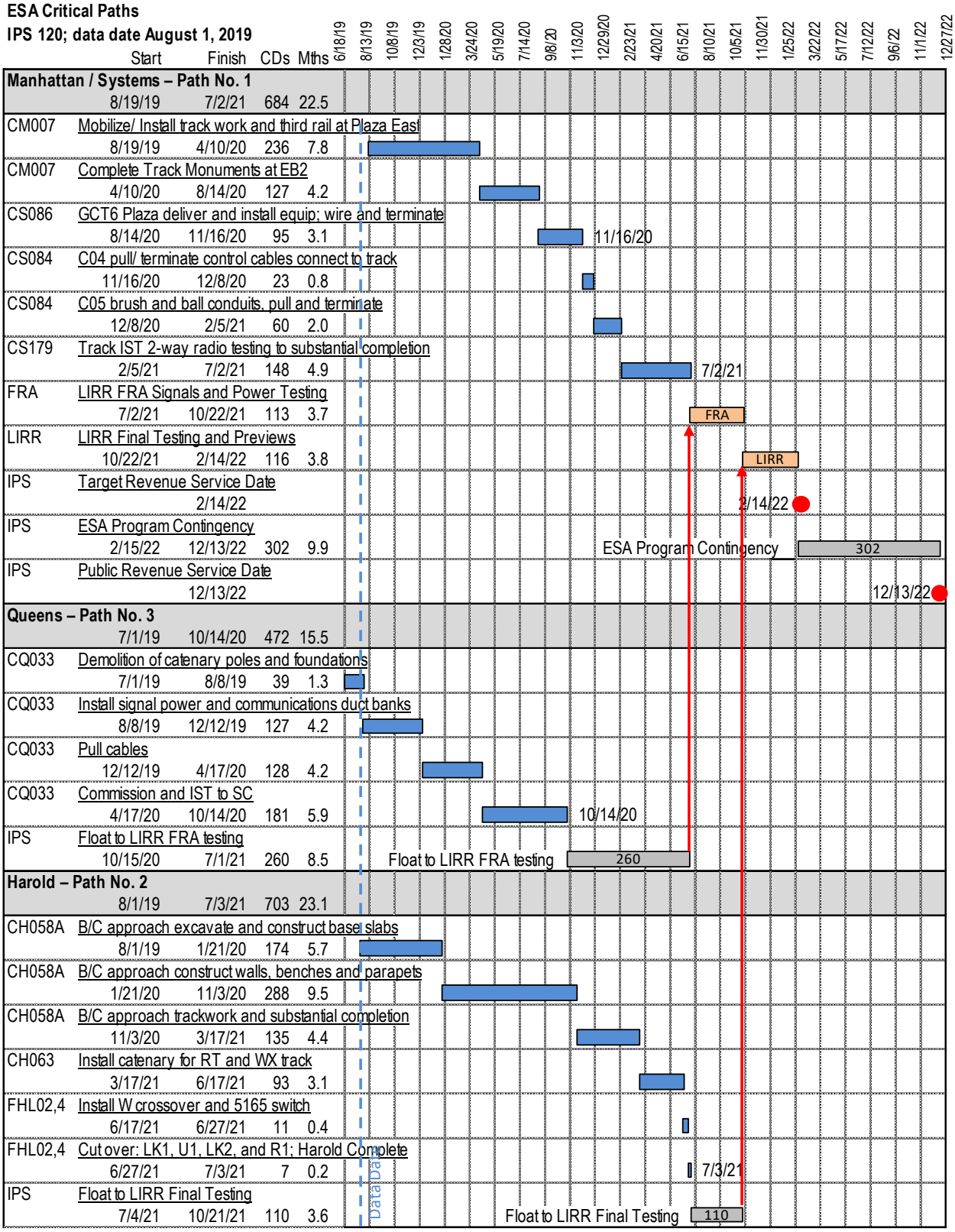
SSMP Monitoring	Y/N	Notes/Status
Does the Sponsor implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.	Y	The safety certification designee for MTACC, as well as the MTACC quality chief, meets regularly with the project management team. The CCM and the Sponsor's safety and security personnel are integrated into the management team. Integration is also achieved through implementation of ESA HASP, monthly project wide safety meetings, quarterly audits, OCIP inspections, weekly MTACC and contractor joint safety audits, and interface w/MTA Police and NYPD Infrastructure Protection Unit of the NYPD's Counter-Terrorism Division. The Sponsor has added a security function assessment to its internal quarterly contractor audit.
Does the Sponsor maintain a regularly scheduled report on the status of safety and security activities?	Y	Safety and Security are reported on during the monthly safety meetings and are incorporated into Sponsor's monthly project reports.
Has the Sponsor established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	Contained within the Sponsor's safety procedure documents.
Does the Sponsor update the safety and security responsibility matrix/organizational chart as necessary?	Y	To be incorporated into the next revision of the SSMP.
Has the Sponsor allocated sufficient resources to oversee or carry out safety and security activities?	Y	MTA, GEC, CCM, and contractors provide personnel and resources to carry out safety and security activities. Additionally, an MTACC consultant conducted a safety and security review of all MTACC projects. The consultant's report included programmatic and system security recommendations that are currently being reviewed by MTACC and MTA Police.
Has the Sponsor developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	Y	The Safety Certification Committee process is comprehensive and provides for this.
Does the Sponsor implement regularly scheduled meetings to	Y	Safety Certification committee meetings as well as project wide monthly safety meetings take place.

SSMP Monitoring	Y/N	Notes/Status
track to resolution any identified hazards and/or vulnerabilities?		
Does the Sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	Accomplished through daily audits by contractor and CCM and through the comprehensive SSMP Committee process.
Does the Sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	Y	The Safety Certification Committee process provides for TVRA, safety, and security analysis as well as input from subject matter experts on the SSMP Committee.
Has the Sponsor ensured the development of safety design criteria?	Y	The Safety Certification Committee has validated the safety design criteria developed by the GEC.
Has the Sponsor ensured the development of security design criteria?	Y	Accomplished through the SSMP Committee process.
Has the Sponsor ensured conformance with safety and security requirements in design?	Y	Achieved through the Safety Certification Committee process.
Has the Sponsor verified conformance with safety and security requirements in equipment and materials procurement?	Y	The Sponsor has not verified conformance for materials procured to date. Thus far, the Sponsor has relied on design specifications and manufacturers' quality controls for verification. The PMOC has advised that this course of action is insufficient and does not align with FTA established guidelines. The Sponsor is attempting to devise a workable solution. Since the 4th quarter of 2014, the Sponsor has begun to document said verifications by use of their Quality Department reports and CM inspection reports.
Has the Sponsor verified construction specification conformance?	Y	Through ongoing contract review.
Has the Sponsor identified safety and security critical tests to be performed prior to passenger operations?	N	Although the Sponsor has established preliminary hazard analysis (PHA) and a system test plan, the Sponsor needs to identify safety and security critical tests in its Test Program Plan. The Sponsor is working within the PMP to identify critical submittals relevant to system certification. PMOC has expressed concerns, both at meetings and in reports, about the non-linear pattern of completed construction vs. incomplete critical testing. Sponsor believes that all hazards listed on

SSMP Monitoring	Y/N	Notes/Status
		the PHA log are either safety and/or security critical.
Has the Sponsor verified conformance with safety and security requirements during testing, inspection and start-up phases?	In Devel-opment	Project is not at these phases yet. The Sponsor is in the process of implementing requirements of the SSMP to conform to construction testing and integration requirements.
Does the Sponsor evaluate change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	In Devel-opment	Systems area design modifications not originally evaluated per the unified methodology are analyzed and controls are incorporated into the design. Controls have been put in place whereby the GEC verifies that any change orders and/or waivers do not affect the certification analysis process.
Has the Sponsor ensured the performance of safety and security analyses for proposed workarounds?	In Devel-opment	
Has the Sponsor demonstrated through meetings or other methods, the integration of safety and security in the following Activation Plan and Procedures Integrated Test Plan and Procedures Operations and Maintenance Plan Emergency Operations Plan	Y	An Emergency Preparedness Plan was promulgated by the Sponsor in 11/2010. The EAP operational readiness group has been finalized to include MNR, LIRR, MTAPD, and FDNY. The first meeting took place in March of 2013. A Safety Certification update has been incorporated into this meeting, with the MTACC Assistant Chief of Safety and Security providing regular status report. Task work group meetings have resulted in a white paper being formulated. The paper suggests that management hierarchy of GCT be presented as a single establishment (incorporating MNR and LIRR) in accordance with SIMS and NIMS requirements. The Sponsor has advised that the white paper reflecting the incident management hierarchy is being presented to the respective executives of each railroad, with the recommendation that LIRR and MNR's GCT incident commanders report to a unified incident commander from MTA Headquarters.
Has the Sponsor issued final safety and security certification?	N	Project is not at this stage.
Has the Sponsor issued the final safety and security verification report?	N	Project is not at this stage.

APPENDIX E – ON-SITE PICTURES
(TRANSMITTED AS A SEPARATE FILE)

APPENDIX F – ESA CRITICAL PATH



APPENDIX F - 90 DAY MILESTONE LOOK-AHEAD SCHEDULE – IPS 120

ACTIVITY ID	ACTIVITY DESCRIPTION	START	FINISH
CH057D: Harold Track Work Part 3			
CH057D-B2140	BC Prep: Demo 813 Switch		4-Aug-19
CH058A: Harold Structures - B/C Structure/ Catenary Structure**			
CH058A-001	Complete CO8 Ductbank for CS084/FL04		29-Aug-19
FHL01: Harold Stage 1 - LIRR F/A			
FHL01-1020	Complete FHL01		16-Oct-19
FHL02: Harold Stage 2 - LIRR F/A			
FHL02.SI.00104	Installation of Switch W1 (3145)		11-Aug-19
FHL03: Harold Stage 3 - LIRR F/A			
FHL03-1510	Cutover: WBBY and Tunnel A		19-Sep-19
FHL04: Harold Stage 4 - LIRR F/A			
FHL04-1140	Install Switch LK2 (5155E)		3-Aug-19
FHL04-1090	Remove Switch 813		4-Aug-19
FHL04-1030	Installation of Switch W2 (4145)		10-Aug-19
FHL04-1260	Remove Switch 861 (Loco)		11-Aug-19
FHL04-1160	Install Switch U1 (2145E)		15-Sep-19
FHA01: Harold Stage 1 - Amtrak F/A			
	No milestones forecasted for next 90 CDs		
FHA02: Harold Stage 2 - Amtrak F/A: Balance Work			
FHA02-1720	Cable Terminate, Test, and Cutover: LIRR Pulling Cables		23-Sep-19
FHA03: Harold Stage 3 - Amtrak F/A			
FHA03-CA4955	Q Tower ET Catenary Relocation Completion		7-Sep-19
FHA04: Amtrak Harold F/A Construction Stage 4			
FHA04-1160	Fabricate Panels and Prepping Works		14-Sep-19
FHA04-1300	Revision / Testing / Support for Cutover 4B		25-Oct-19
VH051A (Part 1): Harold and Point CILs			
	No milestones forecasted for next 90 CDs		
CM007: GCT Caverns			
MS#5	Substations US1 and US2 Complete		22-Aug-19
CM014B: GCT Concourse and Facilities Fit Out (BL)*			
MS #18B	GCT Zones 3 and 4 and Demark Room All Conduits		26-Sep-19
MS #20A	GCT Zone 1 Architectural Finishes		23-Oct-19
MS #20B	GCT Zone 2 Architectural Finishes		1-Aug-19
CQ033: Mid-Day Storage Yard Facility (Procurement Status TBD)			
	No contract milestones forecasted for next 90 CDs		
VQ033: Mid-Day Storage Yard CIL Procurement			
MS #2	Mid-5 CIL, Mid-6 CIL, and Mid-7 CIL		19-Sep-19
MS #3	Mid-8 CIL		16-Oct-19
CS084: Tunnel Systems Package 4 – Traction Power Systems			
	No contract milestones forecasted for next 90 CDs		
CS179: System Package 1 - Facilities Systems			
M12A-08	FA Network Installation		3-Oct-19
CS086: Signal Installation			
	No contract milestones forecasted for next 90 CDs		
VS086: System Package 3 - Signal Equipment Procurement			
	No contract milestones forecasted for next 90 CDs		

*MTACC-ESA and the CS179 Contractor currently disagree about the actual and/or forecasted milestone dates.

APPENDIX F – ESA COORDINATION POINT CHANGES

Activity ID	Activity Description	5/1/19 IPS Date	8/1/19 IPS Date	Delta CDs
CP-CM007-250	Install GCT 4 Switches	1-May-19	1-Aug-19	92
CP-VM014-420	VM014 Escalator and Elevator Deliveries for CM007	1-May-19	4-Apr-19A	-27
CP-CH061A-20	Install Equipment in Tunnel A	1-May-19	1-Mar-19A	-61
CP-CM014B-360	MS13 Turnover to CM007 EL-2 Ready for Shaft Work	2-May-19	2-Aug-19	92
CP-CH057D-10	Turnover Track B/C Area	6-May-19	10-Mar-19A	-57
CP-VS086-20	Procure Signals – GCT-6	6-May-19	21-Dec-18A	-136
CP-VQ033-10-CQ033	FAT Testing and Delivery – MID1 CIL	6-May-19	10-Apr-19A	-26
CP-CM007-110	CIA 19C – CS179 Begin to Complete EC Under Platform Conduits	9-May-19	7-Aug-19	90
CP-CM007-060	CIA 17B – CS179 Begin Civil/Electrical CR-M4, -L3, -L4	9-May-19	5-Jul-19A	57
CP-CM007-140	CIA 20C – CS179 Begin to Complete WC Upper Level Conduits	10-May-19	2-Aug-19	84
CP-VS086-30	Procure Signals – GCT-5	14-May-19	6-Feb-19A	-97
CP-VQ033-20-CQ033	FAT Testing and Delivery – MID2 CIL	15-May-19	15-May-19A	0
CP-VM014-440	Escalator and Elevator Deliveries Complete	16-May-19	16-Apr-19A	-30
CP-VS086-50	Procure Signals – GCT 4	21-May-19	30-May-19	9
CP-CM007-100	CIA 19B – CS179 Begin to Complete EC Mezz Conduits	22-May-19	12-Aug-19	82
CP-CM007-370	Energize / Commission US1/US2	22-May-19	22-Aug-19	92
CP-CM007-180	Install GCT 5 Switches	28-May-19	16-Aug-19	80
CP-CM007-050	CIA 17A – CS179 Begin Civil/Electrical CR-M1, -M2, -L1, -L2	29-May-19	5-Jul-19A	37
CP-CM014B-110	MS#18A Complete Install Conduits Zone 1	30-May-19	22-Aug-19	84
CP-CM014B-190	MS#18A Complete Install Conduits Zone 2	30-May-19	22-Aug-19	84
CP-CM007-130	CIA 20B – CS179 Begin to Complete WC Mezz Level Conduits and pull Cable	31-May-19	5-Sep-19	97
CP-CH058A-20	AR02 – Demolition of GO2 Substation	14-Jun-19	7-Dec-18A	-189
CP-CM007-070	CIA 18A – CS179 Begin Civil/Electrical CR-C2, -M2	19-Jun-19	21-Jun-19A	2
CP-CM014B-350	MS18B Complete Install Conduits Zone 4-5	25-Jun-19	26-Sep-19	93
CP-CM014B-270	MS18B Complete Install Conduits Zone 3	25-Jun-19	26-Sep-19	93
CP-CM007-20	Complete Track TRK-202 and 302 (West) and TRK-203 and 303 (East) – CO2	28-Jun-18	13-Sep-19	442
CP-VS086-40	Procure Signals – GCT 3	10-Jul-19	25-Mar-19A	-107
CP-CM014B-30	MS20B Zone 2 Arch. Finishes Complete	30-Jul-19	7-Aug-19	8

APPENDIX G – MTA EAST SIDE ACCESS PROJECT – BUY AMERICA STATUS SUMMARY (As of September 2019)

Contract CS179

Equipment	Current Status
Small HVAC Units for Equipment Rooms	The contractor asserted that the specified low-profile HVAC unit is not available from any US-based HVAC manufacturer and that the manufacturer of the specified unit (Mitsubishi) cannot manufacture the unit in the USA. MTACC advised that documentation to substantiate a Buy America waiver request was sent to the FTA as of the end of October 2016. In May 2017, the FTA requested some cost information related to these HVAC units. MTA provided that information in June 2017 and is waiting for a decision regarding the approval of the waiver request.
Cook Motor Fans	Resolved – MTA considers this item a "component" and that it conforms to current Buy/Ship America requirements. **Issue Closed.**

APPENDIX H –REMAINING ESA ELECTRIC TRACTION (CATENARY) CONSTRUCTION*
Start and Finish Dates from IPS 120 Data Date August 1, 2019

IPS Identifier	Scope	IPS Early Start	IPS Early Finish	Status
CH063-NTP CH063-1030	Install 7,100 LF CA WBY Track	12/30/19	2/5/21**	Only 8 of 35 catenary poles required for this task have been installed as of September 30, 2019. MTACC notes that this work is not required for LIRR revenue service into GCT.
FHA03-CA4955	Catenary wire transfers Q and R		9/7/19	Catenary work at Q and R Interlockings continued through Q3 2019 and is expected to be complete at both locations by 10/31/19.
CH058-2660	Install 2,180 LF CA EBRR Track	10/7/20	9/16/22	ESA issued limited NTP to CH058A contractor to begin installation of EBRR East Approach Structure piles in September 2019. CH058B to install 10 catenary poles prior to installation of CAs.
CH063-1430 CH063-1470	Install CAs 1 Turnout location[1] FHL02	3/18/21	6/17/21	LIRR to install the #3234W turnout. Amtrak will install CAs after LIRR installs the turnout.
CH063-1430 CH063-1460	Install CAs 4 Tunnel B/C Turnout locations[2] (W and V Crossovers)	3/18/21	6/17/21	LIRR to install 4 Tunnel B/C turnouts prior to Amtrak installation of CAs.
FHA03-1490	Complete Loop 1A Electrification		3/11/25	Amtrak Loop 1A Track construction partially complete. Catenary assemblies will be installed after all track construction is complete.
FQA65-9999	Install CAs 14 Turnout locations[3] in Loop and T Interlockings		6/11/27	Turnout procurement for Loop and T "on hold" by MTACC since early 2016. Amtrak ET will install catenary assemblies after all turnouts are procured and installed.
FHA063-CA3698	PW2 Overrun			Will be scheduled as time permits. The PMOC notes that this work is not required for LIRR revenue service into GCT. PW2 Overrun catenary work no longer in IPS, but still required.

CA = Catenary Assembly, CP = Catenary Pole, TO = Turnout, XO= Crossover

* This table is a high level summary of the remaining Electric Traction construction program. The PMOC will maintain details for FTA review.

** Catenary work noted will only be between the #1121E and #3121W turnouts in Harold Interlocking, but will not be for the entire planned Westbound Bypass Track.

1. #3234W CH063-1470
2. W crossover is between #3145 and #4145 turnouts (CH063-1470) and V crossover is between #2155 and #2254 turnouts (CH058B-1370).
3. All 14 Loop and "T" Interlocking Turnouts.

APPENDIX I – REMAINING HAROLD INTERLOCKING CONSTRUCTION PROGRESS SCHEMATICS

The purpose of Appendix I is to depict, in schematic fashion, the major ESA Force Account and 3rd Party construction elements that remain in Harold Interlocking. There are three such items included in the PMOC's Quarterly Comprehensive Reports:

Schematic #1: Remaining Harold Overhead Contact System (OCS) to be Installed

This diagram depicts the tracks, crossovers, and turnouts over which Amtrak Force Account and Third Party Electric Traction personnel will install catenary system components (overhead contact system) in order to operate Amtrak electric trains through the reconfigured Harold Interlocking. New overhead catenary to be installed is shown in bold red.

Schematic #2: Remaining Harold Third Rail System (3rd Rail) to be Installed

This diagram depicts the tracks, crossovers, and turnouts adjacent to which LIRR and 3rd Party contractors will install Third Rail and components in order to operate expanded LIRR service into the new Grand Central Terminal (GCT). New 3rd Rail to be installed is shown in bold red.

Schematic #3: Status of Harold Interlocking Turnouts and Crossovers to be Installed

This diagram depicts, along with existing tracks, crossovers, and turnouts that will not be renewed, the present construction status of ESA constructed tracks, crossovers, and turnouts that have been or will be installed to make LIRR service into GCT possible. Existing trackage that will not be renewed is shown in non-bold, new crossovers and turnouts already installed by LIRR ESA forces are shown in bold green, and new tracks, crossovers, and turnouts scheduled, but not yet installed, are shown in bold red.

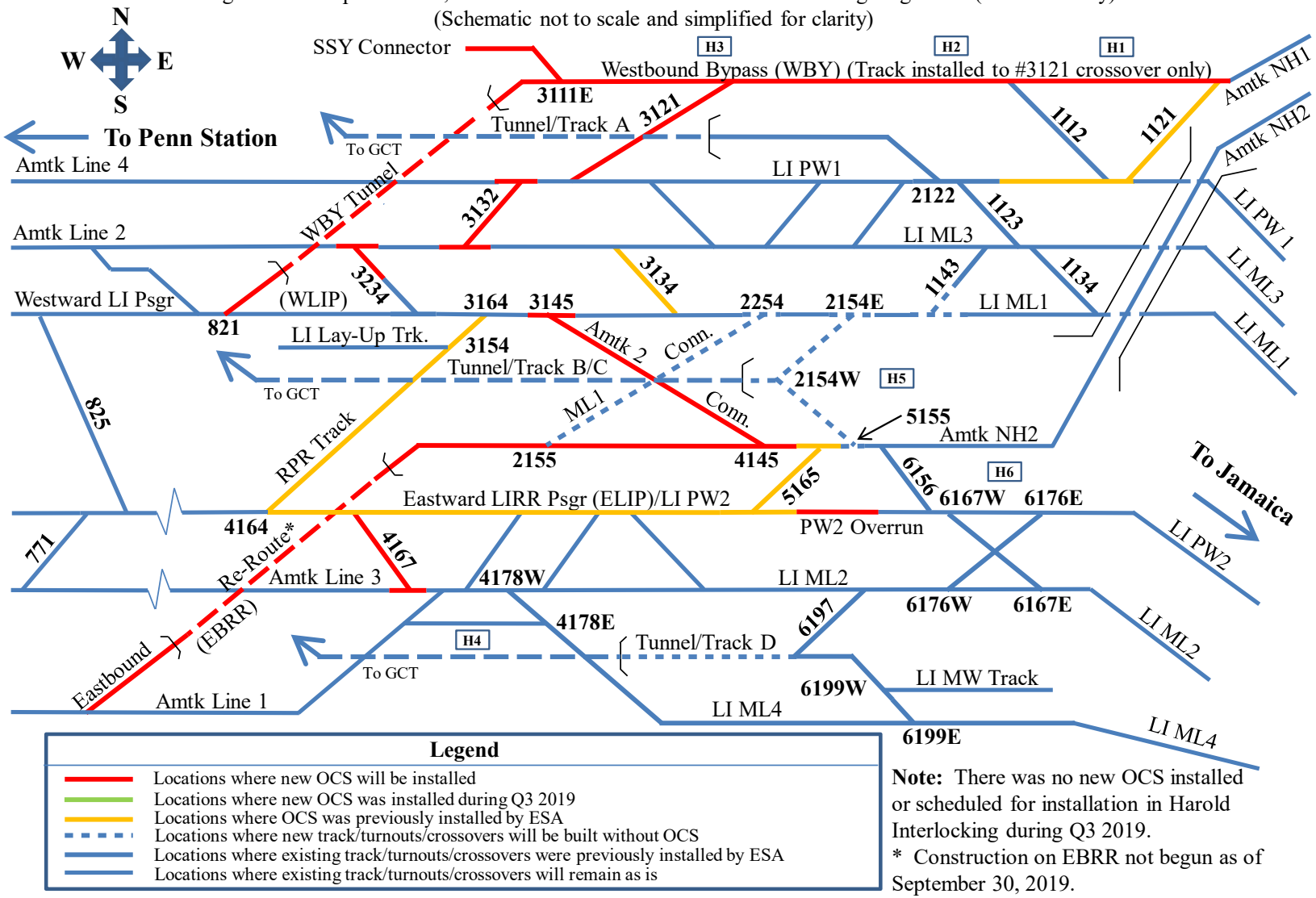
The information shown on these schematics will be updated with each PMOC Quarterly Comprehensive Report and will trace construction progress for that quarter.

Appendix I: Harold Interlocking Progress Monitoring Schematic

Schematic #1: Remaining Harold Overhead Contact System (OCS) to be Installed

Progress as of September 30, 2019 - based on ESA 14-4 Harold Interlocking Alignment (main line only)

(Schematic not to scale and simplified for clarity)



Legend

- Locations where new OCS will be installed
- Locations where new OCS was installed during Q3 2019
- Locations where OCS was previously installed by ESA
- Locations where new track/turnouts/crossovers will be built without OCS
- Locations where existing track/turnouts/crossovers were previously installed by ESA
- Locations where existing track/turnouts/crossovers will remain as is

Note: There was no new OCS installed or scheduled for installation in Harold Interlocking during Q3 2019.

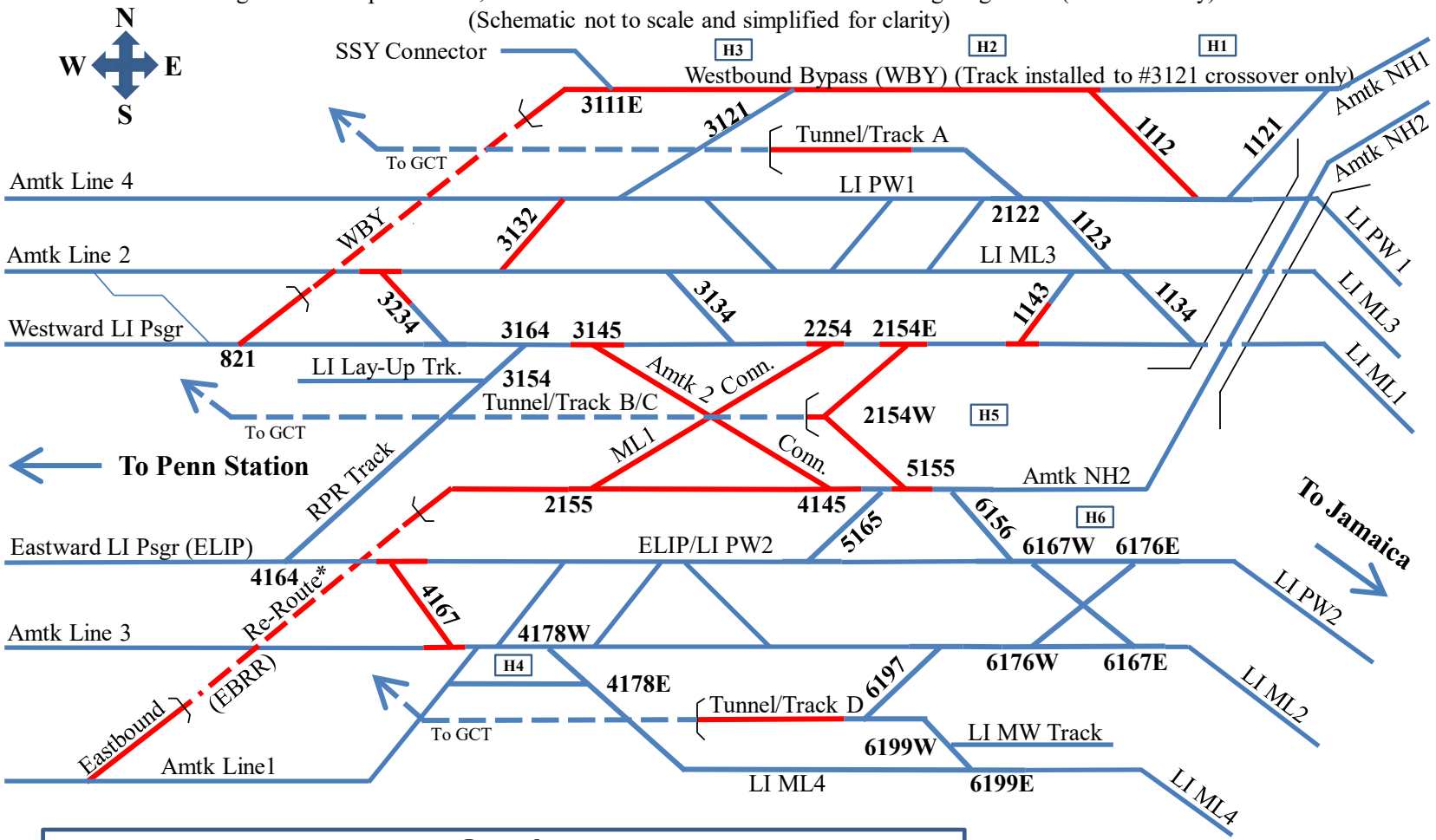
* Construction on EBRR not begun as of September 30, 2019.

Appendix I: Harold Interlocking Progress Monitoring Schematic

Schematic #2: Remaining Harold Third Rail System (3rd Rail) to be Installed

Progress as of September 30, 2019 - based on ESA 14-4 Harold Interlocking Alignment (main line only)

(Schematic not to scale and simplified for clarity)



Legend

- Locations for 3rd Rail and/or new track/turnouts/crossovers to be installed
- Locations where 3rd Rail with new track was installed during Q3 2019
- Locations where 3rd Rail and/or new track was previously installed
- Existing track/turnouts/crossovers to remain as is

Note: There was no new 3rd Rail installed or scheduled for installation in Harold Interlocking during Q3 2019.

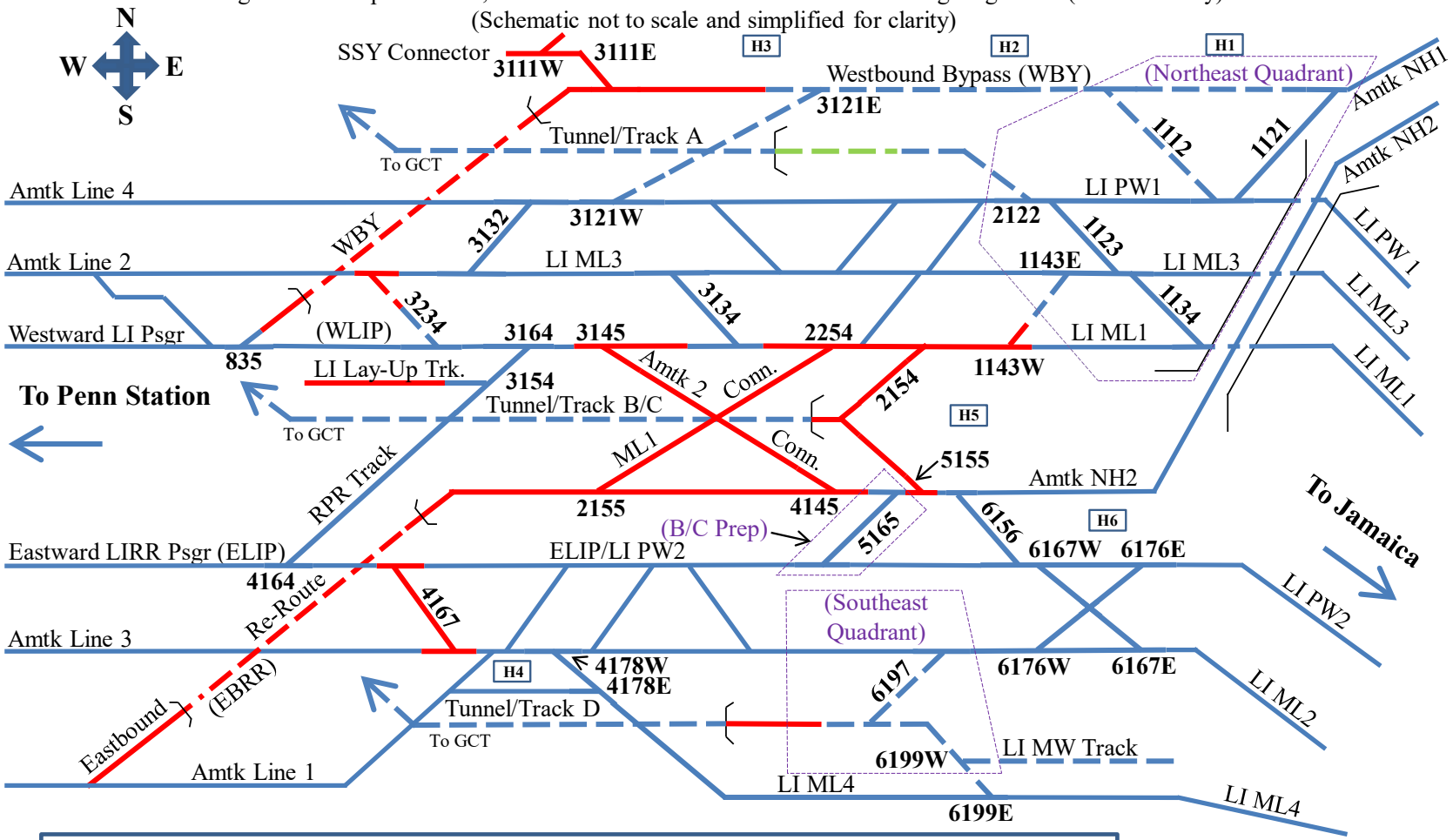
* Construction on EBRR not begun as of September 30, 2019.

Appendix I: Harold Interlocking Progress Monitoring Schematic

Schematic #3: Status of Harold Turnouts, Crossovers, and Tracks to be Installed

Progress as of September 30, 2019 - based on ESA 14-4 Harold Interlocking Alignment (main line only)

(Schematic not to scale and simplified for clarity)



Legend

- ESA turnouts/track to be installed
- ESA turnouts/crossovers/track installed during Q3 2019
- New Turnouts/Track previously installed
- Dashed blue or green, installed, not in service
- Existing Turnouts/Track to remain as is

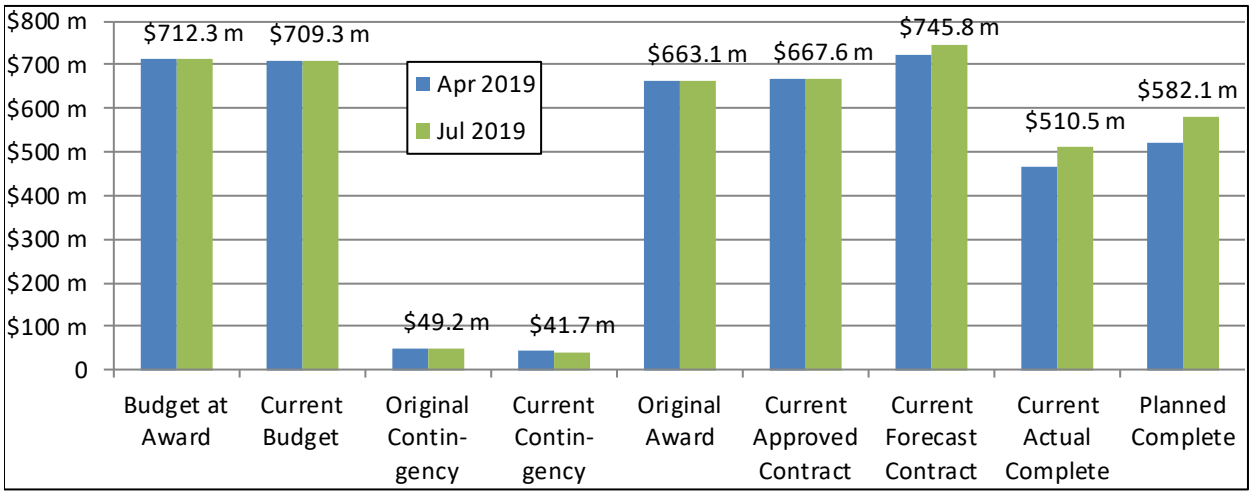
Note: Remainder of Track A from Tunnel portal to end of track built by CH057D constructed during Q3 2019.

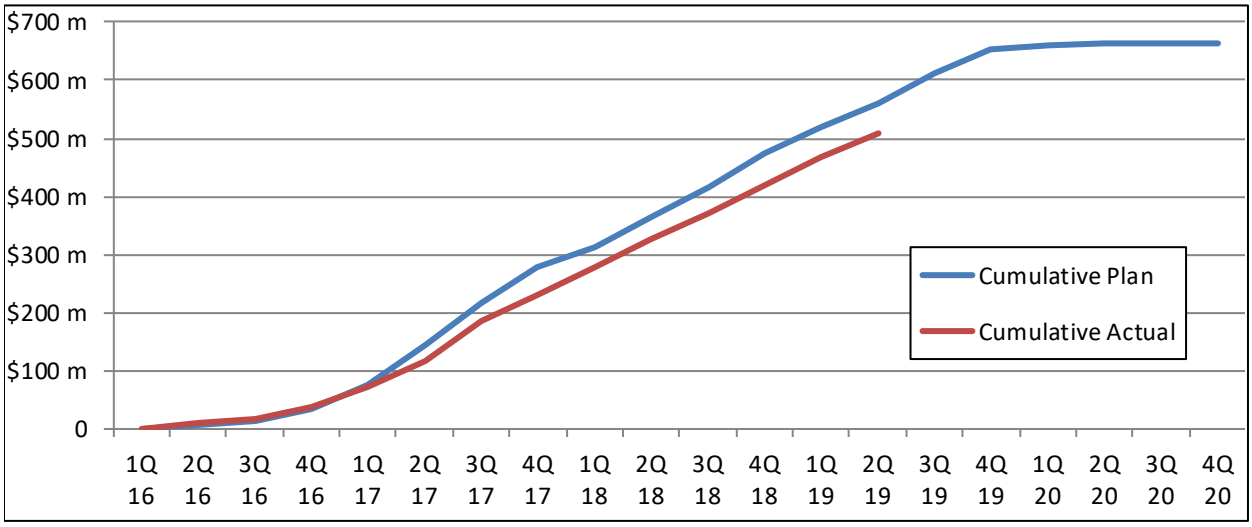
Appendix J – Cost Performance

CM007 GCT Caverns Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$712.3	$709.3	($3.0)	$663.1	$667.6	$4.5	$745.8	$33.5

Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
87.2%	76.5%	27.4%	2.3%	13.2%	2.2%	1.68% per month

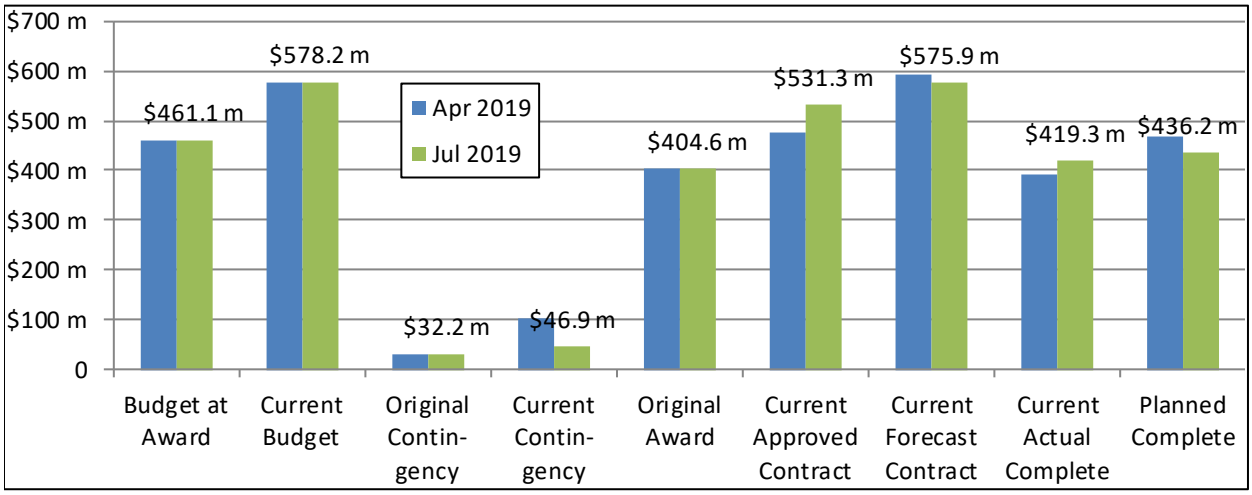


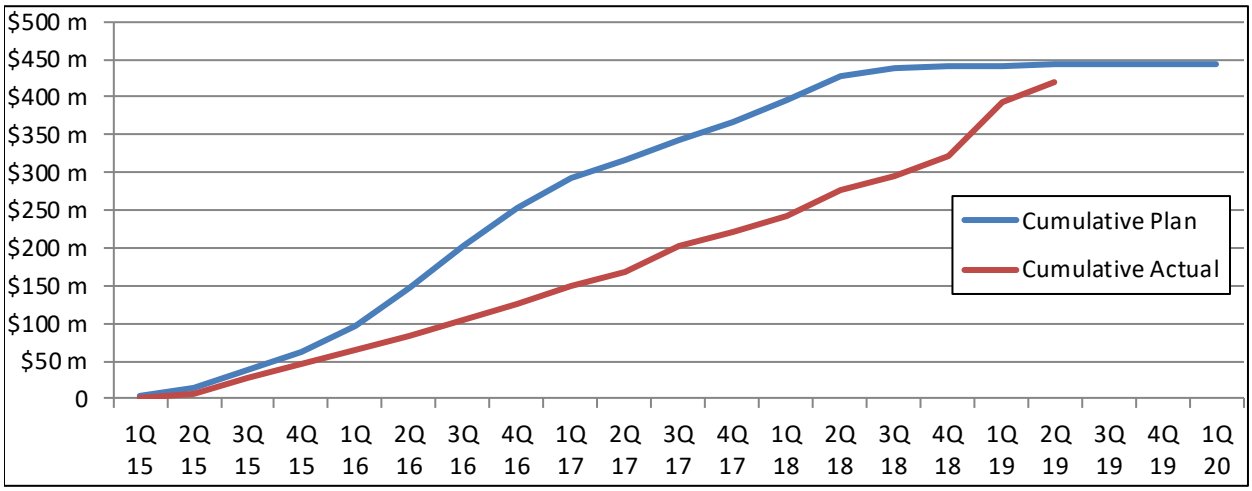


CM014B GCT Concourse & Facilities Fit Out Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$461.1	$578.2	$117.1	$404.6	$531.3	$126.7	$575.9	$114.8

Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
82.1%	78.9%	17.2%	1.4%	10.0%	1.7%	1.41% per month

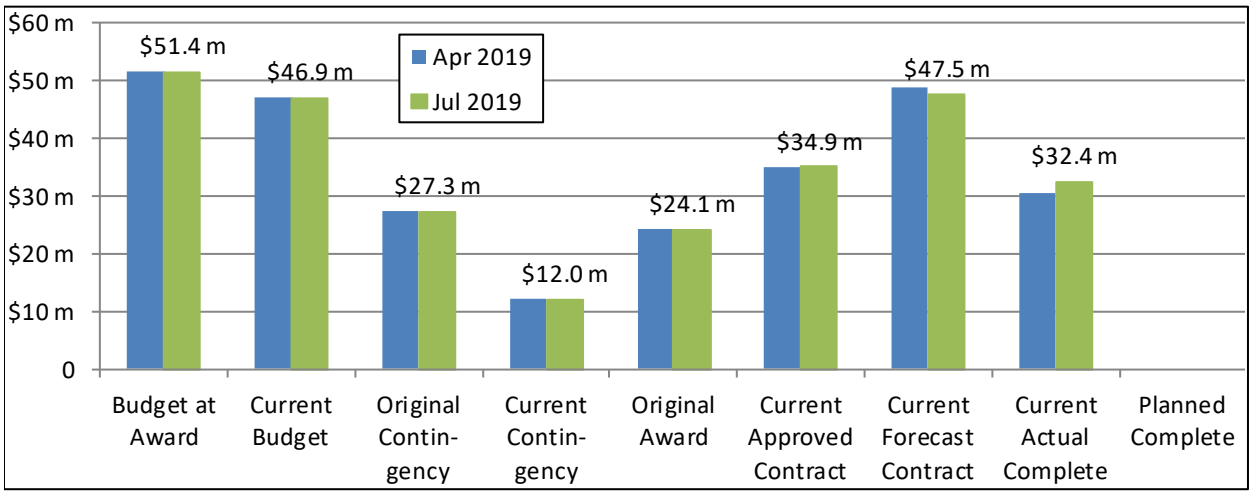




VM014 Vertical Circulation Elements (Escalators & Elevators) Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$51.4	$46.9	($4.5)	$24.1	$34.9	$10.8	$47.5	($3.9)

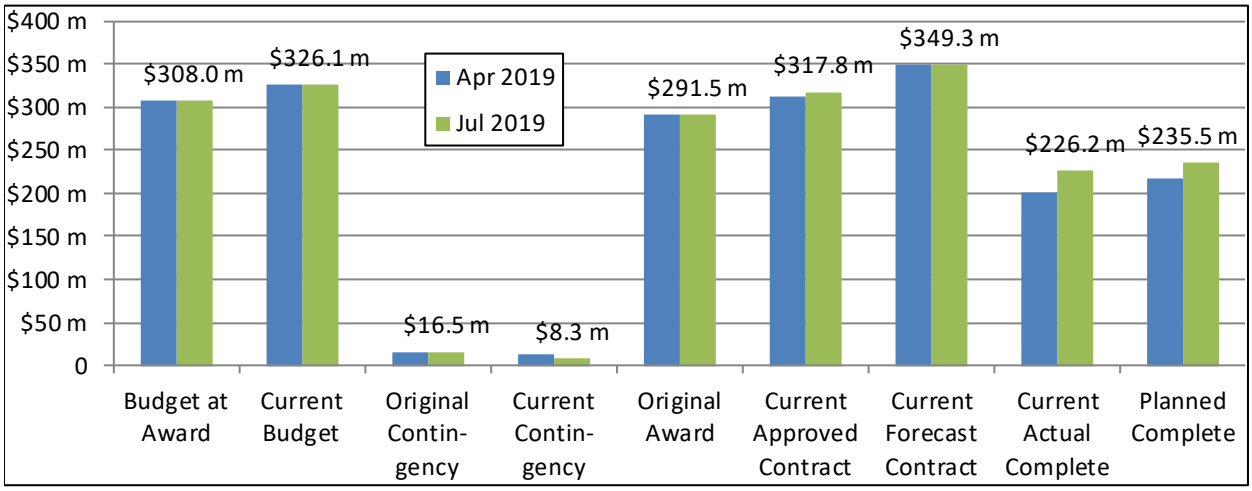
Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
NA	92.8%	19.0%	1.6%	14.8%	2.5%	0.80% per month

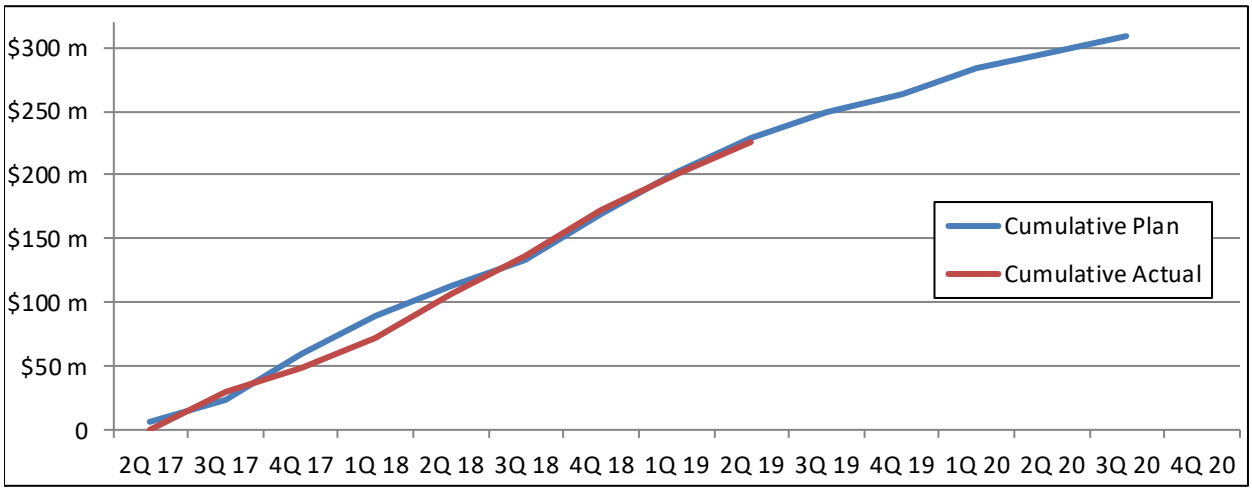


CQ033 Mid-Day Storage Facility Jul 2019

Budget at Award	Current Budget	Change from Original to Current (2-1)	Contract at Award	Current Approved Contract	Change from Original to Current (5-4)	Current Forecast	Change from Current Forecast to Budget at Award (7-1)
$308.0	$326.1	$18.1	$291.5	$317.8	$26.3	$349.3	$41.3

Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
74.1%	71.2%	35.3%	2.9%	15.6%	2.6%	1.80% per month

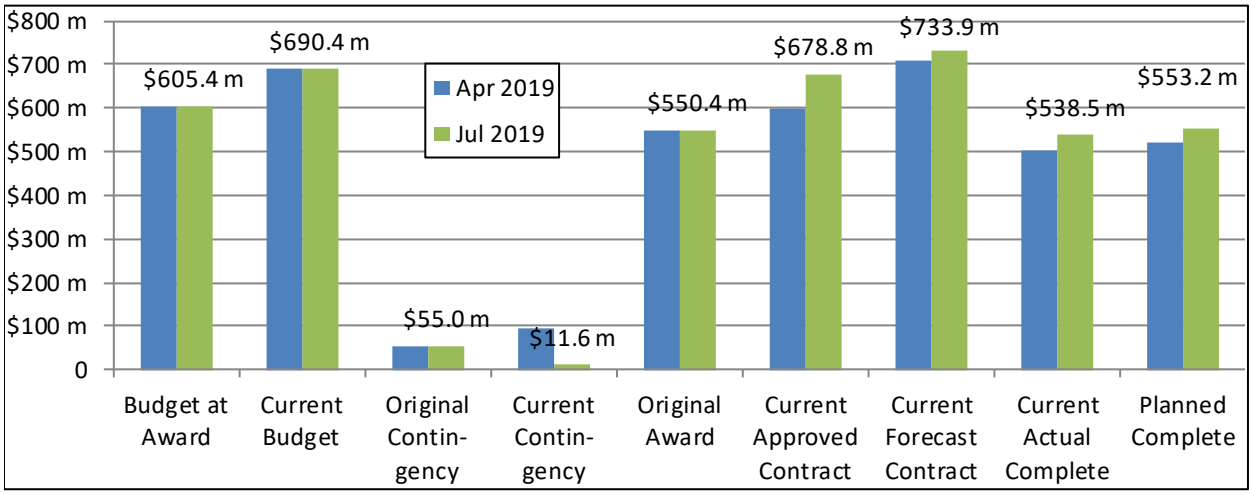


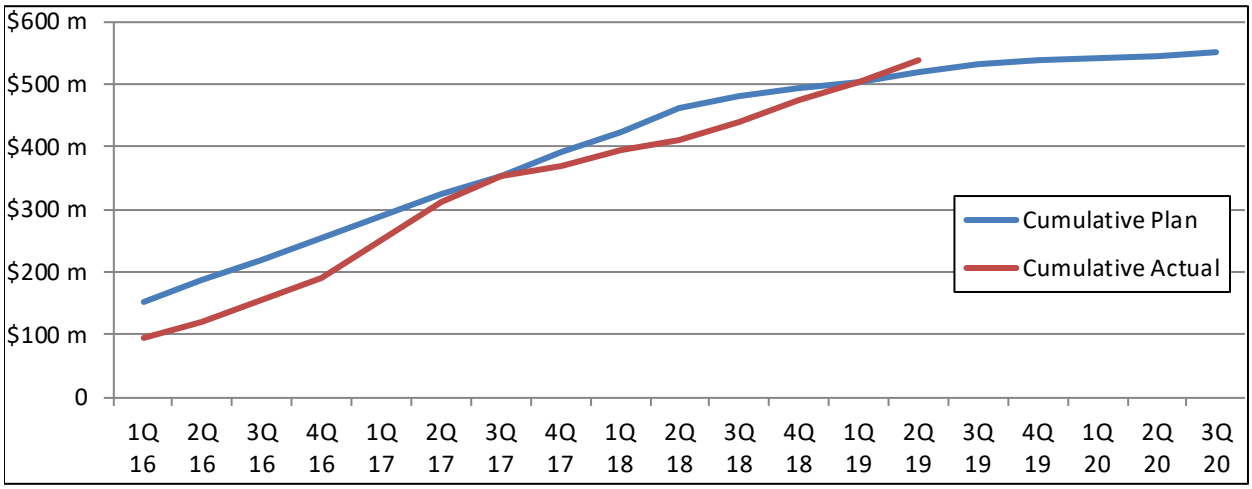


CS179 Systems Package 1 – Facilities Systems Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$605.4	$690.4	$85.0	$333.6	$678.8	$345.2 (options+mods)	$733.9	$128.5

Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
81.5%	79.4%	7.4%	0.6%	-0.8%	-0.1%	0.86% per month

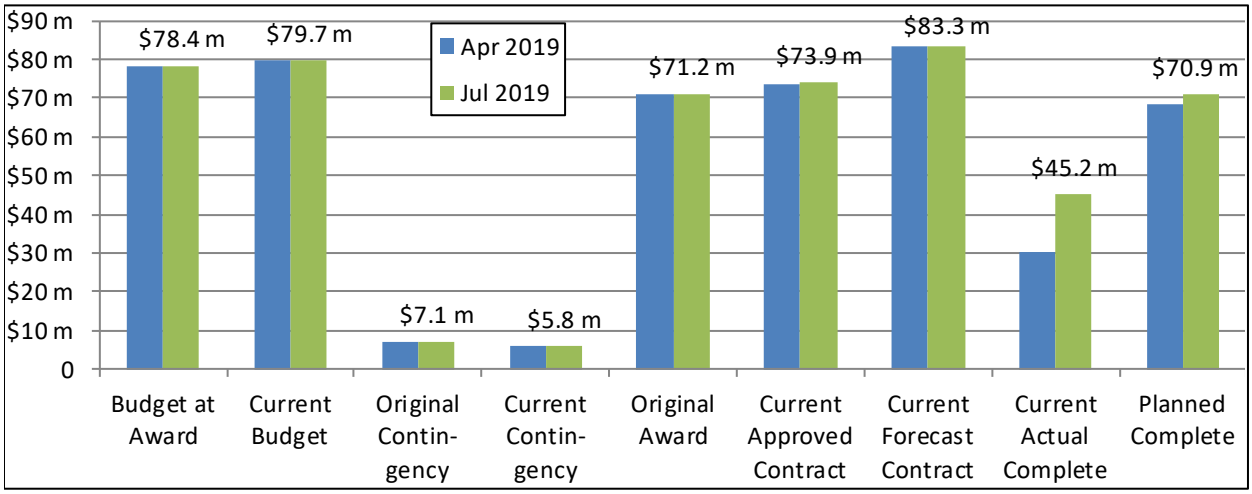


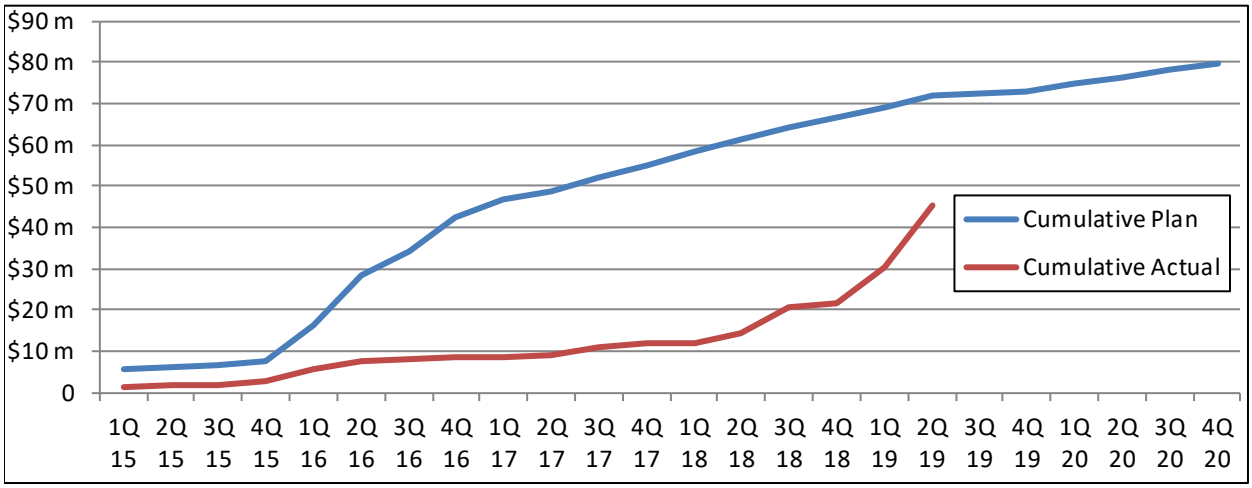


CS084 Tunnel Systems Package 4 – Traction Power Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$78.4	$79.7	$1.3	$71.2	$73.9	$2.7	$83.3	$4.9

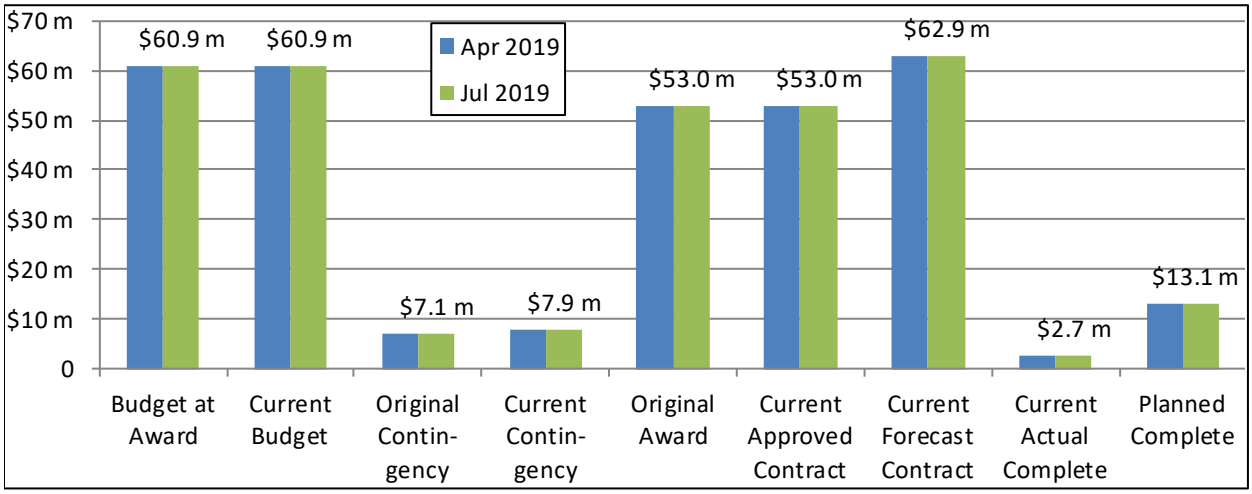
Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
95.9%	61.2%	41.8%	3.5%	31.7%	5.3%	1.76% per month

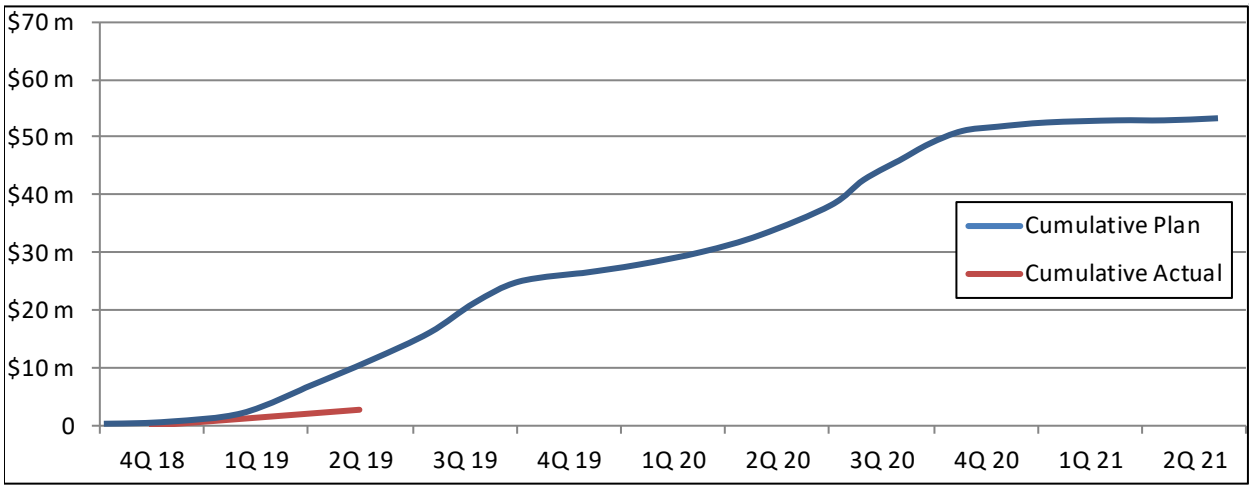




CS086 Tunnel Systems Package 2 Jul 2019

1	2	3	4	5	6	7	8
Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
$60.9	$60.9	(2-1) $0.0	$53.0	$53.0	(5-4) $0.0	$62.9	(7-1) $2.0
Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC	
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth		
24.8%	5.1%	NA	NA	NA	NA	4.31% per month	

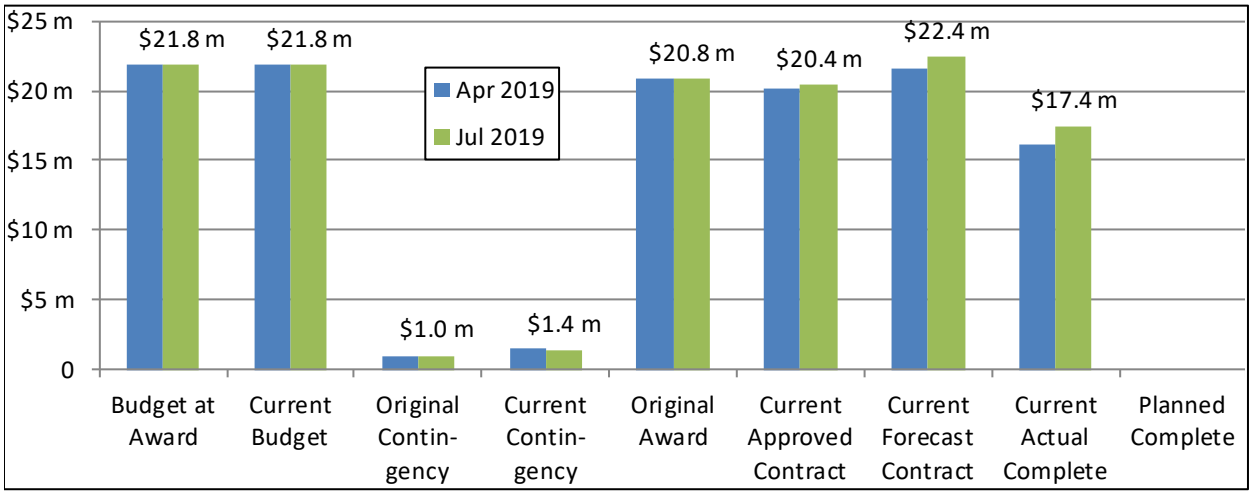


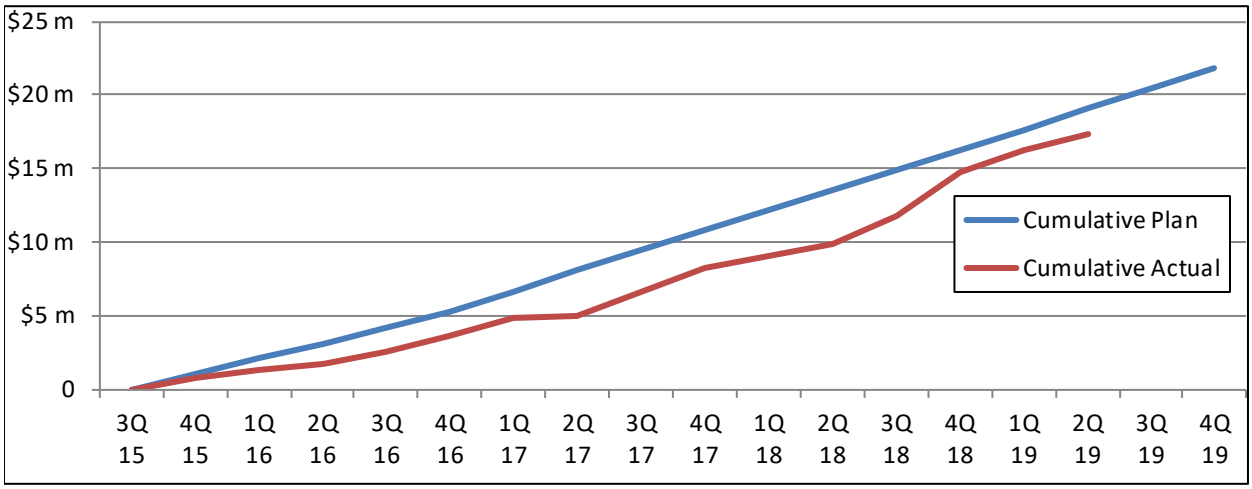


VS086 Systems Package 3 – Signal Equipment Procurement Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$21.8	$21.8	$0.0	$20.8	$20.4	($0.4)	$22.4	$0.6

Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
NA	85.3%	35.5%	3.0%	11.1%	1.9%	1.23% per month

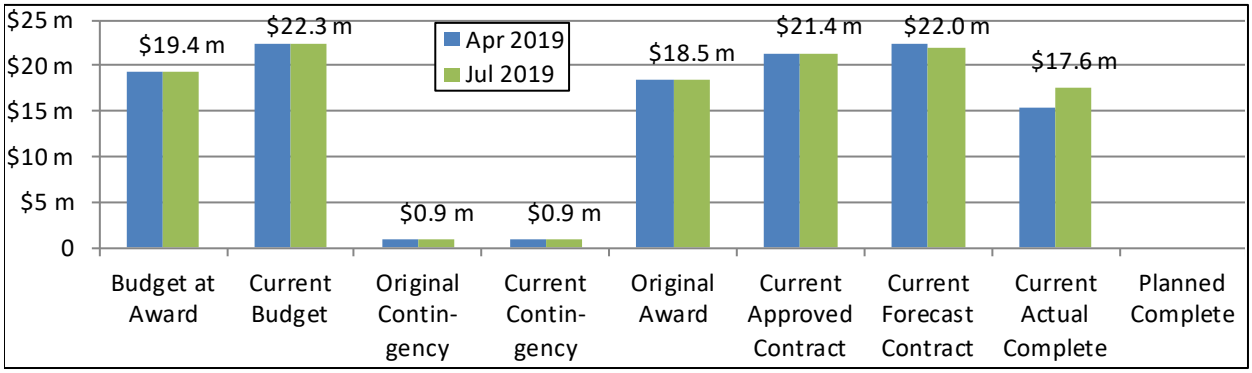




VQ033 Midday Storage Yard CILs Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$19.4	$22.3	$2.9	$18.5	$21.4	$2.9	$22.0	$2.6

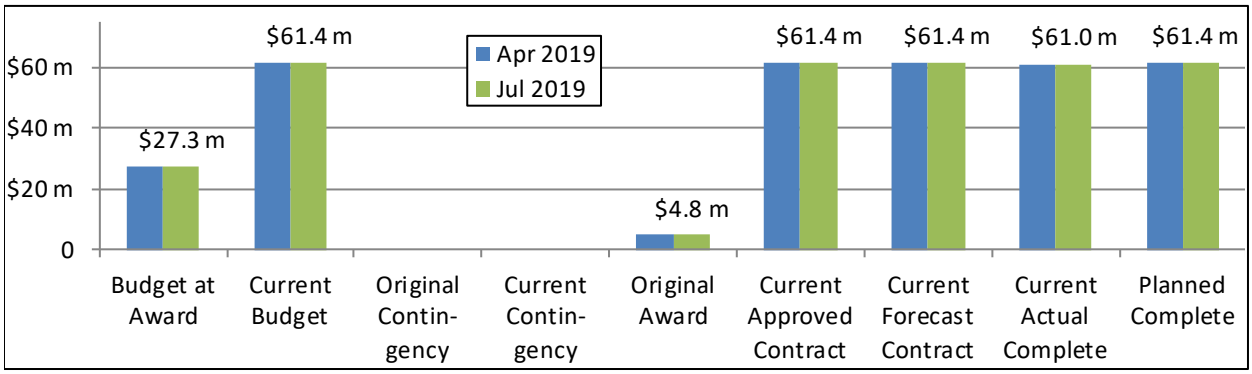
Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
NA	81.9%	51.0%	4.3%	24.1%	4.0%	1.81% per month



FHA02 Harold Stage 2 – Amtrak F/A Jul 2019

Budget at Award	Current Budget	Change from Original to Current	Contract at Award	Current Approved Contract	Change from Original to Current	Current Forecast	Change from Current Forecast to Budget at Award
		(2-1)			(5-4)		(7-1)
$27.3	$61.4	$34.1	$4.8	$61.4	$56.6	$61.4	$34.1

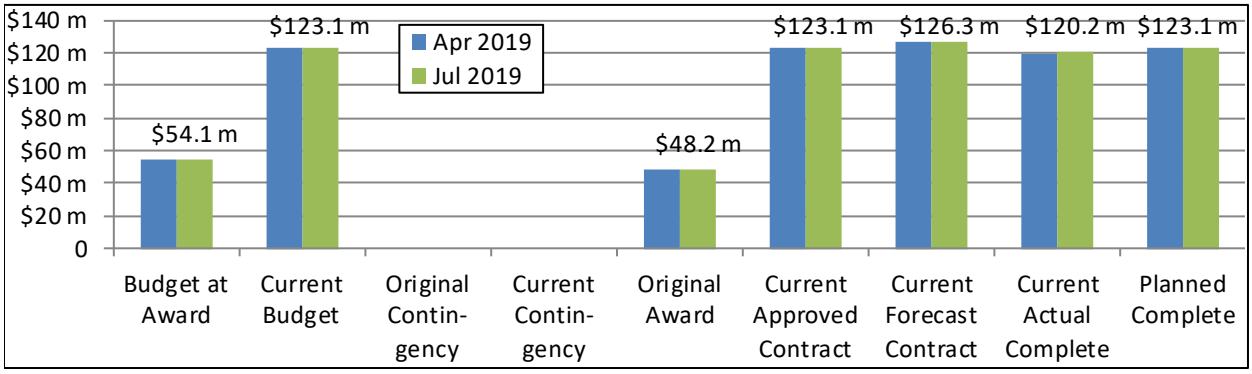
Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
100.0%	99.5%	1.6%	0.1%	-0.4%	-0.1%	0.03% per month



FHL02 Harold Stage 2 – LIRR F/A Jul 2019

Budget at Award	Current Budget	Change from Original to Current (2-1)	Contract at Award	Current Approved Contract	Change from Original to Current (5-4)	Current Forecast	Change from Current Forecast to Budget at Award (7-1)
$54.1	$123.1	$69.0	$48.2	$123.1	$74.9	$126.3	$72.2

Percent Complete		Actual Prog Last 12 Mths		Actual Prog Last 6 Mths		Average Required Progress to reach forecast SC
Planned	Actual	Total	Avg/Mth	Total	Avg/Mth	
100.0%	97.7%	7.7%	0.6%	-2.3%	-0.4%	0.09% per month



APPENDIX K – 3rd PARTY CONTRACT MILESTONE METRICS
As of IPS data date August 1, 2019

Mile-stone	Activity Description	IPS Baseline Date[1] June 2014	Appr Cont Baseline Date[2]	Current Contract Date[3]	Current ESA Forecasted Date[4]	Delta[5] IPS BL to Forecast	Quarterly Change Notes
CM007: GCT Caverns							Approved baseline in Feb. 1, 2017 IPS.
NTP	Notice to Proceed	4/19/16	4/11/16A	N/A	4/11/16A	-8	
4	Trackwork & 3rd Rail Work Complete (excludes STW @ GCT4, GCT6 & Plaza West)	N/A	10/3/19	8/7/19	4/10/20	190	2 month forecasted delay.
5	Substations US1 and US2 Complete	N/A	6/27/18	2/1/19	8/22/19	421	3 month forecasted delay.
5A	Caverns Ready for Integrated Systems Testing	4/11/19	8/7/19	8/7/19	9/24/20	414	9 month forecasted delay.
6	All Caverns and Tunnel Work Complete	N/A	12/16/19	12/16/19	8/24/20	252	
6A	Substantial Completion	7/19/19	1/28/20	1/28/20	8/26/20	211	
6B	Punchlist Completion	N/A	4/27/20	4/27/20	11/25/20	212	
7	Integrated System Testing Completion	N/A	6/1/20	6/1/20	10/2/20	123	
CM014B: GCT Concourse and Facilities Fit Out							Approved baseline in Nov. 1, 2016 IPS.
NTP	Notice to Proceed	11/2/14	2/2/15A	N/A	2/2/15A	92	
1	TMC/ CC-C5/ CR-C2 Comm Room & F/O Backbone Route from TMC-CRC2	12/3/15	6/1/16A	N/A	6/1/16A	181	
2	50th St. Comm Room CR102, Tunnel Fan Control Room, Electrical RM #126 & ICC (Room Ready)	3/3/16	4/17/17	N/A	4/17/17A	410	
3	Comm Room CR-C1/ Comm Closet CC-C1/ C2 & C6 & F/O Backbone from CR-C2 to CR-C1	5/3/16	11/30/16	N/A	12/3/16A	214	
4A	Comm Closets CC-C1, CC-C2 & CC-C5	5/3/16	11/30/16	4/15/18	9/21/18A	871	
4B	Comm Closets CC-C3, CC-C7 & Room B3265	12/2/16	3/5/17	5/20/18	9/21/18A	658	
5A	Complete all work at 48th St Entrance	2/15/18	3/20/17	10/2/17	5/14/18A	88	
6	Comm Closets CC-C4 and CC-C8	5/12/17	5/20/18	5/20/18	9/21/18A	497	
8	Substantial Completion	7/24/19	1/21/19	10/28/20	10/9/20	443	3 month forecasted delay.
8A	Punchlist Complete	5/17/18	5/21/19	12/16/18	2/6/21	996	3 month forecasted delay.
9	Integrated Systems Testing Completed	7/24/19	3/23/20	10/25/19	9/30/21	799	
9A	Ready for Integrated Systems Testing	5/17/18	10/2/18	5/20/18	5/28/20	732	1 month forecasted delay.
11A	Chiller Plant and HVAC Conditioning of Zones 1 and 2	N/A	5/15/19	5/15/19	11/12/19	181	6 month forecasted delay. Delta measured against Current Contract Date.
11B	HVAC Conditioning of Zones 3 and 4	N/A	10/1/19	10/1/19	12/11/19	71	2.5 month forecasted delay. Delta measured against Current Contract Date.
12	Biltmore Room Connection	N/A	9/30/20	9/30/20	9/18/20	-12	1 month forecasted savings. Delta measured against Current Contract Date.
13	Elevators EL-1 & EL-2 in Shaft 3 Operational	N/A	4/7/19	4/7/19	4/7/19A	0	
14	Elevator 13 (GCT Concourse to 47th Cross Passageway St.) Operational	N/A	3/1/19	3/1/19	3/1/19A	0	

Mile-stone	Activity Description	IPS Baseline Date[1] June 2014	Appr Cont Baseline Date[2]	Current Contract Date[3]	Current ESA Forecasted Date[4]	Delta[5] IPS BL to Forecast	Quarterly Change Notes
15	Elevator 17 (TMC SMO) Operational	N/A	4/5/19	4/5/19	4/5/19A	0	
16	B20 Substation - Relay Settings Resubmission	N/A	4/14/19	4/14/19	11/26/19	226	4.5 month forecasted delay. Delta measured against Current Contract Date.
17	Overhead Primary Communication Conduits (Except Demark Room)	N/A	2/15/19	2/15/19	2/15/19A	0	
18A	GCT Zone 1 and 2 All Conduits (Except Demark Room)	N/A	6/1/19	6/1/19	6/1/19A	-3	Actualized. Delta measured against Current Contract Date.
18B	GCT Zones 3 and 4 and Demark Room All Conduits	N/A	6/1/19	6/1/19	9/26/19	117	3 month forecasted delay. Delta measured against Current Contract Date.
19	GCT Zones 1 and 4 MEP	N/A	2/22/20	2/22/20	5/18/20	86	3 month forecasted delay. Delta measured against Current Contract Date.
20A	GCT Zone 1 Architectural	N/A	9/1/19	9/1/19	10/23/19	52	2 month forecasted delay. Delta measured against Current Contract Date.
20B	GCT Zone 2 Architectural	N/A	8/1/19	8/1/19	8/1/19	0	Delta measured against Current Contract Date.
20C	GCT Zone 3 Architectural	N/A	12/1/19	12/1/19	1/6/20	36	1 month forecasted delay. Delta measured against Current Contract Date.
20D	GCT Zone 4 Architectural	N/A	3/1/20	3/1/20	2/27/20	-3	Delta measured against Current Contract Date.
CQ032: Plaza Substation and Queens Structures							
NTP	Notice to Proceed	8/10/11A	8/10/11A	N/A	8/10/11A	-	
6	Substantial Completion	10/8/15	N/A	9/6/16	8/1/19	1393	2 month forecasted delay.
7	Final Completion	1/7/16	N/A	12/5/16	10/29/19	1391	2 month forecasted delay.
CQ033: Mid-Day Storage Yard							Approved baseline in Nov. 1, 2017 IPS.
NTP	Notice to Proceed	7/4/15	N/A	N/A	4/11/17A	-	
1	Precondition Site Survey	N/A	6/10/17	6/10/17	9/29/17A	-111	
2	Temporary Construction Fence Along Arch St. Access Route	N/A	6/10/17	6/10/17	10/9/17A	-121	
3	RWIC Trailer	N/A	7/10/17	7/10/17	6/19/17A	21	
4	Submission of Integrated Test Plan	N/A	4/11/18	4/11/18	4/11/18A	0	
4A	Ready for Integrated Testing MDSY	N/A	3/11/20	3/11/20	5/14/20	64	2 week forecasted savings.
6	Substantial Completion	10/25/18	8/10/20	8/10/20	10/14/20	720	2 week forecasted savings.
8	Completion of Plaza Work	N/A	7/12/18	7/12/18	3/3/20	600	11 month forecasted delay.
9	Complete Option 1 - Demo Amtrak Buildings	N/A	5/27/20	5/27/20	3/24/20	-64	3 month forecasted delay. Still ahead of Current Contract Date.
CH057D: Harold Trackwork Part 3 – NEQ & SEQ							
1	Submittals for NEQ	N/A	6/27/18	6/27/18	6/27/18A	0	
2	Demolition of PW1 Track	N/A	7/28/18	7/28/18	7/28/18A	0	
3	NEQ Special Track Work	N/A	8/20/18	8/20/18	8/30/18A	10	

Mile-stone	Activity Description	IPS Baseline Date[1] June 2014	Appr Cont Baseline Date[2]	Current Contract Date[3]	Current ESA Forecasted Date[4]	Delta[5] IPS BL to Forecast	Quarterly Change Notes
4	NEQ WBY Track	N/A	9/2/18	9/2/18	11/14/18A	73	
5	Submittals for SEQ	N/A	9/5/18	9/5/18	9/28/18A	23	
6	PW2, ML2 & Special Track Work	N/A	10/15/18	10/15/18	1/26/19A	103	
7	SEQ, TM2 & 6199	N/A	10/26/18	10/26/18	2/28/19A	125	
8	Substantial Completion	N/A	1/31/19	1/31/19	3/10/19A	38	Actualized.
9	Final Completion	N/A	4/30/19	4/30/19	8/4/19	96	2 month forecasted delay.
CH058A: Harold Structures B/C Approach							
1	Obtain Underpilling Design Approval	N/A	5/22/19	5/22/19	1/14/19 A	-128	
2	Complete 39th Street Bridge Load Transfer	N/A	9/4/19	9/4/19	7/28/19A	-38	Actualized.
3	Erect Catenary Structure 927-2/3H	N/A	2/29/19	2/29/19	11/25/19	-96	
4	Complete Removal of TBM Cuterhead	N/A	12/27/19	12/27/19	11/28/19	-29	
5	Complete 39th Street Bridge Re-transfer	N/A	8/8/20	8/8/20	8/18/20	10	
6	Complete CO8 Ductbank	N/A	8/22/19	8/22/19	8/28/19	6	
7	Complete B/C Structure from Sta 1204+2.5 to 1206+05	N/A	9/23/20	9/23/20	9/29/20	6	
8	Substantial Completion	N/A	3/17/21	3/17/21	3/17/21	0	
9	Final Completion	N/A	6/15/21	6/15/21	6/15/21	0	
CH061A: Harold Structures Part 3 - Track A Cut and Cover Structure							
NTP	NTP CH061A - A Approach	7/5/16	1/27/17A	N/A	1/27/17A	206	
1	PW2 Catenary Structures	N/A	9/7/17	9/7/17	2/12/18A	158	
2	Montauk Cutoff Catenary Structures	N/A	9/11/17	9/11/17	12/1/17A	81	
3	Substantial Completion	9/20/17	5/28/18	5/28/18	6/12/18A	15	
4	Final Completion	N/A	8/27/18	8/27/18	2/28/19A	185	
CS179: Systems Package 1 - Facilities Systems							Approved baseline in Oct. 1, 2016 IPS.
NTP	Facilities Systems Package 1 NTP	3/31/14 A	3/31/14A	N/A	3/31/14A	-	
M12A-01	Tunnel SCADA Network FAT	N/A	5/30/19	5/30/19	5/30/19A	0	Actualized.
M12A-02	Local Testing Group 1	N/A	11/29/19	11/29/19	11/15/19	-14	
M12A-03	Local Testing Group 2	N/A	3/9/20	3/9/20	2/21/20	-17	
M12A-04	Local Testing Group 3	N/A	4/23/20	4/23/20	7/6/20	74	2.5 month forecasted delay.
M12A-05	Local Testing Group 4	N/A	6/17/20	6/17/20	6/19/20	2	
M12A-06	Local Testing Group 5	N/A	5/5/20	5/5/20	4/23/20	-12	
M12A-08	Fire Alarm Network Installation	N/A	1/15/20	1/15/20	2/12/20	28	1 month forecasted delay.
M12A-09	Local Testing of Building Level Network	N/A	5/29/20	5/29/20	7/21/20	53	2 month forecasted delay.
M12A-10	Local Testing of Signal Power System	N/A	2/3/20	2/3/20	2/3/20	0	
M12B-01	Complete Integrated Testing of All Systems Equipment Installed under CM007	N/A	6/30/21	6/30/21	6/21/21	-9	
M12B-02	Complete Integrated Testing of All Systems Equipment Installed under CS084	N/A	6/30/21	6/30/21	6/21/21	-9	

Mile-stone	Activity Description	IPS Baseline Date[1] June 2014	Appr Cont Baseline Date[2]	Current Contract Date[3]	Current ESA Forecasted Date[4]	Delta[5] IPS BL to Forecast	Quarterly Change Notes
M12B-03	Complete Integrated Testing of All Systems Equipment Installed under CM014A & CM014B	N/A	6/30/21	6/30/21	6/21/21	-9	
M12B-04	BCS IST Complete	N/A	8/19/20	8/19/20	10/21/20	63	2 month forecasted delay.
M12B-05	Tunnel SCADA IST Complete	N/A	11/16/20	11/16/20	10/29/20	-18	
M12B-06	FA IST Complete	N/A	11/24/20	11/24/20	11/18/20	-6	
M12B-07	Power SCADA IST Complete	N/A	11/4/20	11/4/20	1/9/21	66	2 month forecasted delay.
M12B-08	Phase 1 IST Complete	N/A	1/14/21	1/14/21	1/22/21	8	
M12B-10	Phase 3 - Part 1 IST Complete	N/A	1/31/21	1/31/21	2/1/21	1	
M12B-11	Phase 3 - Part 2 IST Complete	N/A	6/24/21	6/25/21	6/21/21	-4	
M12B-12	Phase 4 IST Complete	N/A	12/4/20	12/4/20	12/8/20	4	
M12B-13	Phase 5 IST Complete	N/A	4/29/21	4/29/21	4/29/21	0	
M12B-14	Track IST Complete	N/A	6/25/21	6/25/21	7/2/21	7	
M13	CS179 MS 13 - Substantial Completion Including Completion of IST	N/A	6/30/21	6/30/21	7/2/21	2	
CS084: Tunnel Systems Package 4 - Traction Power Systems							Approved baseline in the Jan 1, 2016 IPS.
NTP	CS084 NTP	9/5/14	10/29/14 A	N/A	10/29/14A	54	
1	Energize Traction Power Substation C08	5/26/17	N/A	5/6/18	7/8/20	1139	
2	Energize Traction Power Substation C04 and C05	6/20/18	12/14/18	10/3/18	9/29/20	832	
3	Energize Traction Power Substation C06 and C07	10/2/18	3/2/19	3/2/19	1/12/21	833	
4	Energize Traction Power Substation C01 and C02	10/30/18	1/30/19	2/5/19	1/18/21	811	
5	Energize Traction Power Substation C03	12/28/18	5/16/19	5/16/19	1/21/21	755	
6	Complete Local testing of all substation	1/11/19	7/30/19	7/30/19	2/5/21	756	1 month forecasted delay.
7	Substantial completion & Final Completion	10/21/19	11/25/19	12/2/19	4/30/21	557	1 month forecasted delay.

Mile-stone	Activity Description	IPS Baseline Date[1] June 2014	Appr Cont Baseline Date[2]	Current Contract Date[3]	Current ESA Forecasted Date[4]	Delta[5] IPS BL to Forecast	Quarterly Change Notes
CS086: Tunnel Systems Package 2 – Signal Installation							
2	Complete WB1 - Plaza to GCT4; WB3 - GCT5 to thru GCT3	11/19/19	11/19/19	11/19/19	4/20/20	161	5 month forecasted delay.
3	Complete Tunnel A - Plaza thru A1198+19	12/29/19	12/29/19	12/29/19	4/3/20	96	
4	Complete Tunnel B/C - Plaza thru B/C1203+54	7/9/20	7/9/20	7/9/20	8/3/20	25	
5	Complete Tunnel D - Plaza thru D1203+27	12/28/19	12/28/19	12/28/19	6/18/20	173	6 month forecasted delay.
6	Complete All Work, except for Integrated Testing	11/28/20	11/28/20	11/28/20	2/1/21	65	2 month forecasted delay.
7	Substantial Completion	2/21/21	2/21/21	2/21/21	4/28/21	66	2 month forecasted delay.
8	Final Completion	5/22/21	5/22/21	5/22/21	7/27/21	66	2 month forecasted delay.
VQ033: Mid-Day Storage Yard CIL Procurement							Approved baseline in May 1, 2016 IPS.
NTP	Notice To Proceed (NTP) Actual 1/15/16 by JPS	N/A	1/15/16A	N/A	1/15/16A	-	
1	Mid-3 CIL (NTP+549d)*	N/A	7/21/17	5/2/19	5/15/19A	663	Actualized.
2	Mid-6 CIL (NTP+855d)*	N/A	5/23/18	8/13/19	9/19/19	484	
3	Mid-8 CIL (NTP+1158d)*	N/A	11/22/18	9/10/19	10/16/19	328	
SC	Substantial Completion (NTP+1216d)	N/A	5/19/19	3/6/20	4/16/20	333	
VS086: Systems Package 3 - Tunnel Signal Equipment							Approved baseline in Dec. 1, 2016 IPS.
NTP	VS086 NTP	7/7/14	9/30/14A	N/A	9/30/14A	85	
1	Furnish Catalog Cuts for Tunnel Sig. Equip and CIR Layouts (NTP+300CD)	5/6/15	6/5/17	5/8/17	1/17/18A	987	
2	Complete and Provide Final Design for Entire Tunnel Signal System (NTP+420CD)	9/5/15	9/19/17	7/7/17	8/31/18A	1091	
3	Furnish Tunnel Signal Equip. & Hardware for Plaza CIR (NTP+582CD)	2/18/16	6/29/17	4/28/17	11/27/18A	1013	
4	Furnish Tunnel Signal Equip. & Hardware for GCT5 & GCT6 CIRs (NTP+650CD)	4/26/16	1/9/18	1/17/19	2/6/19A	1016	
5	Furnish Tunnel Signal Equip. & Hardware for GCT3 & GCT4 CIRs (NTP+730CD)	7/17/16	6/5/18	4/8/19	5/30/19A	1047	Actualized.
SC	Substantial Completion (NTP+1840CD)	12/9/19	10/14/19	11/19/19	7/2/20	206	4 month forecasted delay.

Notes

General - Contract Milestones shown are current, and may not have been in the June 2014 Rebaseline IPS; An "A" after a date indicates an actualized date. Any delay or savings noted is over the previous quarter.

1 IPS Baseline Date - June 2014 IPS Update, data date July 1, 2014, referred to as the "2014 Re-Baseline"

2 Approved Contract Baseline Schedule - Refers to the IPS Update in which the Contractor's Approved CPM Baseline schedule was incorporated into the IPS

3 Current Contract Date - Contract dates adjusted for modifications, etc. are from tables in the ESA IPS Report. (data date August 1, 2019).

4 Current ESA Forecast Date - Date shown in current IPS Monthly Update (data date August 1, 2019).

5 Delta - Difference between Current ESA Forecast Date and a baseline Date. The baseline will either be the IPS Baseline Date (June 2014), or Approved Contract Baseline Date. A positive number represents a delay and a negative number represents a savings.

APPENDIX L – CS084 - TRACTION POWER SYSTEMS PACKAGE 4 – QUARTERLY SCHEDULE METRICS

Major Electrical Equipment *3	Approve Submittals			Approve Layout Drawings			Fabricate			Start Factory Witness Test (FAT)			Delivery to ESA Site		
	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2
CO1 Tail Tracks 38th St	2/16/16	7/2/18A	-	1/18/17	8/29/19	-91	9/13/16	8/21/20	-368	2/23/17	11/21/19	-91	2/9/18	12/12/19	-84
CO2 Tail Tracks 38th St	2/16/16	10/23/18A	-	5/24/16	8/29/19	-91	9/13/16	11/7/19	-91	2/20/17	11/25/19	-91	2/9/18	12/17/19	-84
CO3 55th Street	2/23/16	9/5/19	-92	6/1/16	11/11/19	-92	9/13/16	12/20/19	-91	3/13/17	1/15/20	-93	8/2/18	2/4/20	-29
CO4 2nd Avenue	2/18/16	12/15/18A	165	11/21/16	8/28/19	-91	9/13/16	8/28/19	-91	10/5/16	1/22/18A	-	3/13/17	2/12/18A	-83
CO5 Vernon	2/18/16	8/21/19	-92	5/26/16	6/7/17A	-	9/13/16	5/1/18A	-	10/5/16	8/28/17A	-	11/8/16	5/5/18A	-
CO6 QP Main	2/18/16	10/10/19	-91	5/26/16	3/22/19A	-	9/30/16	12/6/19	-91	11/21/16	11/11/19	-90	6/13/17	10/31/19	-44
CO7 QP Yard	2/18/16	10/22/19	-91	5/26/16	8/22/19	-92	9/13/16	2/13/20	-93	1/12/17	12/18/19	-91	8/17/17	1/9/20	-38
CO8 43rd St Pre-fab Bldg	1/21/16	10/23/18 A	-	5/12/16	8/16/17A	-	9/12/16	5/10/19A	9	10/25/16	6/17/19A	4	12/6/16	7/12/19A	3

*Notes

1 - Current Update = IPS with Data Date 8/1/19.

2 - Delta = Change over the quarter, from IPS with data date 5/1/19, in calendar days. Positive values represent improved planned dates; negative values represent slippage in planned dates.

3 - Major Electrical Equipment = There are many components included in this category. The dates shown in this table for Submittals, Fabricate, FAT, and Delivery are the latest date for all Major Electrical Equipment at each substation and includes the SCADA Controls and Screens.

4 - The Baseline date refers to the Contractor's approved CS084 Baseline CPM Schedule with data date 10/29/14.

5 - The dates indicated in Appendix L are from ESA Reports. It is the PMOC's experience based on information it receives in progress meetings that the dates shown could represent the start of the activity but not necessarily the completion.

Major Electrical Equipment *3	Install Elec Equip & All Other Items *5			ConEd Insp / Test Rpts			Local Testing *7			Energize / Place in Serv (CS084 Milestones)			Integrated Testing *6		
	Installation Complete			Complete			Testing Complete			Work Complete			Testing Complete		
	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2	Base-line *4	Current Update *1	Delta (mths) *2
CO1 Tail Tracks 38th St	11/6/18	9/21/20	-96	12/27/18	12/2/20	-117	1/21/19	11/10/20	-74	2/4/19	1/18/21	-76	12/2/19	4/30/21	-1
CO2 Tail Tracks 38th St	11/14/18	9/21/20	-104	12/24/18	11/20/20	-120	1/22/19	10/30/20	-78	2/5/19	1/7/21	-80	12/2/19	4/30/21	-1
CO3 55th Street	3/1/19	9/14/20	-94	N/A	N/A	N/A	5/6/19	11/17/20	-91	5/16/19	1/21/21	-93	12/2/19	4/30/21	-1
CO4 2nd Avenue	4/27/18	4/15/20	-1	7/6/18	8/14/20	-52	8/7/18	7/24/20	-1	8/21/18	10/23/20	-25	12/2/19	4/30/21	-1
CO5 Vernon	6/8/18	1/24/20	-58	N/A	N/A	N/A	9/19/18	5/5/20	-56	10/3/18	7/10/20	-57	12/2/19	4/30/21	-1
CO6 QP Main	9/10/18	9/2/20	-8	N/A	N/A	N/A	1/3/19	12/28/20	-11	1/17/19	1/12/21	-8	12/2/19	4/30/21	-1
CO7 QP Yard	10/22/18	7/24/20	-77	N/A	N/A	N/A	2/15/19	11/17/20	-76	3/1/19	12/2/20	-76	12/2/19	4/30/21	-1
CO8 43rd St Pre-fab Bldg	9/12/17	6/18/20	-31	12/8/17	5/22/20	-2	2/1/18	5/1/20	59	2/15/18	7/8/20	-2	12/2/19	4/30/21	-1

1 - Current Update = IPS with Data Date 8/1/19.

2 - Delta = Change over the quarter, from IPS with Data Date 5/1/19, in calendar days. Positive values represent improved planned dates; negative values represent slippage in planned dates.

3 - Major Electrical Equipment = There are many components included in this category. The dates shown in this table for Submittals, Fabricate, FAT, and Delivery are the latest date for all Major Electrical Equipment at each substation and includes the SCADA Controls and Screens.

4 - The Baseline date refers to the Contractor's approved CS084 Baseline CPM Schedule, with data date 10/29/14.

5 - Work includes installation of major Electrical Equipment and all other components in the TPSS, including conduit, cable tray, cabinets, panels, bus duct, and the pulling and termination of cables. Includes cable from TPSS to track.

6 - Work includes five System-Wide tests in the CS084 Contractor's CPM Schedule: Train Acceleration Test; Short Circuit Verification Test; Load Capacity Verification Test; Third Rail and High Tension EO Switch Test; and Emergency Trip Verification Test. The date shown represents the last test - the Emergency Trip Verification Test - and aligns with Contract Milestone No. 7 (Substantial Completion).

7 - This represents the completion of Field Acceptance Tests, typically the last testing shown at each substation.

8 - The dates indicated in Appendix L are from ESA Reports. It is the PMOC's experience based on information it receives in progress meetings that the dates shown could represent the start of the activity but not necessarily the completion.

APPENDIX M – NCR AGING SUMMARY

Contract	Criteria	4Q 2018	1Q 2019	2Q 2019	3Q 2019
CM007	< 90 days Open	9	17	11	7
	> 90 days Open	37	33	43	51
	Total Open	46	50	54	58
	Total Closed	87	110	113	124
	Total NCRs	133	160	167	182
CM014B	< 90 days Open	5	11	22	24
	> 90 days Open	15	19	24	38
	Total Open	20	30	46	62
	Total Closed	55	57	66	73
	Total NCRs	75	87	112	135
CQ032	< 90 days Open	1	0	0	1
	> 90 days Open	9	10	12	10
	Total Open	10	10	12	11
	Total Closed	120	120	122	124
	Total NCRs	130	131	134	135
CH058A	< 90 days Open	0	0	0	3
	> 90 days Open	0	0	0	0
	Total Open	0	0	0	3
	Total Closed	91	91	0	0
	Total NCRs	91	91	0	3
CM006	< 90 days Open	0	5	2	0
	> 90 days Open	0	12	9	9
	Total Open	0	17	11	9
	Total Closed	26	191	197	199
	Total NCRs	26	208	208	208
CH061A	< 90 days Open	0	0	0	0
	> 90 days Open	0	0	0	0
	Total Open	0	0	0	0
	Total Closed	18	18	18	18
	Total NCRs	18	18	18	18
CS179	< 90 days Open	6	1	1	1
	> 90 days Open	14	17	17	14
	Total Open	20	18	18	15
	Total Closed	47	49	50	54
	Total NCRs	66	67	68	69
CS084	< 90 days Open	1	1	1	6
	> 90 days Open	0	3	4	5
	Total Open	0	4	5	11
	Total Closed	6	7	7	7
	Total NCRs	7	11	12	18
CQ033	<90 days Open	0	2	0	0
	>90 days Open	0	1	2	1
	Total Open	0	3	2	1
	Total Closed	14	14	15	16
	Total NCRs	14	17	17	17

APPENDIX N – CONSTRUCTION CONTRACT CHANGE MANAGEMENT

MTACC's ESA Project Management Plan states that a key CM responsibility is for the initiation, processing, negotiation, and resolution of construction change orders, subject to the MTACC change control process. MTACC procedures AD.11, Construction Contract Modification Approval, and PCA-036, Construction Contract Modifications for ESA (updated on December 18, 2017) provide guidance for this process.

The ESA project executed a total of 37 contract modifications having magnitudes in excess of $100,000 during the period from May 2019 through July 2019. These modifications represent a total net cost increase of $135.8 million. The PMOC reviewed staff summaries of select modifications to check compliance with the guidelines. Unless otherwise noted, the PMOC observed that the CM followed the ESA project procedures.

CH057D had 1 modification during the review period with a value of 582,559. Modification 6, Northeast Quadrant Delays - Equitable Adjustment, was executed on May 21, 2019.

CM007 had 3 modifications during the review period with a total value of 407,946.

CM013 had 1 modification during the review period with a value of (720,000). Modification 42, Final Closeout of Contract CM013, was executed on May 14, 2019.

CM014A had 1 modification during the review period with a value of (144,266). Modification 61, CM014A Stantec Repairs Reconciliation, was executed on June 28, 2019.

CM014B had 9 modifications during the review period with a total value of 56,462,933. The PMOC reviewed modification 210, Resolution Outstanding of Claims and Disputes, Deletion of North Transfer Station, and Acceleration of Work, with a value of $54.1 million and which was executed on May 2, 2019.

CQ033 had 4 modifications during the review period with a total value of 4,527,448.

CS084 had 1 modification during the review period with a value of 169,688. Modification 15, Replacement of PVC Conduit (re-lining) was executed on May 14, 2019.

CS179 had 16 modifications during the review period with a total value of 74,334,332. The PMOC reviewed modification 197, Recovery Schedule, Revised Access Restraints and Milestones, with a value of $67 million and which was executed on May 8, 2019.

VS086 had 1 modification during the review period with a value of 225,000. Modification 7, Miscellaneous Signal System Changes, was executed on June 20, 2019.

APPENDIX O – CM007- DIRECT FIXATION – QUALIFICATION TESTING AND TRACK CONSTRUCTION

CM007 - Direct Fixation Qualification Testing*

Direct Fixation Fasteners (DFF)

Direct Fixation Fastener (DFF) Assemblies	Standard DFF	High Attenuation DFF (HADFF)	Special Trackwork DFF (STDFF)
DFF Qualification Testing Status	See Note #1 below	Done	Completed end July 2019

Note #1: Contractor has elected to use HADFF in locations where Standard DFF was specified.

Resilient Tie Blocks (RTB)

Resilient Tie Block (RTB) Assemblies	Standard RTB	High Attenuation RTB (HARTB)	Special Trackwork RTB (STRTB)
RTB Qualification Testing Status	Done	Done	Done

* As reported at ESA Monthly CM007 Progress Meeting August 8, 2019

CM007 - Direct Fixation Track Construction*

Direct Fixation Track Construction

Direct Fixation	
Installation Status	Progressing
Actual Progress	72.1%
Planned Progress	97.1%

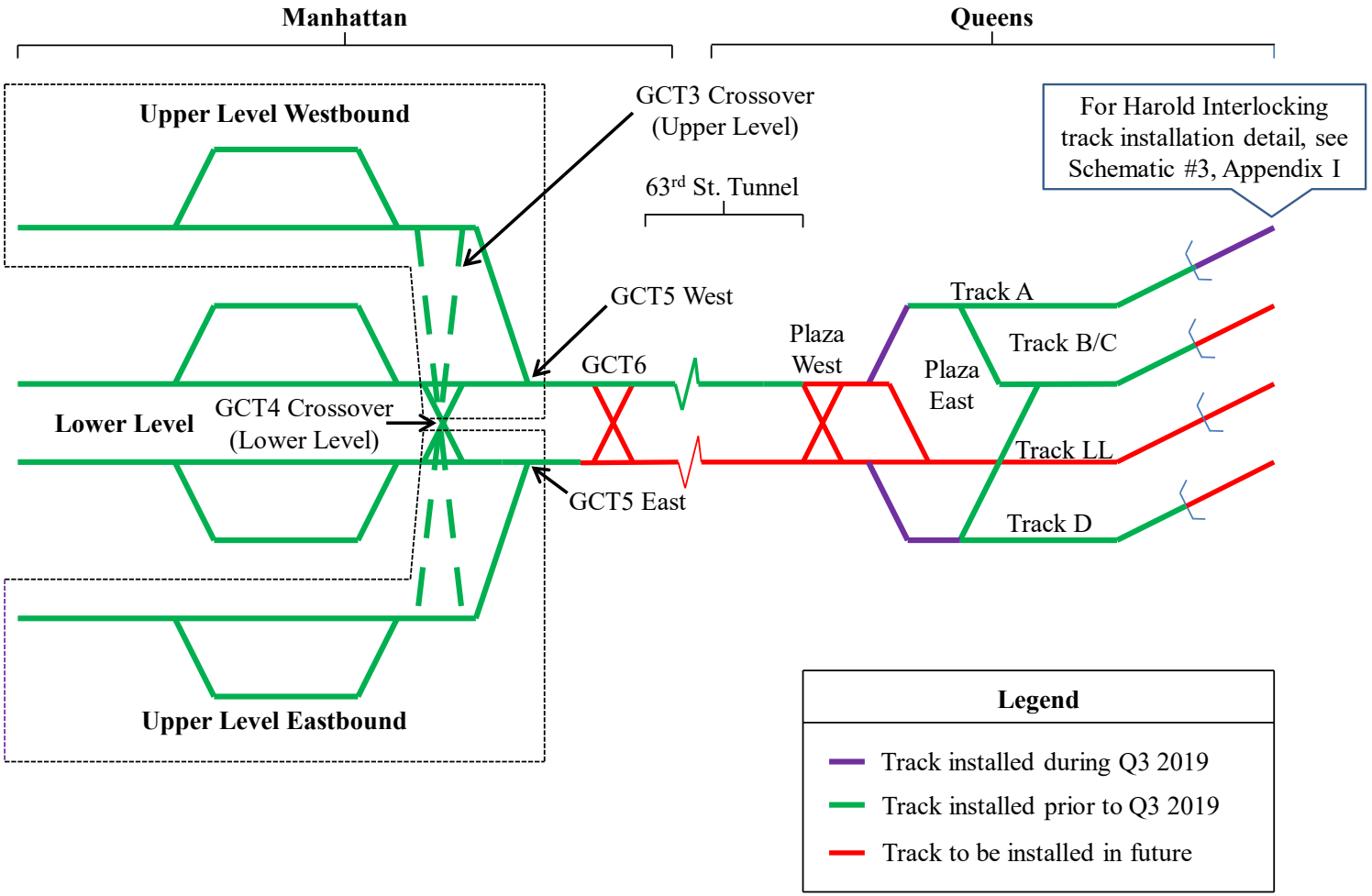
*Progress Data from September 22, 2019 ESA Progress Summary: Track and Third Rail - DFF.
Note #1: Contractor has elected to use HADFF in locations where Standard DFF was specified.

Special Trackwork (turnouts)

S T Assemblies	Special Trackwork RTB (STRTB)	Special Trackwork DFF (STDFF)
Installation Status	Progressing	Not started
Actual Progress	52.4%	
Planned Progress	100.0%	

* Progress Data from September 22, 2019 ESA Progress Summary: Track and Third Rail - Special Trackwork

Appendix O: Track Construction
Manhattan and Queens
Status as of September 30, 2019



APPENDIX P – CONTRACT CS084 – TRACTION POWER SUBSTATIONS

Status of CS084 Traction Power Substations - as of mid-September 2019

General Issues

1. Track access coordination with CM007
2. Monuments – non-compliance to dimensional standards – surveys need to be completed and remediation strategies needed
3. Plan for integrated dynamic testing of all substations needs to be developed – needs railcars
4. Viability of MTA-supplied equipment
5. Blue light re-design
6. Substation Room access

C01/C02 (Tail Tracks)

1. Transformer delivery forecast by end of September 2019 – needs coordination for track access
2. AC metering equipment planned for delivery to substation rooms by end of September 2019 – coordination with MNR ongoing
3. Three conduits from cable vault to street are unusable – blockages – clear conduits needed for AC feeders
4. Installing cable trays and conduits in rooms

C03 (55th Street)

1. Not ready for handover from CS179 – turn over date on hold due to water infiltration – access date unknown
2. Water condition needs source identification and resolution by CS179 (CS179 contract modification needed)
3. Floor leveling and scarification needed – requires contract modification

C04 (2nd Avenue)

1. Replacement of AC feeder duct bank by CS179 still needed
2. Numerous adjacent contractor (CS179) obstructions preventing CS084 work
3. CS084 contractor de-mobilized at this location until adjacent contractor obstructions are removed
4. Traction power DC cable pulled to pull box at P7 level

C05 (Vernon)

1. Removal of PVC duct in concrete conduits still not done – requires insurance documentation from MTACC approved subcontractor
2. Still has water infiltration issue
3. All equipment delivered
4. Con Edison work 90% complete – energization planned for December 2019

C06/C07 (Plaza)

1. C07 transformers installed
2. C06 transformers having outer casings removed to prepare for installation
3. Grounding and conduit work ongoing
4. Contract modification will be issued to level and scarify floors in both areas

C08 (43rd Street)

1. Traction power cables being installed between the C08 vault and tracks
2. Sewer and water supply work required
3. Substation delivery completed – sections being re-assembled and wired
4. Con Edison energization planned for December 2019

APPENDIX Q – OPERATIONAL READINESS

Rail Activation Plan and Task Working Groups (TWG) – Q2 2019 Status

NOTE: The Quarterly update for Q2 2019 was held on October 11, 2019, and the data presented in the items below reflects the status of Operational Readiness activities as reported on that date.

The Rail Activation Plan (RAP) is being developed through the use of 11 separate Task Working Groups (TWGs) that each focus on specific separate aspects of the RAP. An inter-agency ESA Operational Readiness (OPR) Core Group continues to meet on a weekly basis to review the progress of the OPR tasks required to commence ESA operations. Additionally, the OPR group continues to participate in on-going workshops with LIRR department heads to review critical OPR work activities related to the respective LIRR disciplines. This additional engagement at a senior management level has, as expected, produced a more results-oriented process than previously experienced. Once again, MTACC indicated that completion of the Comprehensive System Test Plan (CSTP), a two (2) volume document, is dependent on the adoption and implementation of an acceptable Integrated System Test Plan (ISTP) developed as part of the ESA CS179 contract. While the development and completion of Volume No. 2 was completed in August 2018, the completion of Volume No. 1 remains as an on-going effort. MTACC previously stated that it would like to complete the entire CSTP by the end of 2018; however, that goal was not achieved and a revised forecast completion date is currently unavailable.

(**PMOC Note:** The CSTP delineates standardized guidelines for managing and conducting test activities. The Plan is presented in two parts: Volume No. 1 describes the management approach to all phases of the test program. It defines the test program objectives, test elements, methodology, management approach, and organization. It also provides guidelines for the tests that are contractually required to be performed by contractors at the subsystem and system levels. Volume No. 2 provides a list of the system wide integrated tests that need to be conducted. These tests include factory test, field tests, integration tests, pre-revenue service tests, and emergency preparedness drills. Volume No. 1 continues to be updated as the project progresses.)

To address staffing issues, LIRR requested the approval to hire 40 individuals to augment its Senior ESA Transition Team and OPR Staff. As previously reported, twenty (20) of those positions were approved; and, while some positions are already filled, others are still in various stages of the hiring process. Several of the LIRR departments had their requests disapproved by LIRR's Vacancy Control Committee (VCC); and, those departments have revised their requests and re-submitted them for consideration. Once again, the PMOC requested a copy of the draft organization chart showing this staff augmentation.

TWG No. 1 – Operational Readiness:

- This TWG has the responsibility to monitor and verify the Rail Activation Plan (RAP) activities. There are 697 tasks and activities currently identified that must be completed to successfully implement full ESA revenue service. Of those 697 RAP tasks and activities, 105 are already complete and 134 are currently in progress. The remaining 458 are not scheduled to start yet. This is the same information reported at the June 2019 Q1 2019 OPR Briefing.
- Only two (2) of the tasks and activities that are currently in progress are considered overdue when compared to the current ESA Target and Revenue Service Dates; and, seven (7) more are due for completion by the end of October 2019. The two (2) overdue tasks are

still: 1) the finalization of an Emergency Action Plan (EAP) for ESA service; and 2) the completion of Volume No. 3 of the RAP. MTACC previously advised that the EAP would be completed by the end of 2018; however, that date was not met, and the current projection for a completion of a consolidated (LIRR/MNR) draft EAP is now January 2020. The completion of Volume No. 3 of the RAP is dependent on the completion of an OPR Group-developed Comprehensive System Test Plan (CSTP), which, in turn is dependent on the adoption and implementation of the ESA ISTP– a plan being developed as part of the CS179 contract. A forecasted completion date for a draft RAP Volume No. 3 is currently unavailable.

TWG No. 2 – Train Service and Operations:

- At the Q3 2018 OPR briefing, MTACC reported that a revised Service Plan that addresses a reduction in the planned level of revenue service would be complete in July 2019. Due to a lack of staff resulting from the MTA hiring freeze, the forecast for completion of the new Plan was, at that time, delayed to the end of 2019.
- During Q1 2019, the MTA Vacancy Control Committee approved 5 new positions requested by LIRR's Service Planning department to augment the staff developing the revised ESA Service Plan. LIRR anticipated that, once these 5 positions were filled, it would take between 9 and 12 months to complete the revised Service Plan. Only three (3) of those positions are currently filled and the new projected date for completion of the revised Service Plan is now sometime in 4Q 2020.
- While the revised Plan is being developed, MTACC reported that for activity planning purposes (e.g., hiring and training personnel, procurement of railcars and other vehicles, procurement of a training simulator, development of operating and emergency action plans, etc.) MTA continues to utilize the requirements set forth in its "original" F2 Service Plan. However, consideration is being given to a reduced level of revenue service and a potential 6-month acceleration of the RSD to June 2022.
- During Q1 2019, LIRR developed a strategy for hiring and training locomotive engineers and increased class sizes to reduce the overall training time duration needed to train all the engineers required for ESA's RSD. LIRR reported that two (2) classes of Locomotive Engineer Trainees started during Q2 2019.
- The LIRR Transportation, Training, and Safety departments continue to participate in workshops to discuss requirements and training for emergency tunnel procedures. As a follow up to a previous PMOC inquiry regarding the involvement of other MTA organizational units, (e.g., NYCT and MNR) in those workshops to address procedures at joint use facilities (e.g., ventilation plants and Grand Central Terminal), MTACC noted that those discussions are now progressing.
- LIRR is currently projecting that it has enough Conductor and Assistant personnel already on-board to support the proposed level of service for the RSD.

TWG No. 3 – Infrastructure, Systems, and Engineering:

- MTACC continues to report that LIRR is identifying possible alternatives for the cleaning and maintenance of the 12 new Ventilation plant facilities; and, is working with NYCT to identify what joint agreements are needed to provide these services at the 7 LIRR/NYCT shared facilities.
- In its Q4 2018 report, the PMOC reported on a potential issue related to cathodic protection in the tunnels and indicated that MTACC would investigate this concern and provide an update in a subsequent quarterly briefing. MTACC now advises that, while this issue is being investigated as part of the CS084 contract and discussions with NYCT

regarding requirements and maintenance are underway, the OPR group is providing oversight of this action to ensure that it is addressed in a timely fashion.

- MTACC reported that MTA has engaged a consulting firm to assist MTA in the review of overall labor requirements (in house and 3rd party) and preparation of work scopes for activities that may be required to efficiently operate and maintain the assets being added as part of the ESA project. Currently, there are approximately 70 different work scopes identified; and, the priority of completing those work scopes is underway. Once decisions of whether to use in-house forces or 3rd party contractors to perform various tasks are made, the work scopes will be used during any necessary negotiations with existing MTA unions and 3rd party contractors to provide for the implementation of the work. No dates for the rendering of decisions are available at this time.
- LIRR continues to develop its list of equipment and tools needed to provide ESA service. Some procurement of long-lead items has already started and estimates for the rest of the identified items are being prepared. Discussions are underway to determine the funding sources for the required items.
- MTACC and LIRR continue to pursue the identification of suitable equipment storage areas.

TWG No. 4 – Asset Management:

- MTACC continues to report that discussions with the various contractors to identify new assets and incorporate them into the Asset Management database are being held. As reported in the Q1 2019 OPR briefing, there already are 249 assets under interim maintenance out of a projected total of 15,533 when the ESA Project is finished. During Q2 2019, 266 assets from the CQ032 contract were turned over to the CS179 contractor, a successor contractor in the various areas where the assets are located, so that interim maintenance could begin on those assets. OPR's Asset Management team indicated that there were some issues that needed to be overcome during the process of this asset turn over; and, that procedures are being modified to preclude any problems of this nature occurring on future turnovers.
- MTACC reported that the Maximo database, the database currently being used to track new ESA assets, is being phased out, and all the existing and new ESA asset information will be migrated over to the INFOR database that MTA uses to track MTA-wide assets.
- As noted previously by the PMOC, most of the ESA assets are also considered federal assets whose maintenance and state of good repair will be evaluated by the FTA during their Triennial Reviews of LIRR.

TWG No. 5 – Grand Central Terminal:

- One major activity of this TWG is to implement part of MTA's "One MTA" seamless passenger experience in GCT and to ensure optimum operating efficiency. A number of activities are required to fully implement these objectives. LIRR and MNR have worked together to identify certain tasks that will address these requirements; and, a decision regarding the proposed actions is currently with LIRR and MNR Executive management for approval.
- As the PMOC previously noted, one issue that remains under discussion is the development of plans and procedures for operations in a facility (GCT) that currently has limited or no access during early morning hours.

TWG No. 6 – Staffing and Training:

- As noted earlier, while the final levels of LIRR personnel required for any revised ESA Service must still be determined, LIRR is utilizing the original F2 Service Plan to determine its total needs. Special attention has been given to staffing requirements that are needed to achieve an anticipated accelerated LIRR turn over date of June 30, 2021; a date that supports the potential accelerated June 2022 RSD.
- As previously noted, a number of the Transition Team and OPR Support Staff personnel have already been hired, while others remain in the process of being hired; or, as in the case of some LIRR departmental staff, are being reevaluated as to service needs.
- Due to space limitations at its Hillside Facility, LIRR identified that it plans to use the newly constructed ESA Yard Service Building to perform training for some of its personnel. LIRR anticipates that training in this facility will begin in Q1 2020.

TWG No. 7 – Safety and Security:

- A 3rd draft of the Emergency Action Plan (EAP) is currently being developed by senior LIRR, MNR, and MTA emergency response stakeholders. A date for the completion of this draft EAP is anticipated in January 2020. In response to an inquiry from the PMOC regarding NYCT participation in the development of this EAP, as NYCT is a joint user of GCT, MTACC indicated that it would include NYCT in its discussions.
- During Q2 2019, MTACC continued to effectively catch up on the Safety and Security Certification processes; with a significant number of contract packages closed out and numerous Safety and Security Certifications being completed.
- Workshops with contractors and this TWG are routinely conducted to discuss and implement Certification and packages closures.
- Appendix T contains a Summary Status of Safety and Security Certifications.

TWG No. 8 – Public Information and Marketing:

- In previous reports, the PMOC noted that, as a result of several field surveys in GCT by LIRR, MNR, and MTACC-ESA personnel, a number of gaps in customer signage between what was proposed in the ESA Project and what MNR has in its GCT signage upgrade contract plans for signage were identified. MTACC, MNR and LIRR personnel worked on a plan to address those gaps and funding has now been identified to address the "dynamic –type" signage. LIRR and MNR Legal departments are working on drafting an agreement that will allow for procurement efforts to implement the plan.
- There is still, however, a funding gap to address the "static-type" signage gaps, which requires the efforts of a consultant to support MTA in dealing with SHPO submissions. MTA is working on identifying funding sources for this work.
- In response to an inquiry from the PMOC at the Q1 2019 OPR briefing about the possible inclusion of NYCT in the discussions and planning for the signage strategy, MTACC indicated that NYCT had not been involved to date. MTACC agreed with the PMOC that, since connections to NYCT service would be available to ESA customers, it might be a good idea to involve NYCT in any signage planning strategy; and, indicated that it would follow up on the possibility of NYCT's inclusion in the development of the strategy. No update on this item was available at the Q2 2019 briefing.

TWG No. 9 – Agreements:

- As previously reported, this TWG finalized a comprehensive LIRR ESA asset list that will help determine a strategy to operate and maintain ESA assets. This list will, among

other considerations, be used to identify jurisdictional work efforts necessary to operate and maintain the assets and provide ESA revenue service.

- This TWG continues to work on developing a list of labor Agreements that need to be developed or modified to provide and maintain ESA service. The PMOC continued to note that some type of activity regarding the execution of any new labor Agreements, or modifications to existing labor Agreement, should eventually appear in the ESA OPR IPS and the overall ESA schedule.

TWG No. 10 – Finance and Administration:

- LIRR previously advised that it was planning to award a contract for the development and installation of the locomotive engineer Training Simulator by the end of 2019 to meet the training requirements dictated by the ESA RSD. Procurement concurrence documentation continues to be circulated within LIRR; and, a revised award date for this procurement is now forecast for June 2020, which LIRR indicates supports a date of December 2020 to have the simulator operational.
- LIRR end users continue to identify materials, equipment, and work efforts needed to operate and maintain ESA service.

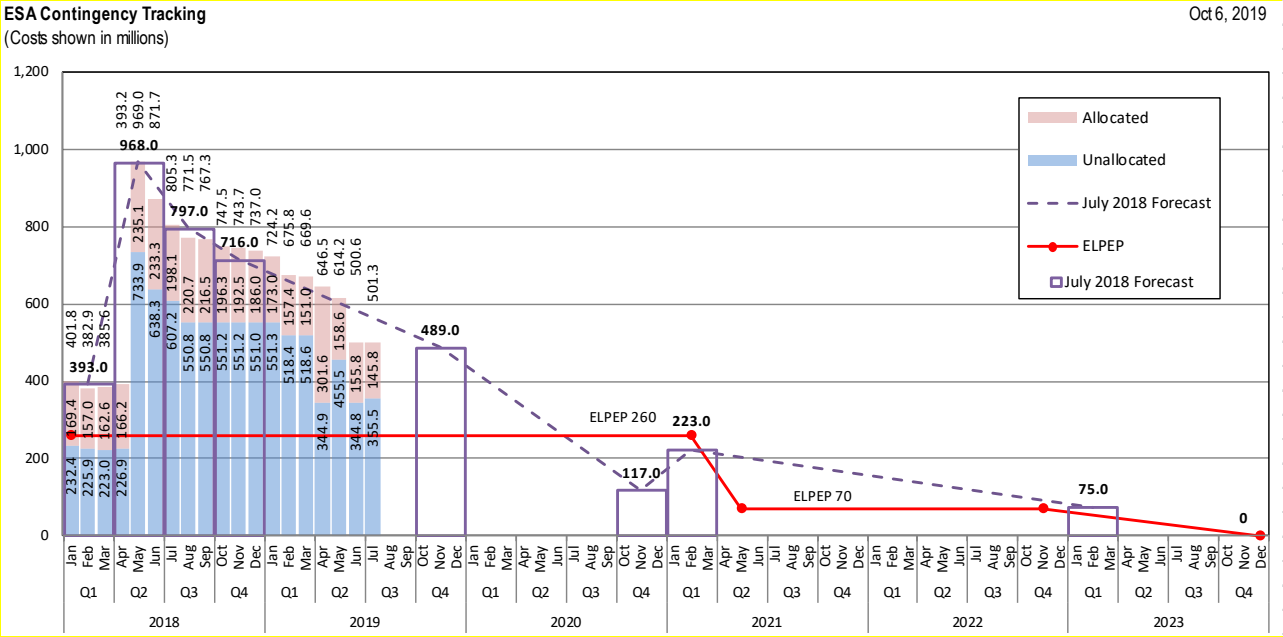
TWG No. 11 – Fleet Readiness:

- This TWG focuses on the procurement of fleet-oriented equipment (railcars, locomotives, simulators, etc.) necessary for the final implementation and operation of the ESA Service.
- In Q4 2018, LIRR received responses to the re-advertised 1st Phase RFP for the M-9A railcars. LIRR issued the 2nd Phase RFP documents requesting technical and pricing information in January 2019 with an expected response date in March 2019 – which was subsequently delayed to April 2019. LIRR met with the responsive car builders in early May 2019 to discuss their respective proposals. LIRR originally requested that each car builder submit Best and Final Offers (BAFOs) by the end of May 2019. For undisclosed reasons, LIRR rescinded that request for BAFO submissions, indicating that BAFOs would be requested at a later date. While a final request for BAFO submissions has yet to occur (planned for release by the end of October 2019), at the latest ESA Cost and Schedule update meeting the PMOC was advised that MTA anticipates issuing an M-9A contract award in January 2020. (**PMOC Note:** the PMOC believes that a January 2020 award date on this major railcar procurement is extremely optimistic.)
- Because of the continuing delay in awarding a contract to procure the M-9A railcars, a number of different strategies regarding the availability of railcars to provide revenue service on the original December 2022 projected RSD were considered. Currently, LIRR reports that it is planning to hold on to and utilize 80 existing M-3 cars to supplement fleet-wide operations while using new M-9 cars (some from the existing M-9 orders and 54 additional ones being pursued as a contract option) to provide ESA service on the current RSD. LIRR indicates that the M-3 cars will need the addition of Positive Train Control (PTC) equipment and any maintenance work to keep them in a state of good repair. Funding for that work will need to be identified.

The final determination of a comprehensive strategy depends on the finalization and approval of the revised Service Plan and what level of service – and how many railcars are needed for that service – will be required on the current RSD date.

[redacted]

Exemption b(4)



APPENDIX S – SAFETY AND SECURITY CERTIFICATION SUMMARY

Status as of June 14, 2019

Safety and Security Certification - Summary Status - June 14, 2019

ESA Work Area	Number of Contracts	Safety Certifications						Security Certifications						Comments
		Design			Construction			Design			Construction			
		100%	WIP	N/A	100%	WIP	N/A	100%	WIP	N/A	100%	WIP	N/A	
Manhattan / Bronx	17	16	0	0	9	7	0	12	0	4	2	10	4	1 contract deferred
Queens	4	4	0	0	2	2	0	2	0	2	0	2	2	
Harold	12	10	1	0	7	4	0	9	1	1	5	5	1	1 contract On-Hold
System wide Systems	3	2	1	0	0	3	0	2	1	0	2	1	0	
Force Account	19	11	6	2	2	15	2	11	0	8	11	0	8	
Vendors	8	3	3	2	0	6	2	5	0	3	3	2	3	

Legend: 100% = Complete
WIP = Work in progress
N/A = Not Applicable

APPENDIX T - ESA CORE ACCOUNTABILITY ITEMS

Project Status:		Original at FFGA	Amended FFGA	Current	ELPEP **
Cost	Cost Estimate (including finance and rolling stock costs)	$7,386.0 m	$12,038.5 m	$12,712.8 m*	$9,155.1 m
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted] Exemption b(4)
Schedule	Revenue Service Date (RSD)	Dec 31, 2013	Dec 31, 2023	Dec. 2022	April 30, 2018
Total Project % Complete	Based on Invoiced Amount	78.9% actual vs. 80.2% planned (ESA calc. †)			
Project Performance Rate since 2014 "Re-Plan"	Based on Earned Value	83.0% (PMOC calculation of construction spending at 2Q 2019 planned vs. actual since re-baselining)			
Contracts	Total contracts awarded to date	$9,578.7 m	86.0% (PMOC calculation†)		
	Total construction contracts awarded to date	$7,382.9 m	92.1% (PMOC calculation†)		

Major Issue	Status	Comments
Project Funding and Budget	The interim program budget is $10,335.1 million, including [redacted]. The MTACC advised the MTA board of the need for additional funds at September 2019 meeting.	The MTACC needs an additional approximately $800 million in the 2020-2024 Capital Plan to complete the ESA program. [redacted] will be used to fund contracts that are not currently fully budgeted.
Project Cost	The ESA PMT updated the ESA program interim budgets based on the approval of Budget Amendment 3 for the 2015-2019 Capital Plan. The MTA ETPC is $12,712.8 million, including costs for financing and 160 revenue vehicles, $674.3 million above the Amended FFGA Baseline Cost Estimate of $12,038.5 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. Concerns remain about the time elapsed in resolving the open Cost and Schedule issues and, ultimately, their cost impacts.
Project Schedule	The primary critical and near-critical paths to target RSD, including float, are: ▪ Manhattan/Systems – no float (critical path) ▪ Harold Interlocking – [redacted] ▪ Mid-day Storage Yard (Queens) – [redacted] The target RSD forecast remains on February 14, 2022. The public RSD remains December 13, 2022. The Amended FFGA Revenue Operations Date is December 2023. Exemption b(4)	There remain 30 months to the target RSD, which is followed by [redacted] to the public RSD. 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.

Project Status:		Original at FFGA	Amended FFGA	Current	ELPEP **
Manhattan/-Systems Schedule Path	IPS 120 shows that the ESA Program Critical Path runs through the Manhattan/Systems contracts. This work path has several major open/unresolved issues performance concerns regarding incremental IST and the major redevelopment of 270 Park Avenue that may have potentially significant schedule impacts.		Concerns continue for the ESA program Manhattan/Systems critical path. The Manhattan/-Systems path completion date is July 2, 2021, in IPS 120. Acceptable work progress along this schedule path relies heavily on the effectiveness of MTACC/ESA coordination efforts and contractor performance across the major contracts.		

Notes: * The cost forecast total budget was established in the April 2018 and includes costs for financing and 160 revenue vehicles.

** 2010 Enterprise Level Project Execution Plan (ELPEP) reflecting medium level of risk mitigation and includes costs for financing and 160 revenue vehicles.

† ESA April 2018 EAC forecast: Construction $8,014.1 million; Engineering $871.8 million; Soft Costs (OCIP; Project Management; Real Estate) $1,778.4 million; Rolling Stock $202.0 million; and [redacted]

Exemption b(4)