

## **PMOC COMPREHENSIVE MONTHLY REPORT**

### **East Side Access (MTACC-ESA) Project**

Metropolitan Transportation Authority

New York, New York

Report Period September 1 to September 30, 2015



PMOC Contract No. DTFT6014D00017

Task Order No. 2, Project No. DC-27-5287, Work Order No.1

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

PMOC Lead: E. Williamson, 212-736-9100; ejwilliamson@urbanengineers.com

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

## TABLE OF CONTENTS

---

### EAST SIDE ACCESS PROJECT (ESA)

<b>THIRD PARTY DISCLAIMER.....</b>	<b>1</b>
<b>REPORT FORMAT AND FOCUS.....</b>	<b>1</b>
<b>MONITORING REPORT .....</b>	<b>1</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>ELPEP COMPLIANCE SUMMARY.....</b>	<b>7</b>
<b>1.0 GRANTEE’S CAPABILITIES AND APPROACH .....</b>	<b>10</b>
1.1 TECHNICAL CAPACITY AND CAPABILITY .....	10
1.2 PROJECT MANAGEMENT PLAN.....	10
1.3 PROJECT CONTROLS.....	11
1.4 FEDERAL REQUIREMENTS .....	11
1.5 SAFETY AND SECURITY.....	12
1.6 PROJECT QUALITY .....	12
1.7 STAKEHOLDER MANAGEMENT.....	14
1.8 LOCAL FUNDING .....	14
1.9 PROJECT RISK MONITORING AND MITIGATION .....	14
<b>2.0 PROJECT SCOPE.....</b>	<b>15</b>
2.1 ENGINEERING/DESIGN AND CONSTRUCTION PHASE SERVICES .....	15
2.2 PROCUREMENT .....	16
2.3 CONSTRUCTION.....	17
2.4 OPERATIONAL READINESS .....	37
2.5 VEHICLES.....	38
2.6 PROPERTY ACQUISITION AND REAL ESTATE.....	39
2.7 COMMUNITY RELATIONS .....	39
<b>3.0 PROJECT MANAGEMENT PLAN AND SUB PLANS .....</b>	<b>40</b>
3.1 PMP SUB-PLANS .....	40
3.2 PROJECT PROCEDURES .....	41
<b>4.0 PROJECT SCHEDULE.....</b>	<b>42</b>
4.1 INTEGRATED PROJECT SCHEDULE.....	42
4.2 90-DAY LOOK-AHEAD OF IMPORTANT ACTIVITIES .....	45
4.3 CRITICAL PATH ACTIVITIES .....	46
4.4 PROJECT SCHEDULE CONTINGENCY ANALYSIS.....	49
<b>5.0 PROJECT COST .....</b>	<b>51</b>
5.1 BUDGET/COST .....	51

5.2	PROJECT COST MANAGEMENT AND CONTROL .....	52
5.3	CHANGE ORDERS .....	52
5.4	PROJECT FUNDING .....	54
5.5	COST VARIANCE ANALYSIS .....	54
5.6	PROJECT COST CONTINGENCY .....	54
<b>6.0</b>	<b>RISK MANAGEMENT.....</b>	<b>55</b>
6.1	RISK PROCESS .....	55
6.2	RISK REGISTER .....	56
6.3	RISK MITIGATIONS .....	57
<b>7.0</b>	<b>PMOC CONCERNS AND RECOMMENDATIONS .....</b>	<b>58</b>
<b>8.0</b>	<b>GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS .....</b>	<b>61</b>

## **TABLES**

---

<b>TABLE 1: SUMMARY OF CRITICAL DATES .....</b>	<b>6</b>
<b>TABLE 2: PROJECT BUDGET/COST TABLE .....</b>	<b>7</b>
<b>TABLE 4.1: ESA JULY 2014 BASELINE .....</b>	<b>45</b>
<b>TABLE 4.2: PMOC BASELINE .....</b>	<b>45</b>
<b>TABLE 4.3: IPS #73, DATA DATE SEPTEMBER 1, 2015, CRITICAL PATH .....</b>	<b>46</b>
<b>TABLE 4.4: CS179 CONTRACTOR MILESTONE DATES .....</b>	<b>47</b>
<b>TABLE 5.1: COMPARISON OF STANDARD COST CATEGORIES: FFGA VS. CBB.....</b>	<b>51</b>
<b>TABLE 5.2: PROJECT BUDGET AND INVOICES AS OF AUGUST 2015 .....</b>	<b>52</b>
<b>TABLE 5.3: ESA’S CHANGE ORDER LOG IN AUGUST 2015 (&gt;\$100,000) .....</b>	<b>53</b>
<b>TABLE 5.4: SUMMARY OF ESA COST CONTINGENCY.....</b>	<b>54</b>

## **APPENDICES**

---

**APPENDIX A – LIST OF ACRONYMS**

**APPENDIX B – PROJECT OVERVIEW AND MAP**

**APPENDIX C – LESSONS LEARNED**

**APPENDIX D – SAFETY AND SECURITY CHECKLIST**

**APPENDIX E – ON-SITE PICTURES**

**APPENDIX F – COST AND SCHEDULE ANALYSIS TABLES**

**APPENDIX G– ESA CORE ACCOUNTABILITY ITEMS**

## **THIRD PARTY DISCLAIMER**

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

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

## **REPORT FORMAT AND FOCUS**

This report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT6014D00017, Task Order No. 002. Its purpose is to provide information and data to assist the FTA as it continually monitors the Grantee's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the Grantee continues to be ready to receive federal funds for further project development.

This report covers the project and quality management activities on the East Side Access (ESA) Mega-Project managed by MTA Capital Construction (MTACC) with MTA as the Grantee and financed by the FTA FFGA.

## **MONITORING REPORT**

### **EXECUTIVE 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 St. Tunnel under the East River and new tunnels in Manhattan and Queens, including new power and ventilation facilities. The project includes a new 8 track terminal constructed below the existing GCT and a new surface rail yard in Queens for daytime train storage. Ridership forecast is 162,000 daily riders (27,300 new riders) in 2020. 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 Grand Central Terminal (GCT) in east Midtown Manhattan, in addition to the LIRR's current Manhattan connection at Penn Station.

## **2. CHANGES DURING 3<sup>rd</sup> Quarter 2015**

### **a. Engineering/Design Progress**

As of the end of August 2015, MTACC reported that the overall Engineering effort is at 99.5% complete, based on Earned Value for Design Deliverables. Its Cost Report shows 90.4% of the overall EIS & Engineering category as invoiced and 90.4% of the budgeted section titled “Design” as having been invoiced.

### **b. New Contract Procurements**

Seven technical/schedule proposals for Contract CM007, GCT Station Caverns and Track, were submitted on September 15, 2015. The due date for cost proposals was pushed back two weeks from October 6, 2015 to October 20, 2015 to allow sufficient time for MTACC to schedule the seven presentations and make a recommendation to the MTACC President prior to receipt of the cost proposals. The Bids for Contract CH057, Harold Structures Part 3, which includes construction of Tunnel D Approach Structure and the 48 St. Bridge Replacement, were received on July 9, 2015. Award is pending and Notice to proceed is now scheduled for October 2015. Contract VQ033, Mid-Day Storage Yard CILs, was advertised on August 14, 2015 and bids are due on October 6, 2015.

### **c. Construction Progress**

The PMT reported in its August 2015 Monthly Progress Report that the total construction progress reached 58.2% complete; the Expedition Cost Report also shows 58.2% of Construction as having been invoiced.

### **d. Continuing and Unresolved Issues**

The current potential shortfall in funding availability continues to be a major issue that could have a significant impact on the program schedule, particularly with regard to the award of Contract CM007 that is on the program critical path. This issue is discussed further in Section 6.0, Risk Management, of this report.

The PMOC is concerned that the MTACC burn rate of Unallocated Contingency continues to trend poorly and, as a result, there may not be sufficient contingency funding available to award all of the remaining construction contracts. This issue is discussed further in Section 5.0, Project Cost, of this report.

In response to Amtrak’s continued inability to provide necessary force account resources to support the Harold schedule re-plan of 2013/2014, ESA completed a Harold schedule re-sequencing in December 2014, also known as “ESA First”, that advances work elements required for the new LIRR service to GCT and pushes back the Federal Railroad Administration (FRA) funded High Speed Rail Work beyond 2017. For this reason, MTACC is seeking a time extension from the FRA for the funding and has been actively engaging the FRA in discussions to reach this goal. On September 16, 2015, the FRA formally approved the changes to the associated FRA Grant Agreement.

The PMOC has continuing concerns regarding the impact to the ESA Harold work due to the Amtrak program to harden ERT Lines 3 and 4 in preparation for extended outages for ERT Lines 1 and 2 to complete Hurricane Sandy damage related reconstruction work, currently scheduled to commence in 2018. Amtrak has not provided any specific details about the ERT Lines 3 and 4 hardening work, but there is concern that significant Amtrak force account resources will be needed to support the hardening work which could further reduce the Amtrak resources available

to support the ESA Harold Re-Sequencing Plan. There is also concern that track outages required for the hardening work may conflict with ESA needs to support the planned Harold work. Delays in completing the Harold Re-Sequencing Plan may result in essential ESA work being pushed back into the timeframe for Amtrak's extended outages for ERT Lines 1 and 2.

At MTACC-ESA's meeting with Amtrak's new Chief Engineer in June 2015, the major planned work, scheduled for 2018, for Amtrak's reconstruction of ERT Lines 1 and 2 was discussed. According to MTACC, if Amtrak elects to re-build ERT-1 first, this will not affect the planned ESA work; however, if ERT-2 is first, this will have a major impact on ESA. Although Amtrak is now aware of the MTA's concern, they have not yet provided their schedule to MTA.

The PMOC remains concerned that 18 months out of the CS179 68-month contract are already expended and there is still no final "approved" (Resources Loaded) Baseline Schedule. The Baseline Schedule represents an overall contract work plan that all stakeholders must agree upon and use to effectively progress the work. For several months, the PMOC recommended that the ESA CM convene another schedule workshop with all parties to discuss and finalize an "approved" CS179 Baseline Schedule. At the end of September 2015, the ESA CM indicated that the joint meeting between MTACC and the contractor would be held to facilitate the finalization of an acceptable baseline schedule. The ESA CM is targeting mid-October 2015 for approval of the Baseline Schedule.

**e. New Cost and Schedule Issues**

ESA has begun showing its Forecast costs in the Monthly Reports and as of the September 2015 Cost Review meeting, has decided to not report on EAC but to use Forecast. EAC will no longer be used as a cost tracking metric. The Forecast value will include the possible costs that have not been fully reviewed and estimates that have not been officially included. However, it will not immediately reflect all Bid or RFP values received.

No new schedule issues arose during September 2015.

### **3 PROJECT STATUS SUMMARY AND PMOC ASSESSMENT**

**a. Grantee Technical Capacity and Capability**

There were no changes in key ESA personnel during 3Q2015.

**b. Real Estate Acquisition**

For the 48<sup>th</sup> St. Entrance, the MTA Board approved the design agreement with the building owner. The building owner agreed to provide the designs for the relocation of the existing interior utilities and to complete some limited structural design. Contract packages CM015 and CM015A will be revised and finalized based on the agreements reached during negotiations between the building owners and MTACC.

**c. Engineering/Design**

Progress for remaining design work continues to lag design milestone targets. The GEC and PMT continue to consistently miss target dates for completing the remaining design activities on the project due to continuing scope transfers between Contract packages. Details are provided in Section 2.1 of this report.

**d. Procurement**

MTACC advertised the CM007 Contract package, GCT Stations Caverns and Track, on December 23, 2014. Proposal documents were made available on January 15, 2015. The pre-proposal conference and site visit were held in early March 2015. The technical/schedule proposal due date had been extended four times resulting in a delay totaling 4.5 months from May 1, 2015, to September 15, 2015, when seven proposals were submitted. The PMOC is concerned that this delay significantly reduces the time for negotiations on this very large contract that is currently on the program schedule critical path. MTACC will be challenged to award this contract as planned before December 31, 2015.

Contract CH057, Harold Structures Part 3, bids were opened on July 9, 2015. [REDACTED]

[REDACTED] The MTACC had planned to award the CH057 Contract and issue a Notice to proceed (NTP) on August 13, 2015, but those events were delayed while contract legal issues were resolved. Award is pending and Notice to Proceed is now expected in October 2015.

**e. Railroad Force Account (Support and Construction)**

During 3Q2015, LIRR Force Account Signal personnel continued to install, terminate, and test cable and pre-test the new "H3" CIL, which remains on schedule for its mid-November 2015 cutover. Signal personnel also continued to install conduit and cables between the new "H1", "H5", and "H6" CILs. LIRR Traction Power personnel continued to install electric traction feeder cables at the existing G02 Substation and turnouts installed during 2014. LIRR Track personnel installed the new #3164 turnout in Harold Interlocking. Amtrak C&S personnel continued to construct a retaining wall and install conduit and signal cables between the new "T" and Loop Interlockings. Amtrak Electric Traction installed cross-track feeders on the B-930 catenary pole and continued to re-locate catenary wires and apparatus on 8 catenary poles previously installed. Amtrak Track personnel installed the #749 turnout in "F" Interlocking. The MTACC ESA PMT continues to report that Amtrak Electric Traction Force Account support remain insufficient to properly support contract construction, resulting in the contracts remaining behind schedule.

**f. Third-Party Construction**

**Manhattan:** Towards the end of 3Q2015, the CM005 contractor (Manhattan South Structures) continued to construct walls on the intermediate levels of both GCT 1 & 2 East and West Wyes. The contractor also continued to install shotcrete in the arch of GCT 1 & 2 East Wye Cavern, and construct the upper level tunnel between GCT 1 & 2 East Wye Cavern and the Eastbound Cavern. The contractor continued construction of the lower level walls in the westbound Cavern. The contractor continued to work at the Center and South Raised Bore shafts, removed the Alimak personnel lift and continued preparation to install the precast ring linings in the North shaft. The contractor's work remains ahead of the construction schedule.

The CM006 contractor (Manhattan North Structures) continued construction of the arch at the GCT 4 East Wye Cavern, construction of the interior walls and slabs at the 55<sup>th</sup> St. Vent Facility, and construction of the duct bench in the lower level eastbound tunnel between GCT 4 East Wye and 50<sup>th</sup> St. The contractor also continued construction in the GCT 5 East Wye and construction of the lower level eastbound tunnel from GCT 5 East Wye through the Assembly Chamber near 63<sup>rd</sup> St. The contractor continued concrete work in Tunnels EB2 & WB3. The contractor also continued construction of mezzanine level walls and slabs at the north end of the Eastbound Cavern. At the north end of the Westbound Cavern, construction of the lower level exterior walls and the mezzanine level slab continued. The contractor is not meeting the first recovery schedule milestones. A second recovery schedule has been submitted.

**Queens:** During the 3Q2015, the CQ032 contractor (Plaza Substation and Queens Structures) continued exterior wall construction of the Yard Services Building, wall construction and exterior brick veneer at the Plaza Vent Facility. The contractor also constructed the CO7 roof deck at the Early Access Chamber and continued construction of the sidewalls of the Bellmouth Reconfiguration. The work on the west side of 23<sup>rd</sup> St. facility remains on hold pending resolution of utility issues.

### **Harold Interlocking:**

**Contract CH053 (Harold Interlocking, Part 1 and G.O.2 Substation):** During 3Q2015, the CH053 contractor determined that all 72 splice jackets that it had previously installed in the 3 12kV traction feeder circuits (C1, C2, and C3) did not comply with project specifications. The contractor replaced all 72 jackets, performed the required “hi-pot” (high potential) tests on each of the circuits, and began the “burn-in” period for the C3 circuit in late September 2015. The MTACC is coordinating the length of the “burn-in” period for each circuit with Amtrak. As of September 30, 2015, a definite time frame had not been defined, although Amtrak had previously indicated that it will be between 30 and 90 days. The CH053 contractor also continued to install meters required by ConEd and pull and terminate cables in micro-tunnel run #s 1 through 4 at the new G02 Substation and make punchlist repairs at various construction locations throughout its work areas. ESA PMT expects to declare Substantial Completion for this contract in late 4Q2015.

**Contract CH054A (Harold Structures Part 2A):** During 3Q2015, the CH054A contractor completed installation of 2 of the 3 SMUs (snow melter units) in “F” Interlocking and continued to make punchlist repairs on the access roads and sewers that it previously installed. The contractor was not able to install the 3<sup>rd</sup> SMU because it could not obtain the necessary track outage to do so. Installation is now scheduled for early 4Q2015. If it does not occur at that time, it is ESA’s intention to remove it from the CH054A scope and add it to a future contract. ESA PMT expects to declare Substantial Completion for this contract in mid 4Q2015.

**Contract CH057A (Westbound Bypass):** During September 2015, the CH057A contractor installed 2 secant piles in the East Approach of the Westbound Bypass Structure, 9 steel communications poles between Harold and Woodside Interlockings, and continued to install dewatering wells throughout the Bypass work site. As a result of its poor progress installing secant piles during the month, the contractor has re-scheduled insertion of its “jacked-box” tunnel shield until late November/early December 2015, approximately 3 months later than its original plan.

**Contract CH057C – 48<sup>th</sup> St. Bridge and Retaining Wall:** The MTACC re-activated its on-call CH057C contractor in mid-July 2015 to re-construct the LIRR Westbound Passenger Track and



the RPR Track. Through September 2015, the contractor completed removal of the existing wood ties in the Westbound Passenger Track and began replacement with concrete ties.

**g. Vehicles**

Details of the vehicle procurement (non-federally funded portion) are provided in Section 2.5 of this report.

**h. Commissioning and Start-Up**

The 3Q2015 Quarterly Operational Readiness meeting was held September 17, 2015. Details are provided in Section 2.4 in this report.

**i. Project Schedule**

Table 1 provides a summary of critical milestone dates including PMOC and Grantee forecasts:

**Table 1: Summary of Critical Dates**

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

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

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

#### j. Project Cost

Table 2 provides a summary of project cost estimates and expenditures vs. the FFGA forecasts:

**Table 2: Project Budget/Cost Table (August 2015)**

	FFGA			MTA's Current Baseline Budget CBB		Expenditures	
	(Millions)	(% of Grand Total Cost)	Obligated	(Millions)	(% of Grand Total Cost)	(Millions)	(% of CBB)
Grand Total Cost	\$7,386	100.00%	\$4,724	11,214.0	100.00%	6,424.9	57.3%
Financing Cost	\$1,036	14.00%	\$617	1,036.0	9.24%	617.6	59.6%
Total Project Cost	\$6,350	86.00%	\$4,107	10,178.0	90.76%	5,807.3	57.1%
Federal Share	\$2,683	36.30%	\$1,148	2,699.0	24.07%	2,010.8	74.5%
5309 New Starts share	\$2,632	35.60%	\$1,098	2,436.6	21.73%	1,748.7	71.8%
Non New Starts grants	\$51	0.70%	\$50	67.0	0.60%	66.7	99.6%
ARRA	0	0.00%	0	195.4	1.74%	195.4	100.00%
Local Share	\$3,667	49.60%	\$2,959	7,479.0	66.69%	3,796.5	50.8%

#### k. Project Risk

The last monthly risk meeting held by ESA was in January 2015. Since that time, ESA has not succeeded in addressing the risk topics as they had planned during the subsequent monthly cost and schedule review meetings. At the May 20, 2015, monthly cost/schedule review meeting, the PMOC requested that the monthly stand-alone risk meetings be resumed. ESA had planned to resume the dedicated monthly risk meetings in July 2015, but this did not occur because ESA was transitioning to a new risk manager. Details are provided in Section 6.0 of this report.

#### 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.” Where a section is included with no text, there are no new “critical project occurrences [or] issues” to report this month.

#### ELPEP COMPLIANCE SUMMARY

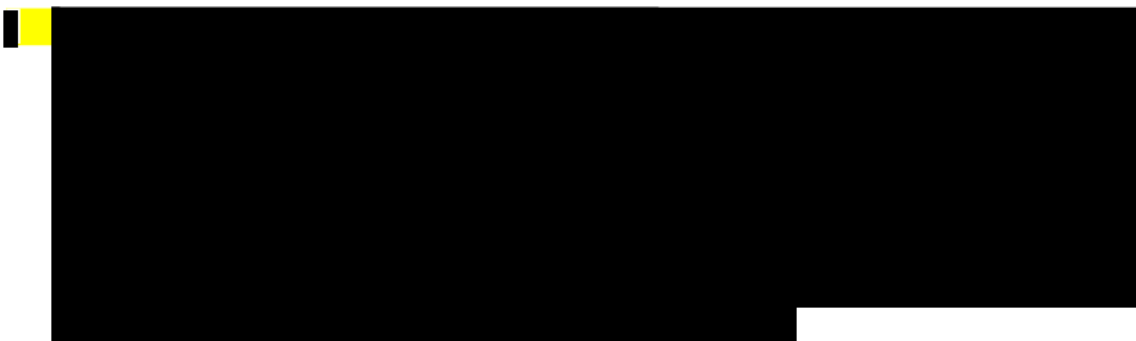
The current status of each of the remaining main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** The FTA requested MTACC to update its TCC Plan in response to the FTA/PMOC comments that were generated in November 2013 as a result of significant changes in key ESA upper management level positions. MTACC submitted its revised Technical Capacity and Capability

Plan (ESA and SAS) on April 13, 2015. The PMOC returned comments to the FTA on May 7, 2015. MTACC submitted a revised TCC Plan in response to FTA/PMOC comments on June 12, 2015. In August 2015, the PMOC provided the FTA with its evaluation of the MTACC responses to the PMOC review comments and recommended a meeting with MTACC to resolve remaining issues. The FTA subsequently provided MTACC with the evaluation. MTACC responded with a reply on September 24, 2015 that is currently under review by the PMOC;

- **Continuing ELPEP Compliance:** The following ELPEP components continue to need improvement or are deficient: Management Decision; Design Development; Change Control Committee (CCC) Process and Results; Stakeholder Management; Issues Management; Procurement; Timely Decision Making; and Risk-Informed Decision Making; and
- **Project Management Plan:** MTACC submitted PMP Rev. 10 to the FTA and PMOC on July 18, 2014. This revision incorporates changes stemming from FTA/PMOC comments on PMP Rev. 9.0 provided in December 2013, as well as changes that resulted from the MTACC's Candidate Revision process. Based on working meetings, dialogue, and additional clarifying review comments from the PMOC, the MTACC made additional changes to the PMP and submitted an updated Rev. 10 on September 18, 2014. The PMOC completed its review and evaluation of MTACC's revisions and responses and submitted its findings to FTA-RII in 4Q2014. MTACC subsequently submitted a revised Rev. 10 on March 13, 2015, that included updated information on the Change Control Committee. The PMOC continues to coordinate with MTACC arranging working meetings with ESA chapter authors and the corresponding PMOC reviewers to resolve the remaining outstanding FTA/PMOC evaluation comments. Several working meetings have been held since June 2015.

The PMOC notes that since June 2013, the ESA project has continued to be non-compliant with ELPEP, and is not meeting some of the more important requirements of the Schedule Management Plan (SMP) and Cost Management Plan (CMP) sub-plans to the PMP. The PMOC's believes that this continues to be a serious deficiency and needs to be resolved as soon as possible. [Ref: ESA-114-Sep13] The PMOC's major areas of concern include:



- **Schedule Management Plan (SMP):** The ESA project remains non-compliant with requirements for Integrated Project Schedule (IPS) Updating, Forecasting, and Schedule Contingency Management against a current baseline schedule. Given that the new budget and schedule have been put in place, the PMOC expected that MTACC would start to meet the requirements set forth in its SMP in the above-

referenced areas. MTACC plans to review and update the SMP after the TCC and CMP updates are completed. This is expected in October 2015; and

- **Cost Management Plan (CMP):** The ESA project remains non-compliant with requirements for Project Level EAC Forecasting, Project Level EAC Forecast Validation, and MTACC Cost Contingency Management and Secondary Mitigation. Given that the new budget and schedule were presented to the MTA CPOC in June 2014, these requirements should have been met by now but MTACC has made very little progress in this area. MTACC submitted its revised Cost Management Plan (ESA and SAS) on April 13, 2015. The PMOC returned comments to the FTA on May 8, 2015. MTACC submitted a revised CMP in response to FTA/PMOC comments on June 30, 2015. In August 2015, the PMOC provided FTA with its evaluation of the MTACC responses to the PMOC review comments and the FTA forwarded this evaluation to MTACC. The PMOC has recommended that a meeting be held with MTACC to resolve remaining issues.

**Revisions to the ELPEP Document:** As part of the process of updating the ELPEP document, the PMOC has performed an independent evaluation of the minimum required cost and schedule contingencies going forward. The PMOC's recommendations were presented at several meetings with MTACC, the last on September 17, 2015. Additional discussion is required to reach agreement on the cost contingency minimums.

The ELPEP 3Q2015 Quarterly Review Meeting was held on September 17, 2015. Summarizing the significant discussion:

- MTACC is nearing completion of the update the ESA Schedule Management Plan and expects to have a draft ready for review by late September/early October 2015;
- MTACC received the FTA/PMOC evaluation of MTACC responses to FTA/PMOC comments on the MTACC Cost Management Plan (CMP) for ESA and SAS and is currently reviewing the evaluation. A working meeting to resolve remaining issues is planned and will be arranged with the PMOC;
- The MTA-ESA Project Controls Manager noted that process changes have been implemented to support delivery of the monthly IPS updates by the 26<sup>th</sup> of each month;
- The risk reviews for Contracts CM014B and CM007 are being reviewed by the ESA Risk Manager. Based on the Risk Register update of September 15, 2015, he will also re-evaluate the CM007 risks;
- The risk review for Contract CQ033, Mid-Day Storage Yard Facility, is tentatively planned for the first week of November 2015;
- The risk review for the remaining work in the Harold Interlocking will be held in 1Q2016;
- Amtrak issues related to the Harold work will be presented at the CPOC meeting during the week of September 21, 2015; and
- The PMOC distributed copies of their document "Basis for Value of Minimum Cost Contingency Hold Points," dated September 11, 2015 along with the accompanying cost and schedule curves. Highlights of the discussion include the following:

- The schedule minimum contingency curve has not been changed since its release some months earlier. MTACC had no objections to the proposed figures at that time and sustained their position at the meeting. There was agreement that the PMOC proposed minimum schedule contingency figures were appropriate;
- The cost minimum contingency curve was based on the FTA/PMOC developed EPTC of \$10.922 billion and the associated RSD of December 2023;

[REDACTED]

- The PMOC reviewed the basis for setting Hold Points 1 and 2 at the recommended levels;
- MTACC noted that the approach used on SAS is different from that being used on ESA. PMOC responded that the recommended minimum level is based on several key assumptions presented in the Basis Summary: project is expected to proceed in a “contact stacking” mode; multiple simultaneous construction paths will be active up to a finish-to-finish completion at the start of Integrated Systems Testing; resolution of delays claims will tend to drift toward the end of construction and take many months to negotiate/resolve;
- The ESA noted that the project is being managed to the \$10.178 billion budget and RSD of December 2022; and
- It was agreed that MTACC/ESA would review the FTA/PMOC documents and provide written questions. A technical meeting would follow to discuss and resolve remaining issues.

The next ELPEP Quarterly Review Meeting with MTACC, FTA-RIL, SAS and ESA projects and the PMOC will be held on January 21, 2016.

## **1.0 GRANTEE'S CAPABILITIES AND APPROACH**

### **1.1 Technical Capacity and Capability**

#### **a) Organization**

There are currently no issues to report pertaining to the MTACC organizational structure.

#### **b) Staffing**

There are currently no issues to report regarding MTACC staffing.

### **1.2 Project Management Plan**

#### **a) History of Performance**

MTACC re-baselined the ESA Project in May 2012. These baselines resulted in a risk adjusted budget of \$8.24B (not including rolling stock reserve and finance cost) and a projected RSD in August 2019. During 2013 and 2014, ESA undertook an extensive re-planning effort to revise the Program budget and schedule as a result of the CM012R bid overrun and continuing delays in several other major procurements (e.g., CS179; CM014B). This is the third re-planning effort undertaken by ESA since the FFGA in 2006 (the first re-planning effort took place in 2009). The current re-planned budget (\$10.177B) and schedule (RSD in December 2022) were presented to the MTA CPOC in June 2014 and approved.

## **b) PMP**

MTACC submitted PMP Rev. 10 to the FTA and PMOC on July 18, 2014. This revision incorporates changes stemming from FTA/PMOC comments on PMP Rev. 9.0 provided in December 2013 as well as changes that resulted from MTACC's Candidate Revision process. Based on working meetings, dialogue and additional clarifying review comments from the PMOC, MTACC made additional changes to the PMP and submitted an updated Rev. 10 on September 18, 2014. The PMOC reviewed Rev. 10 and provided its comments to the FTA in 4Q2014. A subsequent update to the Rev. 10 document was submitted on March 13, 2105, reflecting only revisions to the ESA Change Control Committee. The PMOC continues to coordinate with MTACC arranging working meetings with ESA chapter authors and the corresponding PMOC reviewers to resolve the remaining outstanding FTA/PMOC evaluation comments. Several working meetings have been held since June 2015.

## **1.3 Project Controls**

### **a) Schedule**

MTACC presented its new baseline schedule to the MTA CPOC in June 2014 with an RSD of December 2022. This date includes 22 months of Program level contingency. The PMT developed a draft schedule contingency drawdown plan as required by the ELPEP agreement and submitted it in December 2014. The ESA schedule contingency drawdown plan and the FTA/PMOC minimum required schedule contingency levels, were discussed at several meetings since March 2015 with the latest being on September 17, 2015, and follow-up meetings will continue going forward.

### **b) Cost**

MTACC presented its Re-Plan baseline budget of \$10.177B (excluding Rolling Stock Reserve) to the MTA CPOC in June 2014. The PMT developed a draft cost contingency drawdown plan as required by the ELPEP agreement and submitted it in December 2014. The ESA cost contingency drawdown plan and the FTA/PMOC minimum required cost contingency levels were discussed at several meetings since March 2015 with the latest being on September 17, 2015. Additional discussion is required to reach agreement on the cost contingency minimums.

## **1.4 Federal Requirements**

### **a) FFGA**

As a result of MTACC's re-baselining of the ESA Project budget and schedule on three separate occasions (2009, 2012, and 2014) since the FFGA was signed in 2006, an FFGA amendment is in process. As mentioned above, MTACC presented a new project budget of \$10.177B (excluding the Rolling Stock Reserve and finance costs), and a new schedule with an RSD of December 2022 to the MTA CPOC in June 2014.

### **b) Federal Regulations**

The MTACC received the FRA and FTA "Buy America" waivers for turnouts during 1Q2015 and 2Q2015. These waivers will allow ESA to install a total of 17 turnouts that it presently has on hand. There are approximately 45 additional turnouts scheduled for installation in 2017 and later that have not yet been procured and that need to be compliant, however. ESA had planned that LIRR and Amtrak would revise their respective turnout specifications for these turnouts to become compliant by the end of 3Q2015, but neither had done so by the end of the quarter. This would have permitted MTACC to procure the turnouts in 4Q2015, with delivery in time for the

2017 installation season. If MTACC is not able to recover some of this schedule to order the turnouts in 4Q2015, the PMOC believes that the 2017 turnout installation schedule could be delayed.

## **1.5 Safety and Security**

### **a) Safety Certification Process**

The August 2015 MTACC ESA Monthly Report does not indicate that any design or construction packages were certified by LIRR, Amtrak or MNR. For systems safety certification, ESA internal review of certification packages continued for Contracts CM004, CM013, CM014A, CM053, CM005, and CM006. Forecast completion dates for CM004, CM013 and CM014A remains in 4Q2015.

The operational readiness group continues to develop a document control process to trace all related documents. The group also continues to develop a master spreadsheet to track the safety certification process for all work packages.

The PMOC remains concerned that the Safety and Security Committee has not met on a regular basis in accordance with the ESA Safety and Security Management Plan (SSMP). This lack of regular meetings will hamper the effectiveness of the Committee in coordinating activities related to the Safety Certification. A calendar showing general meeting dates (by quarter) was presented at the December 18, 2014, Operational Readiness Quarterly Meeting.

### **b) Project Construction Safety Performance**

Project safety statistics for lost time accidents and OSHA recordable injuries on active construction contracts are trending below the Bureau of Labor Statistics (BLS) national average with the project wide lost time rate at 0.74\* vs. 1.80 lost time accidents (LTA) per 200,000 hours (national average). The ESA Recordable injury rate is 1.77\* vs 3.2 BLS.

\* The Grantee uses a 12 month rolling average for their OSHA statistics.

### **c) Security**

The PMT did not report any significant security issues in its August 2015 Monthly Progress Report.

## **1.6 Project Quality**

**Quality Staff:** A key ESA Quality Staff member resigned in July 2015. The ESA Manager reported that he will be interviewing replacement candidates.

**GEC Quality:** The GEC Quality Manager's last day on the job was September 4, 2015. No replacement for him has been named. The ESA Quality Manager and GEC Program Manager agreed that several other individuals, who supported the GEC Quality Manager, will provide the necessary Quality coverage in the interim. The ESA Quality Manager is working with the GEC Program Manager to designate one individual who will be the lead quality person responsible to coordinate assignments, attend the monthly GEC Quality Meetings, and present the monthly quality statistics, schedule and perform audits, and receive internal audits by the GEC JV and external audits by the ESA Quality Manager.

The ESA Quality Manager performed an audit of the GEC Quality Team on June 24, 2015. He has not issued his audit report despite several reminders from the PMOC. He has now stated that he will issue the report by mid-October 2015. The PMOC recommends that the ESA Quality Manager meet his commitment.

**CS179 (Systems Package 1 – Base Contract):** This contract was awarded eighteen months ago and there is still not an approved (resource loaded) baseline schedule. The contractor's ESA CS179 Quality Manager has been conditionally approved as the Quality Manager for this contract for a period of 90 days, ending in September 2015. The ESA Quality Manager will conditionally approve another individual who has been performing most of the quality functions. If he performs well after 90 days, he will then be approved as the CS179 contractor's permanent Quality Manager.

**CM014B GCT Concourse and Facilities Fit-Out:** The contractor was behind schedule with its submittals. Quality Work Plans (QWPs) needed several revisions before they could be accepted. The contractor's Quality Manager did not have enough staff and the contractor has now provided additional quality support. This item is closed.

**Asset Management Audits:** ESA Quality initiated Asset Management audits in June 2015. These audits are bi-annual walkthroughs to perform a visual site inspection of finished contracts wherein there are structures or appurtenances that have been completed but have not yet been turned over to the end user (LIRR). An audit of the CM004 contract was conducted in mid-August 2015 with only minor anomalies noted. This item is closed.

**CH053 Harold Structures – Part 1 and G.O 2 Substation:** The contractor determined that it had installed the wrong splice jackets on all 72 of the splices that it made in the new circuits and that they would all have to be replaced. The contractor immediately began to replace the defective jackets with the new ones and completed all replacements on August 31, 2015. This item is closed.

#### **As-Built Process Audits:**

The ESA Quality Manager reviewed the As-Built Drawing Process on Contracts CH057A and CM006 earlier in 2015. CH057A was acceptable but CM006 is behind schedule. A follow-up review of CM006 has been conducted. Contracts CH053, CH054A, CQ032, CM004, CM014A, CM005, CM013 and CM013A were originally audited in 2014. Current status of each contract is being discussed at the Monthly Progress Meeting. The ESA Quality Manager will perform audits on a selective basis. This item is closed.

#### **Procedure Compliance Audits:**

During 3Q2014, MTACC Quality conducted Procedure Compliance Audits on Contracts CM005, CM013, CM013A, CH057A and CQ032. The major finding in most of the audits was that the field engineers need to be better trained in completing the daily construction reports. The auditors also recommended that columns providing additional information pertaining to RFIs need to be added to the RFI logs. Since there were similar findings and recommendations for other contracts, the ESA Heavy Civil Project Executive prepared a response to the auditors. MTACC Quality agreed with most of the response. The MTACC Chief of Quality and System Certification met with the ESA Heavy Civil Project Executive and resolved the outstanding issues. This item is closed.

#### **Quality Training:**

Quality training for CS179 and CS084 was conducted on both contracts by the ESA Quality Manager in June 2015.



## **1.7 Stakeholder Management**

### **a) Railroads**

The MTACC PMT continues to meet with internal stakeholders MTA, MTA-IEC and the LIRR and external stakeholders the Federal Railroad Administration (FRA) and the PMOC each month gain FRA's approval to extend ESA project High Speed Rail (HSR) Grant funding beyond September 30, 2017. The grant requires that all HSR funds be expended by that date, but MTACC's "ESA First" Harold Interlocking schedule re-baseline will push Amtrak ESA HSR Force Account projects well beyond then. Additionally, the sequence in which Amtrak decides to do its own work to reconstruct its East River Tunnel (ERT) Line 1 and Line 2 tunnels that were damaged by Superstorm Sandy could have a profound impact on the "ESA First" schedule. Amtrak has been advised of MTACC's concern. Both parties must continue to work together to develop an ERT Lines 1 and 2 outage schedule that will have the least negative impact on ESA. At present, Amtrak's work is not planned to begin until 2018, so there should be sufficient time to develop such a schedule.

### **b) Others**

Although there are other stakeholder issues that ESA must address, at present there is no evidence that any might have a significant negative impact on the project schedule.

## **1.8 Local Funding**

### **a) MTA/New York State (Capital Plan)**

The funding request for ESA under the 2015 – 2019 Capital Program was submitted to the NYS Capital Program Review Board (CPRB) in September 2014. As it now stands, ESA does not currently have all of the funding in place needed to complete the project and this situation has impacted the procurement of several major contracts. The PMOC does note that MTACC is fully aware of this situation and the critical role that funding serves in the successful completion of the project. MTACC works closely with the MTA finance group and keeps the FTA up to date on developments and issues. The near term issue concerns availability of sufficient funding to award the very large [REDACTED] Contract CM007 by December 31, 2015, to maintain progress on the program schedule critical path.

### **b) Other Sources**

The total FTA funding commitment as of June 2015 remained at \$2.699 billion, as indicated in Table 2 in the Executive Summary.

## **1.9 Project Risk Monitoring and Mitigation**

### **a) Risk Management Plan**

The MTACC RMP, Rev. 2 dated July 2012, is a sub-plan within the ESA Project Management Plan (PMP). The RMP, Rev 2 was updated and incorporated the FTA/PMOC review comments to bring it into compliance with the ELPEP principles and requirements. The FTA formally notified MTACC of its conditional acceptance of the RMP by letter dated March 4, 2013. MTACC plans to update the RMP, if needed, after completion of its current updates of both the Cost Management Plan and the Schedule Management Plan.

### **b) Monitoring**

The last monthly risk meeting held by ESA was in January 2015. Since that time, ESA has not succeeded in addressing the risk topics as they had planned during the subsequent monthly cost

and schedule review meetings. In response to the PMOC's request, ESA stated that it will resume the dedicated monthly risk meetings and anticipates to restart these meetings in October 2015.

### **c) Mitigation**

Current risk mitigations are discussed in Section 6.3 below.

## **2.0 PROJECT SCOPE**

For the 48<sup>th</sup> St. Station Entrance, the MTA Board approved the design agreement with the building owner. The building owner will provide the designs for the relocation of the existing interior utilities and will complete some limited structural design. Contract packages CM015 and CM015A will be revised and finalized based on the agreements reached during negotiations between the building owners and MTACC.

The CH057 contract was advertised on March 26, 2015, and bids were received on July 9, 2015. NTP was planned to be given on August 14, 2015, but was extended due to DBE issues with the apparent low bidder. Award is pending and Notice to Proceed is expected in October 2015.

Resolution is still required on the design of the west end of the mid-day storage yard (CQ033) regarding what work is to be performed by Amtrak (track and signals) to tie into the ERT (East River Tunnels) and what work will be performed by the CQ033 contractor. As of September 30, 2015, the GEC was not able to submit its 100% design due to the large number of comments that ESA still has about the 90% design (The LIRR has not submitted its 90% review comments to ESA, either). At present, it is the PMOC's understanding that MTACC will not advertise this contract until 1Q2016.

As detailed above, ESA continues to experience slippage in design completion and advertise dates across a number of packages.

### **2.1 Engineering/Design and Construction Phase Services**

As of the end of August 2015, MTACC reported that the overall Engineering effort was 99.5% complete, based on Earned Value for Design Deliverables, compared with a Planned status of 100%. Its Cost Report shows 90.4% of the overall EIS & Engineering category as invoiced and 90.4% of the budgeted section titled "Design" (including Design Settlement) as having been invoiced.

#### Status:

Design work on the new, stand-alone package CH061A (completion of Queens Tunnels "A" and "D") continued. The 100% submission was made on August 21, 2015 and bid advertisement is currently scheduled for October 2015.

CH058 is being repackaged and the bid advertisement date has not yet been determined. The East Bound Re-route tunnel construction method has been revised from a top down to a traditional cut and cover method and ESA has split the scope of work into two separate contracts: CH058A will contain Tunnel B/C approach structure; CH058B will contain the East Bound Re-route. The design work for this package is currently on hold and a Proposed Change Order is being developed by the GEC. Additionally, the final design for package CH058B is awaiting completion of a rail traffic simulation study for Harold Interlocking that is expected to be completed in December 2015.

The remaining work on the Track A Approach Structure will be deleted from the CH053 contract to eliminate the current 12kV ductbank issues. The ESA plans to have the work completed under the stand-alone Contract CH061A, Tunnel A Construction.

The CS179 contractor continues to work on the design development of the various contract required systems. The backlog of submittal reviews remains a considerable impediment to the efficient and timely progression of the designs, and MTACC's efforts to correct this backlog have been insufficient thus far. During the 3Q2015, the contractor had three Preliminary Design Reviews (PDRs) approved and submitted four more Preliminary System Design packages for MTA's review prior to scheduling PDRs with the user agencies. Additional system packages are scheduled for submission and review in 4Q2015.

Observation:

The GEC and PMT continue to consistently miss many of the target dates for remaining design activities on the project. The PMOC is also concerned about the delays to review of the Contract CS179 preliminary design packages.

Concerns and Recommendations:

The PMT design management team needs to focus on achieving intermediate milestones in a timely fashion and work closely with the GEC to help make this happen. The continuing shifting of scope among various packages has made finalizing design documents and drawings extremely difficult. The PMOC had previously recommended that the PMT develop a design milestone tracking process for the remaining design work on the project, similar to what was done for the Harold catenary design work in 2012, in order to more effectively manage the design effort. The PMT has not implemented this tracking process, however. [Ref: ESA-103-Dec12]

## **2.2 Procurement**

As of end of August 2015, the Cost Report showed total procurement activity on the project as 70.0% complete, with \$7.125 billion in contracts awarded out of the \$10.117 billion current reported budget.

Status:

The PMT decided on a stand-alone package, CS086, for the signal installation work. The GEC design has been completed but now needs to be revised to incorporate the requirements for Positive Train Control (PTC). The Proposed Change Order is currently being developed by the GEC.

For Contract CM007, GCT Station Caverns and Track, seven technical/schedule proposals were submitted on September 15, 2015 and the cost proposal due date was pushed back two weeks from October 6, 2015 to October 20, 2015.

Contract CH057, Harold Structures Part 3, was advertised on March 26, 2015, and the bids were received on July 9, 2015. Notice to Proceed was scheduled to be issued on August 14, 2015, but, as of September 30, 2015, had not been issued.

Concerns and Recommendations:

The lack of stability in the contracting strategy and Contract Packaging Plan remains a concern. The scope shifts among different packages during 2015, have made it difficult to fully understand the impact of these changes to the overall ESA Project. An updated draft Contract Packaging Plan (revision 10.0) was submitted on March 28, 2014, and the next revision still has not been issued as of June 30, 2015. It is noted, however, that in June 2015, the PMT did

provide the PMOC with a summary that details the status of all current scope changes. ESA should make an effort to adhere to the current version of the CPP and minimize shifting scope for the remainder of the project.

The PMOC is concerned that the Contract CM007 proposal due date has been delayed a total of 4.5 months and this significantly reduces the time for negotiations on this very large contract that is currently on the program schedule critical path. MTACC will be challenged to award this contract as planned in December 31, 2015. [Ref: ESA-121-Sep 15]

## **2.3 Construction**

The PMT reported in its May 2015 Monthly Progress Report that the total construction progress reached 56.4% complete vs. 57.0% planned; the PMOC calculations based on data in the ESA Cost Report show each category approximately 0.7% higher. Details for active construction contracts are provided below:

### **Manhattan Contracts**

#### **CM004 – 44<sup>th</sup> St. Demolition and Fan Plant Structure; 245 Park Ave. Entrance :**

Status: The PMOC has been advised that there are several significant outstanding items remaining from the construction phase that is preventing this contract from entering the closeout phase. These items include:

- Completion of the storm drain line - This change order work takes the line to an existing sewer in the Concourse;
- Fabrication /Delivery of the remaining structural steel beams (92 pieces) and steel stair - This is the portion of the stair that was left out to accommodate the Gantry Crane. The stair is scheduled to be delivered to B/N Yard in early October 2015; and
- Delivery of the remaining limestone facing for the Vent building - This has become a significant problem. The ESA CM has advised the PMOC that the CM004 contractor did not implement proper procedures in delivery and storage of this material. As a result, several pieces are either chipped or broken. Accordingly, the CM014B contractor has refused to accept turnover of the stone. If the CM004 contractor has to replace this stone, it will have to come from a new quarried batch and, will likely not match the color/tone of the existing new stone.

## CM005 – Manhattan South Structures

**Status:** As of August 31, 2015, the Estimate at Completion for CM005 increased to \$246,374,990. The forecast date for Substantial Completion remained at February 6, 2016. Actual monthly construction progress was 3.5% versus 1.6% planned. Cumulative progress was 89.8% actual versus 87.2% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$200.6M (Award)	\$236.9M	+\$36.3M +18.1%	\$246.4M	+\$45.8M +22.8%	+\$9.5M +4.0%	
Scheduled SC Date	02/06/16	02/06/16		02/06/16			
Duration (NTP - SC)	29 mos.	29 mos.	0 mo. 0.0%	29 mos.	0 mo. 0.0%	0 mo. 0.0%	
% Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
87.2%	89.8%	44.0%	4.7%	20.9%	3.5%	3.4%/mo.	2.0%/mo.

From August 2015 ESA Monthly Report

**Construction Progress:** During September 2015, the contractor continued to place CMU walls on the intermediate levels of both GCT 1 & 2 East and West Wyes for machinery, equipment, and office rooms. The contractor also continued to place rebar in arch GCT 1 & 2 East Wye Cavern for the placement of pneumatically applied concrete (PAC), and place waterproofing and rebar in the upper level tunnel between GCT 1 & 2 East Wye Cavern and Eastbound Cavern. The contractor completed rebar installation and continued concrete pours for the lower level walls in the Westbound Cavern. The contractor lined the shaft notches at the Center and South Raised Bore shafts. The Alimak personnel lift was removed from the North shaft and the contractor has installed waterproofing, rebar and concrete lining in preparation for the precast ring linings.

**Observations/Analysis:** The contractor's work remains ahead of its construction schedule and actual progress continues to exceed planned progress each month. The PMOC has observed that the CM005 contractor and ESA work well together to make this possible.

**Concerns and Recommendations:** The PMOC has no concerns about the CM005 contract at this time.

## CM006 – Manhattan North Structures

**Status:** As of August 31, 2015, the MTACC increased its forecast Estimate at Completion for CM006 to \$351,505,401 due to pending and potential contract modifications. The MTACC forecast for Substantial Completion is December 27, 2016. Actual construction progress was 3.3% versus 6.7% planned. Cumulative progress was 37.1% actual versus 60.4% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$294.2M	\$317.1M	+\$22.9M +12.8%	\$351.5M	+\$57.3M +19.5%	+\$34.4M +10.8%	
Scheduled SC Date	11/30/16	11/30/16		12/27/16			
Duration (NTP - SC)	32 mos.	32 mos.	0 mo. 0.0%	33mos.	1 mo. 3.1%	1 mo. 3.1%	
% Complete		Actual - 12 mos.*		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
60.4%	37.1%	N/A	N/A	19.6%	3.3%	3.1%/mo.	3.9%/mo.

From August 2015 ESA Monthly Report

\*November 2014 was the first month for which MTACC generated a progress curve for CM006. As a result, there is no historical data to populate these columns yet.

**Construction Progress:** During September 2015, the CM006 contractor continued shotcrete of the arch of the GCT 4 East Wye Cavern, and also continued interior wall and slab concrete at the 55<sup>th</sup> st. Vent Facility. The placement of the lower level exterior walls in the GCT 5 East Wye was completed and waterproofing and rebar installation for the archway started. The contractor continued preparations to complete the lining of the lower level eastbound tunnel (EB2) from the GCT 5 East Wye through the Assembly Chamber near 63<sup>rd</sup> St. The contractor continued construction of duct bench: conduit, rebar and trough in Tunnel 402, lower level eastbound between GCT 4 East Wye and 50<sup>th</sup> St., and continued arch and invert slab concrete work in Tunnels EB2 and WB3. The contractor also completed concrete pours of the intermediate level exterior walls and started the upper level mezzanine level slab at the north end of the Eastbound Cavern. At the north end of the Westbound Cavern, the lower level exterior walls were completed and the mezzanine level slab was started.

**Observations/Analysis:** The PMOC continued to observe that ESA management and the contractor are working well together. As reported before, the contractor is not meeting the recover schedule milestones, as the average actual progress percentage is well below that needed

to achieve the projected Substantial Completion. In September 2015, ESA reported that a Second recovery schedule has been submitted and is under review.

**Concerns and Recommendations:** The CM006 contractor is presently developing its second recovery schedule, after having not been able to perform its construction in accordance with its first recovery schedule. As a result, the PMOC is concerned about the contractor's capability and capacity to perform against any schedule it produces. This is already negatively impacted the start of the CM007 Contract and may continue to do so. The PMOC recommends that the contractor reassess the number of areas available to it to perform work and maximize its construction in each of those areas. The PMOC further recommends that this effort be included in its second recovery schedule.

### **CM013A – 55<sup>th</sup> Street Vent Facility**

**Status:** MTACC reports that through August 31, 2015, the EAC has decreased to \$56,363,324 from the previous \$57,174,087. Forecast Substantial Completion remains December 7, 2015. MTACC also reports that a contract modification (#16) has been executed to establish the noted Substantial Completion date, as well as a new Final completion date of February 16, 2015, along with changes to Milestones #4, and #5. Actual construction progress for August 2015 was 2.0% versus 2.0% planned. MTACC further reports that the actual percent complete through August 31, 2015 is 94.1% vs.94.2% planned.

		1	2	3	4	5	6
		Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)
<b>Contract Cost</b>		\$56.04M	\$57.06 M	+\$1.02M +1.82%	\$56.36M	+\$0.32M 0.57%	-\$0.70 -1.2%
<b>Scheduled SC Date</b>		04/05/15	12/08/15		12/07/15		
<b>Duration (NTP - SC)</b>		31 mos.	39 mos.	+8 mos.	39 mos.	+8 mos.	0 mo.
<b>Percent Complete</b>		<b>Actual - 12 mos.</b>		<b>Actual - 6 mos.</b>		<b>Avg. Req'd. Progress</b>	
<b>Plan</b>	<b>Actual</b>	<b>Total</b>	<b>Avg./mo.</b>	<b>Total</b>	<b>Avg./mo.</b>	<b>Contract SC</b>	<b>Forecast SC</b>
94.2%	94.1 %	37.8%	3.1%	12.8%	2.1%	2.0%	2.0%

From August 2015 ESA Monthly Report

### **Construction Progress:**

**Plenum:** Mass backfilling over the Plenum roofs was completed. Street utility connections to manholes were completed, the concrete street base was completed and temporary asphalt paving along E. 55<sup>th</sup> St. was completed. Grouting for water leaks is complete. Installation of the street

ventilators and installation of ships ladders from the ventilators to the plenum benches is complete. Installation of the street Bilco Access Hatch was completed. The precast access stair from the street to the Lower Facility Power Room was completed.

Cavern: Hangers and beams have been installed for the redesigned hoistway in the Upper Fan Room. Painting of the stairtower walls continues. Stainless steel railings are complete in the stairtower and around all openings.

Shaft: The lining of the shaft is complete. Masonry wall erection for the stair and adjacent rooms is complete.

Observations/Analysis: The work of this contract continues to progress towards substantial completion.

Concerns and Recommendations: None at this time. This contract is not currently impacting any ongoing or future contracts.



## CM014A – GCT Concourse & Facilities Fit-Out

**Status:** MTACC reports that through August 31, 2015, the EAC has decreased slightly to \$58,872,191 from the previous \$58,933,974. Forecast Substantial Completion has been extended to October 30, 2015, from the previous September 7, 2015. This extension is due to the contractor's delay in readiness for ConEd energization. The contractor's latest schedule update shows the power plant area will be ready for ConEd energization on October 8, 2015. Actual construction progress for August 2015 was 0.1% versus 1.3% planned. Cumulative progress through August 31, 2015, was 95.5% actual versus 95.2% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$43.50M (Award)	\$58.02M	+\$14.52M +33.38 %	\$58.87M	+\$15.37M +35.33%	+0.85M +1.46%	
Scheduled SC Date	04/25/13	09/07/15		10/30/15			
Duration (NTP - SC)	18 mos.	46 mos.	+28 mos. + 155.56%	+48 mos	+30 mos. +166.6%	+2 mos. +4.34%	
% Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
95.2%	95.5%	N/A*	N/A*	N/A*	N/A*	4.5 %	2.25%/mo

From August 2015 MTA Monthly Report

\*In the April 2015 MTA Monthly Report, the actual percent complete was reported as 99.8% vs 100% planned. In the May 2015 report, the percentages changed to 92.9% actual vs 92.7% planned. There is no explanation given. Accordingly, the 12 month & 6 month percentage comparisons would not be reliable, given the intent of the above chart.

**Construction Progress:** Lock Out/Tag Out procedures for the various equipment rooms have been submitted. The 72 hour test for the batteries took place September 18 – 20, 2015, and the batteries were placed on-line. The High Potential Test by ConEd on 4 of the 6 feeders was successfully completed in the garage through September 30, 2015. Trip checks on switchgear began September 28, 2015. SCADA testing including Event Tree Analysis (ETA) began September 24, 2015. Installation of Arch-Flash and Phasing Receptacle Labeling began September 28, 2015. The FM-200 (Fire Suppression) tests will follow completion of permanent power. Bus connections and micro-ohm tests to MV Switchgear have been completed.

**Observations/Analysis:** The PMOC notes that the continued extensions to this contract, in part due to scope changes and the contractor's overall slow progress in completing the work is impacting the CM014B contract.

**Concerns and Recommendations:** The contractor must complete the current contract work as soon as possible to minimize impacts to Contract CM014B. The PMOC will continue to monitor the impact of delays on the CM014B contract.

## CM014B – GCT Concourse & Facilities Fit-Out

Status: MTACC reports, that through August 31, 2015, the EAC was increased \$461,057,500 from the previous \$434,511,091. This increase reflects contract owner options and prospective contract modifications that were scoped and established during pre-award negotiations. The forecasted Substantial Completion date remains August 18, 2018. Actual construction progress for August 2015 was 0.0% versus 0.6% planned. Cumulative progress through August 31, 2015, was 3.8% actual versus 2.5% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$404.62M (Award)	\$404.62M	+\$0.0M	\$461.05M	+\$56.43M +13.95%	+\$56.43M +13.95%	
Scheduled SC Date	08/18/18	08/18/18		08/18/18			
Duration (NTP - SC)	42 mos.	42 mos.	0 mo.	42 mos.	0 mo.	0 mo.	
% Complete		Actual - 12 mos.*		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
2.5%	3.8%	N/A	N/A	3.8%	0.6%	2.35%	2.35%

From August 2015 MTA Monthly Report

\*CM014B NTP was issued in Feb 2015; Therefore it has not had 12 months of construction yet.

Preliminary Schedule – The extended preliminary schedule was approved on August 17, 2015. This schedule extends through February 16, 2016 and is used as the schedule for managing the work.

Baseline Schedule – The most recent submittal was made on August 7, 2015 and is under review. Workshops are being held with the contractor with the intent of having an approved schedule by October 9, 2015.

Construction Progress: Work Trains are loaded/unloaded at the B/N Yard.

Concourse (Madison Yard) – Surveying continues throughout and will continue for the duration of the project. MNR has approved the work plan for the Upper Dining Concourse Access work. Cooling Tower connections continue on the 300 Park Ave. roof. Underslab piping and excavation for ejector pits and manholes continue in Zones 1 through 4. Repairs, upgrade, and maintenance for temporary utilities such as vent system and emergency lighting continues. Excavation for and installation of duct banks continues in Zones 2 and 3.

Wellways – Began installing formwork in wellways #1, #2 and #3.

Biltmore Connection – Continued to place mud walls and pits at columns #s 207 and 220. Began excavation at Burma Road for new column C5.

Dining Concourse Connection – MNR has approved the contractor’s work plan for demolition at the Upper Dining Concourse. The contractor completed the Readiness Review Meeting.

48<sup>th</sup> St. Entrance – The mini-piles for the new 48<sup>th</sup> St. Entrance work are complete. This work took longer than scheduled and the contractor has submitted a recovery plan. Began installation of pile caps at both the north & south sides of the street.

Observations/Analysis:

The PMOC observes that the use of the Preliminary Schedule is extending far beyond the contract 180 days and the time to achieve an approved Baseline Schedule is significantly behind.

Concerns and Recommendation: Expedite approval of the contract Baseline Schedule.

## **Queens Third-Party Contracts**

### **CQ032 Contract – Plaza Substation and Queens Structures**

Status: As of August 31, 2015, the Estimate at Completion for CQ032 increased to \$256,880,084 due to pending and potential contract modifications. The MTACC forecast for Substantial Completion was extended by three months to June 21, 2016. Actual construction progress for August 2015 was 2.8% versus 1.9% planned. Cumulative progress through August 31, 2015, was 86.2% actual versus 90.0% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$147.4M (Award)	\$236.1M	\$88.7M +60.2%	\$256.9M	+\$109.5M +74.3%	+\$20.8M +8.8%	
Scheduled SC Date	08/14/14	3/01/16		6/21/16			
Duration (NTP – SC)	36 mos.	55 mos.	+19 mos.	59 mos.	+23 mos. +63.9%	+4 mos. +7.3%	
Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./ mo.	Contract SC	Forecast SC
90.0%	86.2%	19.0%	1.6%/mo.	11.8%	2.0%	2.8%/mo.	1.4%/mo.

From August 2015 ESA Monthly Report

Construction Progress: During September 2015, the CQ032 contractor continued Concrete Masonry Unit (CMU) exterior wall construction of the Yard Service Building. The contractor continued CMU wall construction and preparation to start brick veneer at the Plaza Vent Facility. The contractor also prepared and placed the CO7 roof deck and waterproofing at the Early Access Chamber. Construction of the sidewalls of the Bellmouth Reconfiguration continued in September. The work on the west side of the 23<sup>rd</sup> St. facility remains on hold pending resolution of utility issues.

Observations/Analysis: The contractor has maintained an increased construction pace over the past several months. A recent contract modification for revised HVAC equipment for the Yard Services Building has affected the contract extending the projected Substantial Completion date from March 18, 2016 to June 21, 2016.

Concerns and Recommendations: The PMOC has no immediate concerns or recommendations for the CQ032 contract at this time.

## **Harold Interlocking Contracts**

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

Status: As of August 31, 2015, the MTACC's forecast for Estimate at Completion for CH053 increased to \$300,300,701, and its forecast for Substantial Completion was extended by 2 months to December 28, 2015, due largely to the contractor's continuing problems with 12kV traction power circuit construction. Actual construction progress for August 2015 was 0.1% versus 0.0% planned (the contract was supposed to be complete by now). Cumulative progress through August 31, 2015, was 96.2% actual versus 100.0% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$137.30M (Award)	\$297.0M	+\$159.9M +116.3%	\$300.3M	+\$163.0M +118.7%	+\$3.3M +1.1%	
Scheduled SC Date	05/05/10	2/18/15		12/28/15			
Duration (NTP - SC)	28 mos.	85 mos.	57 mos. +203.6%	95 mos.	+67 mos. +239.3%	+10 mos. +35.7%	
Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
100.0%	96.2%	5.7%	0.5%	1.5%	0.3%	N/A	1.0%/mo.

From August 2015 ESA Monthly Report

Construction Progress: During 3Q2015, the CH053 contractor discovered that all 72 splice jackets that it used to construct the new 12kV traction power circuits were the wrong jackets (not as specified). As a result, the contractor was required to replace every splice jacket that it had previously installed on all 3 circuits, C1, C2, and C3. The contractor replaced the final jacket on August 31, 2015, which was followed by successful "hi-pot" (high potential) tests and "burn-in" periods for each circuit. The "hi-pot" tests were very short duration tests, but the "burn-in" period for each circuit could be as long as 90 days (the ESA PMT continues to negotiate the length with Amtrak). The "burn-in" period for the C3 circuit began on September 23, 2015. In addition, the contractor continued to pull and splice cables in micro-tunnel runs #1 through #4 at the new G02 Substation, install miscellaneous catenary structures in Harold Interlocking, and make punchlist repairs throughout its work sites.



Observations and Analysis: The contractor remained on the verge of fully commissioning the 12kV circuits during the 3Q2015, though it did so without consistent Force Account support. The issue with the splice jackets was entirely avoidable had the contractor verified that the material it had received complied with the specifications. As a result of this mistake, the Substantial Completion for CH053 was again delayed. This had a corresponding ripple effect on demolition of the old 12kV ductbank, which once again delayed other work critical to Harold Interlocking construction.

Concerns and Recommendations: For the PMOC's recommendation for the CH053 contract, please refer to its recommendation for the CH057A contract, below.

#### **CH054A Contract – Harold Structures Part 2A**

Status: As of August 31, 2015, the MTACC's forecast for Estimate at Completion increased slightly to \$58,225,480 and its forecast for Substantial Completion was extended by 1 week to September 14, 2015. Actual construction progress for August 2015 was 0.5% versus 0.0% planned (the contract was supposed to be complete by now). Cumulative progress through August 31, 2015, was 98.2% versus 100.0% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$21.8M (Award)	\$56.1M	+\$34.3M +157.3%	\$58.2M	+\$36.4M +167.0%	+\$2.1M +3.7%	
Scheduled SC Date	12/21/10	11/26/14		10/14/15			
Duration (NTP - SC)	16 mos.	63 mos.	47 mos.	74 mos.	+58 mos. +362.5%	+11 mos. +17.5%	
Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
100.0%	98.2%	11.6%	1.0%	5.5%	1.0%	N/A – Past Due	1.8%

From August 2015 ESA Monthly Report

Construction Progress: During September 2015, the CH054A contractor continued to make punchlist repairs to the access roads and sewers that it previously constructed while it attempted to secure track usage to install a retaining wall to support SMU (snow melter unit) #3. The contractor was not able to do so during September and the installation is presently scheduled for early-October 2015.

Observations/Analysis: Installation of the retaining wall and SMU is the last major remaining task for the CH054A contractor before Substantial Completion can be declared. In late

September 2015, the ESA CH054A Construction Manager informed the PMOC that, if the retaining wall is not installed in early October 2015 as scheduled, the SMU will be de-scoped from CH054A and be added to a future contract.

**Concerns and Recommendations:** The PMOC recommends that, if it becomes evident that CH054A will not receive the necessary track usage to construct the retaining wall, ESA remove this final task from this contract, declare Substantial Completion, and add the scope to another contract.

### **Contract CH057A – Part 3 Westbound Bypass**

**Status:** As of August 31, 2015, the MTACC's forecast for Estimate at Completion for the CH057A contract increased to \$144,720,915 due to inclusion of potential contract modifications and scope increases. The MTACC's forecast for Substantial Completion was extended by 3 weeks to January 9, 2017. Actual construction progress for August 2015 was 1.8% versus 6.1% planned. Cumulative progress through August 31, 2015, was 26.0% actual versus 72.4% planned.

	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$103.3M	\$109.2M	+\$5.9M	\$144.7M	+\$41.4M +40.1%	+\$35.5M +32.5%	
Scheduled SC Date	1/31/16	1/31/16		1/9/17			
Duration (NTP - SC)	26 mos.	26 mos.	0	38 mos.	+12 mos. +46.2%	+12 mos. +46.2%	
Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
72.4%	26.0%	15.5%	1.3%	10.1%	1.7%	3.8%/mo.	4.6%

From August 2015 ESA Monthly Report

**Construction Progress:** During September 2015, the CH057A contractor installed 2 secant piles in the East Approach of the Westbound Bypass structure, 9 steel communications poles in Woodside Interlocking, and continued to install de-watering wells throughout the job site.

**Observations/Analysis:** The contractor's cumulative actual construction progress versus planned is largely due to lack of track outages required to install secant piles adjacent to active operating Track Line 4 in Harold Interlocking and continued inconsistent Force Account support. The

CH057A contractor continues to share limited Amtrak Force Account resources with Contracts CH053, CH054A, and other ESA construction (e.g. “H3” cutover pre-testing). The CH057A contractor is presently scheduled to deliver the “jacked box” tunnel shield to excavate the Westbound Bypass Tunnel in November 2015, with projected start of excavation in early 2016.

Concerns and Recommendations: During 3Q2015, much of the Force Account resources were dedicated to construction and pre-testing of LIRR’s “H3” CIL, which is scheduled to be cutover in November 2015. This not only negatively affected CH057A, but also the CH053 and CH054A contracts. Because CH057A competes with CH053 and CH054A for a fixed amount of Force Account resources, the PMOC recommends that ESA prioritize the Substantial Completions of the CH053 and CH054A contracts so that the CH057A contract is the only contract that Force Account needs to support.

#### **CH057C – 48<sup>th</sup> St. Bridge and Retaining Wall:**

Status: The ESA PMT re-activated its on-call CH057C contract in late July 2015 to demolish the LIRR Freight Track and construct the RPR Track as an alternative bypass route for future construction. The contractor began construction of this scope in September 2015. As of August 31, 2015, the MTACC’s Estimate at Completion for CH057C increased to \$3,091,418. and its forecast Substantial Completion date is January 22, 2016. Current cumulative construction progress through August 31, 2015, is 48.8% actual versus 100.0% planned (progress prior to initial contract deactivation in 2014).

Construction Progress: During September 2015, the contractor completed removal of all wood ties and continuous welded rail (CWR) in the Westbound LIRR Passenger Track and began to reconstruct it with concrete ties and CWR.

Observations/Analysis: The contractor is doing an adequate job of re-building the Westward LIRR Passenger Track, although it is slightly behind its construction schedule.

Concerns and Recommendations: The PMOC has no concerns about or recommendations for the CH057C contract at this time.



## **Systems Contracts**

### **VH051 (Part 1) – Harold and Point Central Instrument Locations (CILs) and Harold Tower Supervisory Control Ssystem ( VH051 Part 2)**

Status: VH051 Part 1 and 2 are procurement packages for LIRR Communications and Signal (C&S) system equipment and apparatus for the Harold and Point Interlocking Central Instrument Locations (CILs) (Part 1) and Harold Tower Supervisory Control System (Part 2), respectively. Purchasing of all materials has already been made and delivery of remaining CILs will be a “just in time” for “ESA First” scheduled installation. Factory Acceptance Testing will be done prior to scheduled delivery of each CIL. The Harold Tower Supervisory Control System (Part 2) is in service. To date, only the “H4” CIL in Harold Interlocking (Part 1) has been placed in service, and “H3” is scheduled to be cutover in November 2015. “H5” and “H6” are scheduled for 2016 and “H1” and “H2” are scheduled for 2017. As each CIL is prepared and placed in service, the supply contractor will support each cutover to ensure that all aspects of the installation go as designed. Since the additional charges for the contractor’s support will be minimal compared to the cost of the equipment, which has already been purchased, and the installations will take at least another 2 years, the PMOC will de-activate its reporting on VH051 Part 1 and Part 2 and report installation progress in the appropriate Force Account work package (FHL02, FHL03 or FHL04) immediately after each cutover has occurred.

### **CS179 - Systems Package 1-Base Contract**

Status: As of August 31, 2015, the reported Estimate at Completion for CS179 is at \$606,938,540, an increase of \$52,671,638 from that reported in the last quarterly PMOC report. The budget for this contract is the same as the reported EAC. The MTACC forecast for Substantial Completion remained at November 25, 2019. Since there is still no “approved” Baseline Schedule, the MTACC is unable to develop a progress curve for CS179, so no monthly or cumulative progress percentages are available.

Construction Progress: During 3Q2015, the CS179 contractor continued to install conduit systems in: 1) the Roosevelt Island and Vernon Blvd. Ventilation Facilities; 2) the B10 substation; and 3) the Yard Lead Tunnel. During this period, the contractor also began various work elements in the Second Ave., 12<sup>th</sup> St., and 29<sup>th</sup> St. Facilities, along with conduit hanger installations in Tunnels B/C and D. Mobilization at the 39<sup>th</sup> St. Facility is scheduled for mid-October 2015. Stop Work Orders (SWOs) for working in the control rooms at the Vernon and B10 Facilities are in effect. These SWOs were issued because of the design conflict between the room size and equipment layout in the control rooms. The GEC is working on solutions to this issue. In July 2015, it was noted that 10 out of 15 established contract milestones are delayed between 1 and 7 months. When the PMOC inquired as to the impact that these delayed milestones would have, especially the seven-month delay in Milestone #1, the contractor indicated that it was holding the Substantial Completion date while it reviewed all other work activities. MTACC contends that only one of the contract milestones (Milestone #1 for the Traction Power Room at the Vernon Facility) is delayed but that this delay will not impact the overall contract schedule.

Observations/Analysis: In its 1Q2015 report, the PMOC reported that the ESA CM informed the PMOC that the CS179 contractor improved the quality and timeliness of its submissions. However, during 2Q2015, the PMOC advised that it became apparent that the ESA team was unprepared for the number of submittals prepared and submitted by the contractor, as the

backlog of overdue submittal reviews by ESA continued to increase every month. Although the ESA CM had the GEC increase its review staff in 3Q2015 to reduce the submittal review backlog, the backlog continues to be an issue impacting efficient design and construction progress. Further, as of the end of September 2015, 18 months of the 68-month of the contract have expired and there is still no approved baseline schedule for this contract. The Baseline Schedule represents an overall contract work plan that all stakeholders must agree upon and use to effectively progress the work. Both the contractor and MTACC contend that the delays in contract milestones, either forecast or already experienced, will not impact the overall contract completion date. It is unclear to the PMOC how any determination of delay impacts can be made by MTACC without having an approved baseline schedule in place for this contract. Both the submittal review backlog and the absence of an approved baseline schedule remain areas of concern to the PMOC.

Concerns and Recommendations: The PMOC remains concerned that the backlog in overdue submittal reviews has not been significantly reduced and continues to recommend that ESA, the GEC, and the contractor focus on working together to improve the review process. Further, the PMOC once again recommends that the ESA CM convene a schedule workshop with all parties to discuss and finalize an “approved” Baseline Schedule.

#### **CS084 - Traction Power System Package #4**

Status: In its August 2015, monthly report, MTACC indicated that during 3Q2015, the Estimate at Completion for CS084 increased and is now at \$78,373,772, the level of the project budget. The MTACC forecast for Substantial Completion is slated for December 2, 2019. In September 2015, MTACC gave the contractor “conditional approval” of a baseline schedule, citing minor issues with the resource loaded components in the schedule. The contractor committed to making the requested revisions and resubmitting the schedule by the end of September. Now that a baseline schedule is approved, MTACC will begin to develop a progress curve for the CS084 contract.

Construction Progress: During 3Q2015, the CS084 contractor began performing field surveys to identify work requirements at the various contract sites. The contractor also began the procurement of materials needed to progress the work. Previously, the PMOC reported that the contractor had expected to begin some change order work for temporary power for signal huts in September 2015. That work however, which was initially required in 4Q2015, will now be done as a permanent installation with a required completion date in January 2016. Negotiations related to the cost of the work were taking place in September 2015 and a Notice to Proceed is forecasted for early October 2015.

Observations/Analysis: Now that the baseline schedule is approved, it is incumbent upon both the contractor and the ESA PMT to ensure that coordination efforts with other ESA contracts, especially the CS179 contract, are aggressively pursued so as not to cause delays to any contract work.

Concerns and Recommendations: MTACC has indicated that the January 2016 date for completion of the permanent power work is an important milestone that needs to be met. The contractor indicated in the September 2015 Progress Meeting that this work is forecast to take three months; and thus, the work needs to start in early October 2015 to be completed in early January 2016. The PMOC encourages the ESA PMT to quickly complete the negotiations for this required electrical power to the signal huts in Harold Interlocking so as to not cause delays to other ESA work activities.

## Harold Stage I Amtrak FA (FHA01)

Status: As of August 31, 2015, the MTACC's forecast for Estimate at Completion for FHA01 remained at \$18,824,861 and its forecast for Substantial Completion was extended by 4 weeks to April 7, 2018. Actual construction progress for August 2015 was 0.0% versus 0.0% planned. Cumulative progress through August 31, 2015, remained at 98.4% actual versus 99.2% planned.

<u>FHA01</u>	1	2	3	4	5	6	
<div></div>	Original Baseline	Current Approved Baseline*	Change to Original (2 – 1)	EAC / Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$9.5M	\$18.8M	+\$9.3M +97.9%	\$18.4M	+\$8.9M +93.7%	-\$0.4M -2.1%	
Scheduled SC Date	09/30/10	2/4/16	<div></div>	4/7/18**	<div></div>	<div></div>	
Duration (NTP - SC)	39 mos.	103 mos.	+64 mos. +164.1%	129 mos.	+90 mos. +230.8%	+26 mos. +25.2%	
% Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
99.2%	97.8%	0.6%	0.05%	0.0%	0.0%	N/A – Past Due	0.1%/mo.

From August 2015 ESA Monthly Report

\*The term "baseline" is a misnomer with Force Account work. In Amtrak's case, the "original baseline" has increased to account for scope changes as detailed in the Project Initiations (PIs) that have been executed for Stage 1. It is presented in the table to be consistent with the contract tables contained elsewhere in this report.

\*\*Substantial Completion dates for all Amtrak Force Account Work packages extended as a result of the MTACC's "ESA First" Schedule re-baseline.

Construction Progress: Amtrak Force Account personnel did not perform any significant Stage 1 construction during September 2015.

Observations/Analysis: The remaining Stage 1 construction elements are not presently ESA PMT priorities.

Concerns and Recommendations: Due to the "ESA First" re-baseline schedule, all Amtrak direct Force Account construction has been extended. The PMOC neither has any concerns about Amtrak's capability to perform the remaining work in Stage 1 by the new Substantial Completion date nor does it have any recommendations at this time.

## Harold Early Stage 2 Amtrak FA (FHA02)

**Status:** As of August 31, 2015, the MTACC's forecast for FHA02's Estimate at Completion was \$60,150,231 and its forecast for Substantial Completion extended by 4 weeks to April 4, 2020. Actual construction progress for August 2015 was 4.0% versus 0.5% planned. Cumulative progress through August 31, 2015, was 101.4% actual versus 97.6% planned.

FHA02		1	2	3	4	5	6
		Original Baseline	Current Approved Baseline*	Change to Original (2 – 1)	EAC / Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)
Contract Cost		\$9.70M	\$45.4M	+\$35.7M +368.0%	\$60.2M	+\$50.5M +520.6%	+\$14.8M +32.6%
Scheduled SC Date		9/30/13	8/15/17		4/4/20**		
Duration (NTP - SC)		58 mos.	106 mos.	+48 mos. +82.8%	137 mos.	+79 mos. +136.2%	+31 mos. +29.2%
Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
97.6%	101.4%	4.2%	0.4%	8.6%	1.4%	1.7%	N/A – Over 100%

From August 2015 ESA Monthly Report

\* The term "baseline" is a misnomer with Force Account work. In Amtrak's case, the "original baseline" has increased to account for the scope changes as detailed in the Project Initiations (PIs) that have been executed for Stage 2. It is presented in the above table to be consistent with the contract tables contained elsewhere in this report.

\*\*Substantial Completion dates for all Amtrak Force Account Work packages extended as a result of the MTACC's "ESA First" Schedule re-baseline.

**Construction Progress:** During September 2015, Amtrak Electric Traction personnel relocated signal and feeder wires at catenary pole B919E, installed cross track traction power feeders at the B930 catenary structure, demolished the steady span at the B923 catenary pole, and installed catenary hardware on poles B910W, B929, and B923.

**Observations/Analysis:** Substantial Completion for FHA02 has been extended as a result of the MTACC's adoption of the "ESA First" Schedule. The PMOC remains confident that Amtrak will be able to perform the remaining work in FHA02 by the new Substantial Completion date.

**Concerns and Recommendations:** The PMOC has no concerns about or recommendations for FHA02 construction at this time.

## Loop Interlocking CIL Amtrak FQA65

**Status:** As of August 31, 2015, the MTACC's forecast for Estimate at Completion for FQA65 increased to \$33,287,863 and its forecast for Substantial Completion remained at December 4, 2022. Actual construction progress for August 2015 was 1.5% versus 1.2% planned. Cumulative progress through August 31, 2015, was 12.6% actual versus 45.5% planned.

<u>FQA65</u>	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline*	Change to Original (2 – 1)	EAC / Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$9.1M	\$21.0M	+\$11.9M	\$33.3M	+\$24.2M +265.9%	+\$12.3M +58.6%	
Scheduled SC Date	8/12/18	8/12/18		12/4/22**			
Duration (NTP - SC)	55 mos.	55 mos.	(no change)	107 mos.	+52 mos. +94.5%	+52 mos. +94.5%	
Percent Complete		Actual – 12 mos.		Actual – 6 mos.		Avg. Req'd Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
45.5%	12.6%	7.6%	0.6%	4.2%	0.7%	1.8%/mo.	0.6%/mo.

From August 2015 ESA Monthly Report

\* The term "baseline" is a misnomer with Force Account work. In Amtrak's case, the "original baseline" has increased to account for the scope changes as detailed in the Project Initiations (PIs) that have been executed for Stage 2. It is presented in the above table to be consistent with the contract tables contained elsewhere in this report.

\*\*Substantial Completion dates for all Amtrak Force Account Work packages extended as a result of the MTACC's "ESA First" Schedule re-baseline.

**Construction Progress:** During September 2015, Amtrak Signal personnel continued to install signal conduits and install and terminate cables in the new "T" Interlocking and install cables between the R7 signal hut and the "T" CIH. Communications personnel installed a pull box at "R" Interlocking.

**Observations/Analysis:** Substantial Completion for FQA65 has been extended as a result of the MTACC's adoption of the "ESA First" Schedule. The PMOC remains confident that Amtrak will be able to perform the remaining work in FQA65 by the new Substantial Completion date.

**Concerns and Recommendations:** The PMOC has no concerns about or recommendations for FQA65 at this time.

### **Harold Stage 1 LIRR FA (FHL01)**

**Status:** As of August 31, 2015, the MTACC's forecast for the Estimate at Completion for FHL01 remained at \$20,804,621 and its forecast for Substantial Completion was extended by 4 weeks to August 17, 2016. Actual construction progress for August 2015 was 0.6% versus 0.0% planned. Cumulative progress through August 31, 2015, was 117.2% actual versus 100.0% planned.

<u>FHL01</u>	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline*	Change to Original (2 – 1)	EAC/ Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$28.8M	\$20.8M	-\$8.0M -27.8%	\$20.8M	-\$8.0M -27.8%	\$0.0 0.0%	
Scheduled SC Date	09/30/10	4/9/15		8/17/16			
Duration (NTP - SC)	39 mos.	94 mos.	+55 mos. +141.0%	110 mos.	+68 mos. +174.4%	+13 mos. 13.8%	
Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
100.0%	117.2%	19.0%	1.6%	17.9%	3.0%	0.1%/mo.	N/A – Over 100%

From August 2015 ESA Monthly Report

\* The term "baseline" is a misnomer with Force Account work. In the LIRR's case, the "original baseline" has decreased to account for the scope changes as detailed in the Memoranda of Understandings (MOUs) that have been executed for Stage 1. It is presented in the above table to be consistent with the contract tables contained elsewhere in this report.

**Construction Progress:** MTACC did not report any significant FHL01 construction during August 2015, although it indicated that cumulative actual progress increased by 17.2% over the July 2015 report. This is apparently a typographical error which the PMOC will attempt to correct with MTACC.

**Observations/Analysis:** The PMOC notes that LIRR personnel continue to interrupt work in one location to begin or continue work in other locations. While this is fairly standard for ordinary railroad construction, the amount of partially completed work in the ESA Project could become completely overwhelming as it accumulates over time. The remaining construction in FHL01 includes completion of signal power relocation and installation of traction power cables into and energization, commissioning, and cutover of the new G02 Substation. The process leading to the G02 cutover is scheduled for 2016 at the same time the LIRR has scheduled installation of 8 turnouts and cutover of 3 CILs.



**Concerns and Recommendations:** The PMOC is concerned that FHL01 construction is not yet complete as it was planned to be. The uncompleted FHL01 work will be added to on-going FHL02 and FHL03 work. The PMOC is concerned that, because of what it foresees as a future build-up of uncompleted construction, safety-critical elements of that construction may be inadvertently overlooked because the remaining work elements are in various stages of completion. The PMOC recommends that the LIRR establish an interdepartmentally coordinated, totally comprehensive, checklist of all remaining work, especially safety-critical work, to prevent such a situation from happening. Accurate tracking of unfinished work elements is essential to insure their proper completion in the future.

### **Harold Early Stage 2 LIRR FA (FHL02)**

**Status:** As of August 31, 2015, the MTACC's forecast for the Estimate at Completion for FHL02 increased to \$92,932,559 and its forecast for Substantial Completion was extended 3 weeks to June 18, 2018. Actual construction progress for August 2015 was 2.2% versus 1.4% planned. Cumulative progress through August 31, 2015, was 74.6% actual versus 87.1% planned.

<u>FHL02</u>	1	2	3	4	5	6	
	Original Baseline	Current Approved Baseline*	Change to Original (2 – 1)	EAC / Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)	
Contract Cost	\$7.40M	\$60.0M	+\$52.6M +710.8%	\$92.9M	+\$85.5M +1155.4%	+\$32.9M +54.8%	
Scheduled SC Date	11/30/15	11/25/16		6/18/18			
Duration (NTP - SC)	75 mos.	87 mos.	+12 mos. +16.0%	106 mos.	+31 mos. +41.3%	+19 mos. +21.8%	
Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	Actual	Total	Avg./mo.	Total	Avg./mo.	Contract SC	Forecast SC
87.1%	74.6%	19.8%	1.7%	9.6%	1.6%	1.3%/mo.	0.7%/mo.

From August 2015 ESA Monthly Report.. \*The term "baseline" is a misnomer with Force Account work. In LIRR's case, the "original baseline" has increased to account for the scope changes in the MOUs that have been executed for Stage 2. It is presented in the above table to be consistent with the contractor tables contained elsewhere in this report.

**Construction Progress:** During September 2015, LIRR C&S personnel completed ESA 404 and continued ESA 31 (design designations) signal revisions at the existing Harold CIL; continued to pull track wires and power cables and pre-test the new "H3" CIL; and continued to pull and

terminate cables between the new “H1” and “H6” CILs. LIRR Traction Power personnel continued to relocate cable between the existing G02 Substation and breaker 21 and install 3<sup>rd</sup> rail cables at turnouts installed in 2014. LIRR Track personnel installed the #3164 turnout in Harold Interlocking.

Observations/Analysis: The “ESA First” Re-baselined Schedule will not have a great impact on the timing of the signal cutovers that LIRR needs to complete for the ESA program, i.e. cutovers are scheduled at relatively the same times in the “ESA First” schedule as they were in the previous schedule. The PMOC notes, however, that the LIRR will need to maintain the “ESA First” schedule to keep Harold construction off the overall critical path.

Concerns and Recommendations: The PMOC has no specific concerns about or recommendations for FHL02 at this time, although its concern expressed in FHL01, above, can also be expressed for FHL02.

## **2.4 Operational Readiness**

The 3Q2015 Quarterly Operational Readiness meeting was held on September 17, 2015. The following Operational Readiness progress was made since the last quarterly meeting:

- Task Group No.1, Operational Readiness: Volume 3, sections 5 & 6 of the Rail Activation Plan are being re-written as a result of comments received on earlier revisions. The final draft of sections 1 thru 7, reported last quarter as forecast for completion in 3Q2015, has been delayed as a result of continuing discussions within various task working groups. The current completion date is forecast for 4Q2015;
- Task Group No.2, Train Service and Operations: Continued work on the development of ESA Service Disruption Plans;
- Task Group No.3, Infrastructure, Systems, and Engineering: The LIRR ESA Team commenced its review of the MTACC/ESA Memorandum of Understanding (MOU) related to Positive Train Control (PTC) and the LIRR participated in a Preliminary Design Review of the proposed PTC System;
- Task Group No.4, Asset Management: Maximo, the Database application being used for Asset Management on the ESA project, and which will be used by the LIRR after the turnover of the ESA project and entry into the Revenue Service, is being used in a “production” environment for substantially completed Contracts CQ031 & CM004. This means the Database is now being used to generate work orders for interim maintenance on assets installed under these two contracts;
- Task Group No.4, Asset Management: Contractor training on the Maximo database is continuing with no change during 3Q2015 from that reported for the 2Q2015 regarding the number of the contractors who have completed the training;
- Task Group No.4, Asset Management: Data verification is ongoing for CM014A, CM013A, and CQ032 and Asset Data Template development is ongoing with the CS179 contractor;
- Task Group No.5, Grand Central Terminal: As a result of the coordination workshop held on August 27, 2015, regarding the cellular telephone system in Grand Central Terminal (GCT), it appears that some design changes will be required to ESA Contract CM014B to provide optimal cellular telephone coverage in GCT;



- Task Group No.5, Grand Central Terminal: Meetings are being held to review the placement of retail space in the ESA/LIRR Concourse and to review and comment on the salability of advertising media in the CM014B design for the ESA/LIRR Facility;
- Task Group No.5, Grand Central Terminal: A workshop was held on September 9, 2015 to review a number of design elements in the CM014B design relative to Passenger Information and Terminal Services (Waiting Room areas, Restrooms and Attendants, Information Centers and Ticket Vending Machines, and partial station facility closures);
- Task Group No.6, Staffing and Training: Continued refining LIRR staffing and training requirements and timelines for all disciplines by occupation to determine peak hiring and training periods; and
- Task Group No.7, Safety and Security: Continued to develop the system safety requirements for certification of the designs of each of the ESA contracts and to develop the joint LIRR/MNR GCT Emergency Operations Plan.

Observation: The Operational Readiness Group continues to coordinate ESA PMT activities into a cohesive plan required to commission the project for daily operations. However, the PMOC and the MTA-IEC, noted that although the Operations Readiness Committee includes the development of a Concept of Operations (CONOPS) element in its Rail Access Plan (RAP), this CONOPS is only for the overall management of the ESA operations, and there does not appear to be any specific CONOPS under development or being discussed for individual electronic and operational systems being provided under ESA Contract CS179. Because LIRR is concerned that its future staffing and training requirements prior to RSD will not be properly addressed, it continues to request that ESA address these concerns during the Operational Readiness meetings.

Concerns and Recommendations: The PMOC and the MTA-IEC expressed concerns that specific CONOPS do not exist and are not being developed or discussed for electronic and operational systems being provided under ESA Contract CS179. There are also concerns that all relevant LIRR User groups are not attending technical workshops and design reviews for these specific systems. The PMOC recommended that some entity within the ESA organization investigate these concerns and ensure that the various LIRR users are actively involved in the design discussions of the various systems.

## **2.5 Vehicles**

Status: During 3Q 2015, the ESA Vehicle PMT did the following:

- Participated in car body and truck structural testing in Japan;
- Completed 20 of 21 Preliminary Design Reviews (PDRs). Only Automatic Train Control (ATC) remains; and
- Began Final Design Review (FDR) process with Kawasaki Design Components of the car.

Observations:

The ESA PMT and the railroads continue to progress the procurement of the M-9 vehicles, although behind schedule.

### Concerns and Recommendations:

Although the design reviews were completed slightly behind schedule, the PMOC has no significant concerns about or recommendations for the ESA vehicle procurement at this time.

## **2.6 Property Acquisition and Real Estate**

### Status/Observations:

During 3Q2015, the MTA continued to conduct internal meetings to discuss Manhattan easements needed from the owners of the 335 and 415 Madison Avenue and 280 Park Avenue properties for CM014B and CM015 construction. The MTA also discussed easements needed from the property owners at 41-02 Northern Boulevard in Queens for CH057 construction during these meetings.

Concerns and Recommendations: The PMOC has no concerns or recommendations about real estate issues at this time.

## **2.7 Community Relations**

### Status:

The ESA Community Relations staff continued its outreach efforts during 3Q2015, which included:

- Weekly Community Outreach Site Condition Checklist inspections;
- Community Outreach update meetings in Queens and Manhattan;
- Meetings with property owners and other stakeholders to address concerns or issues which may have arisen due to ESA work;
- Convened initial monthly progress meeting with JP Morgan Chase regarding project activities at 47<sup>th</sup> and 48<sup>th</sup> Sts. in Manhattan;
- Developed and presented a communications and outreach plan for ESA work in GCT; and
- Designed and distributed monthly flyers to Sunnyside residents in Queens as part of an ongoing Sunnyside Notification Strategy which will also include emails.

### Observation:

The PMOC notes that the MTACC Community Relations staff continues to perform its outreach campaign in an entirely effective manner.

### Concerns and Recommendations:

The PMOC has no concerns about ESA community relations at this time and recommends that the ESA Community Relations staff continue to perform its duties in the same manner as it has in the past.

### **3.0 PROJECT MANAGEMENT PLAN AND SUB PLANS**

#### Status:

MTACC submitted PMP Rev. 10 to the FTA and PMOC on July 18, 2014. This revision incorporates changes stemming from FTA/PMOC comments on PMP Rev. 9.0 provided in December 2013, as well as changes that resulted from the MTACC's Candidate Revision process. Based on working meetings, dialogue and additional clarifying review comments from the PMOC MTACC made additional changes to the PMP and submitted an updated Rev. 10 on September 18, 2014. The PMOC completed its review and evaluation of MTACC's revisions and responses and submitted its findings to FTA-RII in 4Q2014. MTACC subsequently submitted a revised Rev. 10 on March 13, 2015, that included updated information on the Change Control Committee. The PMOC continues to coordinate with MTACC arranging a series of working meetings with ESA chapter authors and the corresponding PMOC reviewers to resolve the outstanding FTA/PMOC evaluation comments. Several working meetings have been completed since May 2015.

Observation: The PMOC is working with MTACC to resolve the remaining issues with the PMP and will follow up with FTA in finalizing responses.

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

#### **3.1 PMP Sub-Plans**

##### Status:

The status of the key PMP sub-plans is discussed in the ELPEP Compliance Section of this report. MTACC issued updates to its TCC and Cost Management Plans in June 2015. The PMOC provided the FTA with its evaluation of the MTACC responses to the PMOC review comments on both the TCC and the CMP and recommended meeting with MTACC to resolve remaining issues. The FTA subsequently provided MTACC with the TCC and CMP evaluations for their review and action. MTACC responded with a reply for the TCC on September 24, 2015 that is currently under review by the PMOC. A working meeting to review the CMP is pending. MTACC is nearing completion of its update to the Schedule Management Plan.

##### Observations:

MTACC has revised its TCC Plan and Cost Management Plan and is close to completing its update of the SMP. The PMOC anticipates updates to the Risk Management Plan.

##### Concerns and Recommendations:

MTACC needs to ensure that the proper candidate revisions are prepared and presented to the CCC for approval before any changes are incorporated into these plans. Regarding updating the SMP, the PMOC recommends that ESA's SMP address at least the following items in its next revision:

- Provide logic diagram of schedule control;
- Demonstrate traceability in decision making procedure;
- Establish its usefulness as a management tool;
- Demonstrate MTACC's project control capabilities;
- Present a viable plan to allocate schedule contingency;

- Provide a reliable forecasts for significant milestones; and
- Define, responsibilities, authorities and measure of performance.

### **3.2 Project Procedures**

Status: Revisions to the CMP and SMP may require updates to the referenced Project Procedures. The PMOC will evaluate this upon receipt and review of the revised CMP and SMP.

Observations: None

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

## **4.0 PROJECT SCHEDULE**

### **4.1 Integrated Project Schedule**

Status: This report is based on the submitted ESA IPS #70, data date September 1, 2015, and its variance report. The IPS reflects an early Revenue Service Date (RSD) of March 25, 2020, a target RSD of February 12, 2021, inclusive of 324 days of IST contingency, and a late RSD of December 13, 2022, inclusive of 324 days of IST contingency plus 669 days of program-level contingency. Overall, the IPS has had 993 calendar days of contingency since the July 1, 2014, baseline. This amount of contingency is equivalent to 47% of the remaining IPS duration.

ESA's critical path goes through the following contracts and tasks, and it is slightly different from the baseline IPS of July 2014 (see discussion under Section 4.2);

- Procurement of CM007;
- Design/fabrication/delivery of the first CM007 precast elements;
- CM007 structural element construction at the Mezzanine level in the Cavern GCT;
- CM007 overhead smoke plenum construction in the Cavern GCT;
- CM007 platform element construction at the Lower Level Cavern GCT;
- CM007 Elevators 6/8/5/7/18/19 construction from the Lower Level to the Upper Level in the GCT Cavern;
- CM007 ready for IST and turnover to CS179 in the Caverns;
- CS179 commence IST at various locations/systems; Jamaica Station, CM007 installed equipment, TMC, MTA Police, TOC;
- CS179 Contract Contingency;
- CS179 Substantial Completion;
- Various ESA contingency activities; and
- LIRR Revenue Service Date (RSD).

Additionally, completion dates and hand-offs for the following contracts are less than 45 days off the ESA critical path detailed above;

- CM014B: GCT Concourse & Facilities Fit Out (hand off to CS179 IST);
- CM006: Manhattan North Structures (hand off to CM007 access via critical path above);
- CH053: Harold Structures Part 1 & G02 Substation (hand off to CH057A);
- CH057A: Westbound Bypass Structure (hand off to CH057D);
- CH057D: Harold Track Work: PW1/NH1/WBY (hand off to CH058A) – Future Contract;
- CH057E: Harold Catenary Work;
- CH057: Harold Structure – 48<sup>th</sup> Street Bridge and D Pit & Approach Structure;
- FHA01/02/03: Harold Amtrak Force Account Work (integral with the CH contracts);
- FHL02: Harold LIRR Force Account Work (integral with the CH contracts); and
- FQA65: Loop Interlocking – Amtrak Force Account work.

Observations and Analysis:

It is noted that the ESA 2012 Schedule Re-Baseline was in place for only two years before the next re-baseline was established in 2014. This is indicative of the need for an updated Basis of Schedule that would address the issues that caused the failure of the 2012 baseline.

The PMOC is concerned about the basis of ESA's schedule and the fact that the IPS baseline has not been preserved since July 2014. Table 4.1, below, indicates a considerable amount of schedule slippage:

1. ESA IPS does not have a WBS and it is not clear how the PMT traces productivity from the Contract Packaging Plan to Package-Specific Estimates and the IPS. An example of this issue is that the PMT does not have total Work-Hours in its estimate for Contract CM007 [REDACTED] nor does it include Work-Hours in its IPS or package-specific schedule. The PMOC's estimate for Contract CM007 Work-Hours is at least 4 million Work-Hours based on the performance of Contracts CM005, CM006, and SAS Contract C-26007 (C4B);
2. The ESA Basis of schedule has stated that the ESA critical path goes through substantial completion of CM005 Manhattan South Structures, then through CM007 GCT Caverns Completion. The critical path then goes from Substantial Completion of CM007, to CS179 System Package 1 – Facilities Systems installation, then to Integrated Systems Testing in the GCT caverns. Less than a year later, the PMT pushed back the NTP of CM007 for 4 months. Unfortunately, however, Contract CM006 Manhattan North Structures is experiencing significant delay in its Milestone #2 which will constrain physical access, as originally planned, to the caverns for Contract CM007. The PMOC's schedule had considered that NTP for Contract CM007 depends upon the three conditions shown below. Simply creating a start milestone for the NTP in the IPS does not address the complexities of either access or funding issues.

It should also be noted that the PMOC has assumed three conditions should be satisfied so Contract CM007 can start its work, and that's a major reason for such difference between the PMOC and ESA dates for NTP of this package. These three conditions are:

- CM005 finishes on time; contract is currently scheduled to finish on Feb. 2016;
- CM006 MS#2 to be finished before April 2016. The Contractual date of this milestone is Feb. 2016; however, current contractor's forecast for this milestone is delayed 6 months although ESA only recognized 45 calendar days; and
- There won't be a funding constraint for the award of this package.

Currently, only the first condition is forecast to be satisfied. The next two conditions continue to slip, however, which indicates that ESA's basis of schedule included inaccurate assumptions;

3. In the ESA Basis of Assumption, it explains the reasons why the Harold portion of the July 2014 Schedule Re-Baseline could not be sustained and that a new

schedule with new assumptions based on more realistic levels of railroad force account support would be required. Accordingly, ESA developed the “ESA First” for the remaining Harold work with a new packaging plan and a revised work sequencing schedule that would prioritize completion of the work required for LIRR to provide service to GCT. The PMOC notes, however, that its analysis shows that only 70% of the Harold tasks scheduled per month have been completed since 4Q2014; and

4. The Basis of Schedule states that “Systems Integration Testing will be tracked in the IPS,” but the document does not demonstrate how this will be achieved. The PMOC also notes that the contractor for CS179, which is going to do the Integrated Systems Testing, has not been able to obtain final approval of its baseline schedule in more than a year after the NTP for the contract [ESA-119-Jun15].

ESA quarterly schedule performance shows significant lack of progress for the past quarter at approximately at 70% level. Additionally, as mentioned above, there are too many contractor schedules operating near the ESA critical path. It should be noted that ESA has 27 months of contingency but it is not clear how the PMT is going to use this contingency for any specific package. The PMOC is concerned that ESA will need to use future contingency earlier than planned because of the presence of multiple critical paths in the near future. The PMOC recommends that the PMT develop a schedule that matches the realities of the contractors’ performances. The PMOC further recommends that ESA use half of the contingency to create a realistic schedule and also use about 12 months of contingency as “actual contingency” in order to develop a drawdown based on their risk report in 2014.

Furthermore, ESA should report forecasts of their contractors’ progress and their potential impacts in interface milestones. Since July 2014, when ESA published its baseline IPS, the PMOC has been in disagreement with the PMT regarding the conditions required for award of Contract CM007.



The PMOC's baseline schedule (July 2014) for ESA and the PMT's are plotted in tables below.

**TABLE 4.1 - ESA July 2014 Baseline**

<b>Contract</b>	<b>Start</b>	<b>Duration (month)</b>	<b>Finish</b>
<b>CM005</b>	1-Sep-13	31	6-Apr-16
<b>CM007</b>	6-Apr-16	39	8-Jul-19
<b>IST</b>	8-Jul-19	10	13-May-20
<b>Start up</b>	13-May-20	15	10-Sep-21
<b>Contingency</b>	10-Sep-21	15	<b>13-Dec-22</b>

**TABLE 4.2 - PMOC Baseline**

<b>Contract</b>	<b>Start</b>	<b>Duration (month)</b>	<b>Finish</b>
<b>CM005, CM006 (MS#2), and funding certainty</b>	1-Sep-13	34	15-Jul-16
<b>Contingency</b>	15-Jul-16	3	16-Oct-16
<b>CM007</b>	16-Oct-16	53	15-Apr-21
<b>Contingency</b>	15-Apr-21	3	15-Jul-21
<b>IST</b>	15-Jul-21	15	15-Oct-22
<b>Start Up</b>	15-Oct-22	8	15-Jun-23
<b>Contingency</b>	15-Jun-23	6	<b>31-Dec-23</b>

The fundamental differences between the two schedules are the PMOC's estimated duration for CM007 is 53 months with three months of contingency versus ESA's original estimate of 40 months, although ESA's new schedule shows this contract's duration at 42 months. It should also be noted that ESA conducted a risk analysis specifically for this package to re-assure all stakeholders that the 42 month schedule and NTP of Jan. 2016 is a viable strategy. Additionally, the PMOC believes that Integrated Systems Testing will require a full 15 months, without disturbance, at the end of all construction work. ESA's schedule, however, indicates that the majority of IST will be done while other construction work is going on. This represents a fundamental disagreement and is the basis for a significant part of the schedule differences between ESA and the PMOC.

## **4.2 90-Day Look-Ahead of Important Activities**

Table F-2 in Appendix F shows package-specific 90 day Look Ahead.

### 4.3 Critical Path Activities

The ESA Critical path has changed since its re-baseline of July 2014. The Table 4.4 below shows the changes:

**TABLE 4.3 - IPS# 73, Data Date September 1, 2015, Critical Path**

Activity Name	Original Duration	Start	Finish
CM007 Contract	1054	06-Mar-15 A	19-Apr-19
IST INTEGRATED SYSTEM TESTING (PART OF CS179)	153	19-Apr-19	26-Nov-19
STARTUP/TESTING/COMMISSIONING/REVENUE SERVICE	1113	27-Nov-19	13-Dec-22
<b>Early Revenue Service Date</b>			<b>25-Mar-20</b>
ESA IST Contingency 1 (IST Completion Contingency to LIRR)	170	27-Nov-19	14-May-20
Stakeholder agreed additional IST Contingency 2 (5 months)	154	15-May-20	15-Oct-20
COMPLETION OF INTEGRATED SYSTEM TESTING (WITH CONTINGENCY)	0		15-Oct-20
<b>Target Revenue Service Date</b>			<b>12-Feb-21</b>
ESA Program Schedule Contingency	365	16-Oct-20	15-Oct-21
Stakeholder agreed additional Program Contingency (10 months)	304	16-Oct-21	15-Aug-22
ESA Project Substantial Completion for LIRR Final 3 Months	0		15-Aug-22
ESA Planning Contingency Ready for LIRR Final 3 Months Period	30	16-Aug-22	14-Sep-22
LIRR Final 3 Months Period	90	15-Sep-22	13-Dec-22
LATE - Begin LIRR Revenue Service To GCT	0		13-Dec-22
<b>Late Revenue Service Date</b>			<b>13-Dec-22</b>

Highlights of key critical contracts and near critical contracts include CM006 – Manhattan North Structures, and Harold 3rd party and Force Account contracts as well as the CS179 Systems contract.

- CM006 is experiencing a significant amount of delay. At this point the PMOC projects about 6 months delay in Substantial completion and Milestone #2 that would provide access to Contract CM007. ESA's monthly report as of September 2015 states that the contractor is at 37% completion. The ESA planned cash flow is at 67%, which is 30% behind the spent plan. ESA is also stating that the contractor has submitted a recovery schedule, and based on this recovery plan actual progress should have been at 46% but as stated above, the progress is only at 37%. The PMOC projects that, the contractor would need to spend at least \$18M/month for 6 months to maintain its original substantial Ccompletion date, considering its recovery plan. Considering size and space constraints for this package, the PMOC seriously doubt the contractor would be able to spend this amount of money per month. The PMOC also projects that with current trend of

contractor's productivity which has been improved significantly, it will still require at least 4 months and maximum of 7 months beyond original date of Feb. 2016 for the contractor to finish Milestone #2.

- Since March 2015, the ESA PMT has reported that only 70% of its planned critical tasks each month have been completed. There are total of 2160 critical activities in Harold and 1953 of those must be complete by August 19, 2019, to meet the milestone of Harold Construction Complete. The PMOC calculates that, at its current completion rate, it will take approximately five and a half years from 3Q2015 to accomplish Harold Completion. The PMOC forecasts that this would take Harold Completion into 1Q2021, at which time ESA will have 15 months of Integrated Service Testing (IST) before all construction could be declared complete.
- Contract CS179 is a very complicated contract with 7 options and 63 interface milestones dates involving interface with 13 ongoing and future MTA ESA contracts. In addition, CS179 is also required to interface with multiple outside agencies and is required to coordinate its work with work installed by LIRR, MNR, NYCT, and Amtrak Force Account personnel. Table 4.4 below shows contractor's schedule variance and the reasons thus far:

**TABLE 4.4 - CS179 Contractor Milestone Dates**

<b>CS179 Option</b>	<b>Option Exercise Date</b>	<b>CS179 Access Restraint Description</b>	<b>CS179 Access Restraint</b>	<b>CS179 Baseline Access Date</b>	<b>CS179 Actual/Projected Early Access Date</b>	<b>Variance</b>	<b>Notes</b>
<b>Queens Approach Tunnels</b>							
Base	31-Mar-14	Yard and Tunnel	3	21-May-15	30-Mar-15 (A)	52	Early access granted 30-Mar-15.
Base	31-Mar-14	Access to Tunnel D	4A	7-Nov-15	22-Jun-15 (A)	138	Early access granted 22-Jun-15.
Base	31-Mar-14	Access to Tunnel B/C Plaza	84	7-Nov-15	15-Jun-22 (A)	138	Early access granted 22-Jun-15.
Base	31-Mar-14	Tunnel A	7A	7-Nov-15	15-Jul-27 (A)	103	Early access granted verbally 27-Jul-15.
<b>Queens Plaza Facilities</b>							
Base	31-Mar-14	B10 Substation	6A	1-May-15	9-Oct-15	(161)	CS179 and CQ032 are working together with MTA- ESA to mitigate

<b>CS179 Option</b>	<b>Option Exercise Date</b>	<b>CS179 Access Restraint Description</b>	<b>CS179 Access Restraint</b>	<b>CS179 Baseline Access Date</b>	<b>CS179 Actual/ Projected Early Access Date</b>	<b>Variance</b>	<b>Notes</b>
Base	31-Mar-14	Queens Plaza below Grade	6A	15-Apr-30	15-Oct-15	(168)	CS179 and CQ032 are working together with MTA- ESA to mitigate
Base	31-Mar-14	Queens Plaza above Grade	68	7-Nov-15	18-Feb-16	(103)	CS179 and CQ032 are working together with MTA- ESA to mitigate
<b>63rd Street Tunnel Adjacent Facilities</b>							
Base	31-Mar-14	23rd St. Ventilation Facilities	AR2	31-Mar-15	14-Mar-16	(349)	CS179,CQP32 and CM006 are working together with MTA-ESA to mitigate any delay caused by changed CQ032 site Condition
<b>Manhattan South</b>							
1	4-Apr-16	Tail Tracks	AR5	25-Apr-16	1-Sep-15	237	MTA Authorization required to proceed with Tunnel wall conduit installation
<b>63rd Street Tunnel</b>							
2	6-Nov-15	Eastbound Tunnel from Bellmouth to GCT-6 (excludes GCT-6)	9A	7-Dec-15	1-Sep-15	97	MTA Authorization required to proceed with Tunnel wall conduit installation
2	6-Nov-15	Westbound Tunnel from Bellmouth to GCT-6- (excludes GCT-6)	9B	25-May-16	1-Sep-15	267	MTA Authorization n required to proceed with Tunnel wall conduit installation

CS179 Option	Option Exercise Date	CS179 Access Restraint Description	CS179 Access Restraint	CS179 Baseline Access Date	CS179 Actual/Projected Early Access Date	Variance	Notes
<b>Manhattan North</b>							
2	6-Nov-15	Lower Level Tunnels	12	25-May-16	9-Sep-15	259	MTA Authorization required to proceed with Tunnel wall conduit installation
2	6-Nov-15	GCT-4 Facility Room	12	25-May-16	6-Nov-15	201	N/A
2	6-Nov-15	Upper Level Tunnels	12	30-Jan-17	11-May-16	264	N/A

The PMOC notes that, since July 2014, ESA has changed the activity ID numbers of approximately 60% of its milestones. The PMOC continues to work with the PMT to establish a corrected baseline IPS so all activities and milestones can be tracked and reported on. This is an important element required under SMP section 5.1 “Work Breakdown Structure” that requires that activity IDs should be traceable. ESA continues to change activity IDs every month which makes it difficult for the PMOC to track individual activities on a consistent basis.

Finally, the PMOC recommends that ESA consider developing a resource constrained schedule with Amtrak and LIRR resource availability assumptions below the maximum number of available resources, and consider changing its current RSD of March 2020 to a more realistic date rather than just adding an inordinate amount of schedule contingency as is currently being done. MTACC indicated that more realistic force account resource levels were used in the Harold Re-Plan (“ESA First”), which it submitted to the PMOC in mid-March 2015. On average, since November 2014, third-party contractors have only been able to achieve approximately 75% of the planned (assumed) productivity rate. It should be noted that ESA had a much higher planned (assumed) productivity rate for its baseline Harold schedule in March 2014, almost double, compared to the current planned (assumed) productivity rates for the current Harold Re-Plan (“ESA First”). Therefore, taking 75% of the original productivity assumption results into account, ESA has experienced an approximate 50% reduction in productivity since its March 2014 baseline productivity assumption.

Additionally, the following procurement milestones have been missed:

- VQ033 (should have been awarded by August 2015);
- CQ033 (should have been advertised in May 2015); and
- CH057 (did not issue NTP in August 2015 as planned).

#### **4.4 Project Schedule Contingency Analysis**

ESA's IPS #73 reflects an early Revenue Service Date (RSD) of March 25, 2020, a target RSD of February 12, 2021, inclusive of 324 days of IST contingency, and a late RSD of December 13, 2022, inclusive of 324 days of IST contingency and 669 days of program-level contingency." Overall, the IPS has had 993 calendar days of contingency since July 1, 2014, baseline. This amount of contingency is equivalent to 47% of the IPS duration. Due to the very high percentage of schedule contingency, the PMOC believes that the ESA IPS is not presently a useful management tool. Evidence of this can be observed in the current variance report that provides no discussion regarding an analytical forecast or schedule contingency drawdown for the IPS despite the PMT's acknowledgement that Contract CM006 MS #2 is late and the PMOC's projects a 4 to 6 month delay. Still there may be additional delays to the CM007 procurement, and that there is not yet any assurance that funding will be available in time to award Contract CM007 by December 31, 2015. As a result, the PMT maintains a vague explanation of the three RSD dates.

The PMOC's schedule has been presented in Section 4.1 with specific contingency allocated to packages that have a total of 12 months of contingency for the RSD of December 2023.

## 5.0 PROJECT COST

Note: All references to expenditures in this report are with respect to the current cost baseline that was agreed upon at the MTA CPOC meeting in June 2014.

### 5.1 Budget/Cost

On June 23, 2014, MTACC presented a budget for the ESA project of \$10,178M (excluding the \$463M Rolling Stock Reserve and financing cost) to the MTA CPOC. Table 5.1 below shows the changes in the SCC budget breakdown between the FFGA Baseline budget and the 2014 re-planned budget.

Observations: During the re-planning effort, the PMT re-examined each of the contract packages. Some budgets changed due to major re-estimates, others due to adjustments in the Contingencies. Some scope transfer between packages occurred and some work was rebudgeted to Regional Investments (RI). Subsequent to the Budget Re-Plan, several packages have required re-estimating and other have exceeded the re-plan budget.

Concerns and Recommendations: Whereas SCC breakdowns are assigned to scope transfers, there still remain issues of proper allocation of contingencies by SCC.

**Table 5.1: Comparison of Standard Cost Categories: FFGA vs. CBB**

Standard Cost Category (SCC) No.	FFGA SCC baseline (YOE \$) M	June, 2014 Re-Plan (YOE \$)	June 2015 SSC (YOE \$) M	July 2015 SSC (YOE \$) M	August 2015 SSC (YOE \$) M	August 2015 % of Re-Plan	Jun '15 to Aug '15 Change \$M	CBB Variance from FFGA %
10	1,989	3,405	3,433	3,433	3,433	100.82%	0	72.60%
20	1,169	2,238	2,339	2,339	2,339	104.51%	0	100.09%
30	356	474	474	474	474	100.00%	0	33.15%
40	205	611	583	599	599	98.04%	-16	192.20%
50	619	606	576	563	563	92.90%	13	-9.05%
60	165	220	219	219	219	99.55%	0	32.73%
70	957	210	210	210	210	100.00%	0	-78.06%
80	1,184	1,975	1,975	1,975	1,975	100.00%	0	66.81%
<b>Subtotal</b>	<b>6,813</b>	<b>10,178</b>	<b>10,178</b>	<b>10,178</b>	<b>10,178</b>	<b>100.00%</b>	<b>0</b>	<b>49.39%</b>
100	1,036	1,036	1,036	1,036	1,036	100.00%	0	0.00%
<b>Total Project Cost (10 – 100)</b>	<b>7,849</b>	<b>11,214*</b>	<b>11,214*</b>	<b>11,214*</b>	<b>11,214*</b>	<b>100.00%</b>	<b>0</b>	<b>42.87%</b>

\*This total amount does not include Regional Investment amount of \$758,260,953.

Reasons for Changes to SCC Codes: All changes are the result of changes to Pending and Potential MOD Issues.



## 5.2 Project Cost Management and Control

### Status:

The PMT has reported that, as of August 31, 2015, the actual total project progress was 58.6% vs. 59.1% planned progress resulting from the June 2014 re-baseline; a review of the actual project progress vs. the planned based on invoiced amount and the new budget shows the same percentage, for actual progress but the planned progress should be 59.7%. In addition, since the ESA Cash Flow chart goes one-year farther than ESA's current target schedule, the Planned performance is lower than needed to make its target dates. At the September 2015 Cost Review meeting, the ESA Project Controls Manager stated that it is ESA's projection that all of the Contingency will be used, and therefore the Cash Flow chart differs from previous ESA positions that Contingency will not be fully required. Table 5.2 shows the budget status of contracts awarded to date and invoiced amounts to date.

**Table 5.2: Project Budget and Invoices As of August 2015**

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (Aug 2015)	Actual Awards (Aug 2015)	Paid to Date (Aug 2015)	Actual % Budget Paid
Construction	\$7,379,296,706	\$7,452,057,092	\$5,445,901,339	\$4,187,149,396	56.19%
<b>Soft Costs Subtotal</b>	<b>\$2,798,474,304</b>	<b>\$2,728,730,635</b>	<b>\$1,682,552,224</b>	<b>1,620,169,393</b>	<b>59.37%</b>
Engineering	\$720,615,810	\$720,615,810	\$668,998,499	\$651,538,783	90.41%
OCIP	\$282,613,620	\$282,613,620	\$206,370,653	\$203,867,079	72.14%
Proj Mgmt.	\$972,168,644	\$972,168,644	\$691,221,439	\$650,418,027	66.90%
Real Estate	\$182,076,230	\$182,076,230	\$115,961,633	\$114,345,504	62.80%
Rolling Stock	\$202,000,000	\$202,000,000	\$0	\$0	0.00%
<b>Project Subtotal w/o Financing &amp; RI</b>	<b>\$10,177,771,010</b>	<b>\$10,180,787,727</b>	<b>\$7,128,453,563</b>	<b>\$5,807,318,789</b>	<b>57.04%</b>

Note: The Engineering Change is due to reclassification of some MODs from ESA to RI/Non-ESA

### Observations:

The PMT has been providing package estimates for future contract packages but sometimes has not included them in the latest Forecast amount. This was a significant problem with CM007 Estimates over the last year.

### Concerns and Recommendations:

The use of a single integrated cost reporting system would strengthen the capacity for analysis and for a joint review of the cost relationships. The PMOC recommends that ESA continue to work to improve the accuracy and timeliness of its new cost reporting and control system.

### 5.3 Change Orders

Table 5.3 below shows the executed mods greater than \$100,000 during August 2015.

**Table 5.3: ESA's Change Order Log in August 2015 (>\$100,000)**

BA #	Package	Mod#	Description	Mod. Amount (\$)	August 2015 package value (\$)
871	CH053	153	Storm Sewer interferences West of 39 <sup>th</sup> St. Bridge	\$250,000	\$311,168,634
878	CM014B	3	UL Cable Replacement	\$194,000	\$426,195,736
870	CQ032	59	Bench for Bellmouth & Partial Bellmouth Structure	\$2,200,000	\$250,197,871
870	CQ032	60	Furnish & Install FSP at Tunnel A	\$1,310,000	\$250,197,871
880	CQ032	68	Support Structure at Bellmouth	\$5,650,000	\$250,197,871
N/A	GEC	95	Additional Funding for CPS	\$1,188,000	\$469,040,956

Notes: When multiple MODs are executed in same month for the same contract, ESA supplied documentation does not indicate order of execution or values before or after that specific MOD.

#### Status/Observation

The estimated values for MODs at the Pending and Potential levels used for Assigned to MODs is often far off from the settlement amounts. This has led to significant swings in the contingency levels from month to month. The level of variance between estimates by the CM and the Executed MODs continue to be significant and the CM estimating approach needs to be reviewed to increase reliability.

#### Concerns and Recommendations:

While the cost forecasts prior to the Re-Plan included all the possible costs for MODs, no matter their status, afterward ESA generally excluded some of those costs in the Estimate at Completion (EAC). As of last month, ESA is now providing Forecast values for packages which include all stages of MOD development. To improve its project forecasts, the PMOC recommends that ESA directly address the reliability of CM-estimated MODs and the large variances that occurs within them.



Status/Observation:

In its 2014 Re-plan Budget, ESA introduced a new category, “Additional Contingency”. There is an added column on the Project Working Budget (PWB) report for specific funds for known issues not handled just by Post-Award Contingency. Whereas in a few cases it represented additional risk from the assessments for other contracts, the precise determinations are unclear.

**6.0 RISK MANAGEMENT**

The last monthly risk meeting held by ESA was in January 2015. Since that time, ESA has not succeeded in addressing the risk topics as they had planned during the subsequent monthly cost and schedule review meetings. In response to the PMOC’s request, ESA will resume the dedicated monthly risk meetings now expected to start in October 2015.

The Contract CM007 risk workshop was conducted over a two-day period on April 8 & 9, 2015. The preliminary risk report was forecast to be issued by April 28, 2015, but this did not occur. At the FTA/MTACC Executive Meeting on May 21, 2015, the FTA and the PMOC were advised that the distribution of the draft risk report was discussed by upper management at ESA-PMT, MTACC, MTA and included the MTA President. Because of the very high level of concern about the confidentiality of the risk results, MTA decided to proceed with a very limited internal distribution of the draft risk report and a very small group participated in the May 1, 2015, internal briefing. The FTA noted that they and the PMOC had participated in the workshops and would now like to review the report written by the MTACC’s risk facilitator. MTACC responded that they would discuss FTA’s request with MTA upper management and provide an answer to the FTA. As of September 30, 2015, MTACC has not provided the draft risk report.

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

**6.1 Risk Process**Status/Observations:

As discussed above, MTACC has not released the results of the package level risk assessment completed in April 2015 for the CM007 contract. Conducting the CM007 Risk Assessment after the RFP is advertised is of concern, given the fact that ESA did not conduct a full

constructability review for the final configuration of this package as called for in its management plans.

Concerns and Recommendations:

In the PMOC's opinion, funding availability continues to be a significant risk on the ESA project. Funding uncertainty has resulted in the PMT's delay of CM007 contract award until late 2015 or early 2016 due to budget constraints and the restructuring of the CS179 contract by splitting it into a base contract with seven options, based on access restraints imposed by the CM006, CM007, and CM014B packages, which will significantly increase the interface risks. The CM007 technical/schedule proposal due date has now been delayed a total of 4.5 months and the PMOC is concerned that there is no longer sufficient time to successfully complete negotiations and have a final recommendation for award to meet the December 31, 2015, award forecast date.

The segmentation of construction packages has resulted in multiple inter-contract interfaces and milestones. The probability of successfully achieving all of them is low, in the PMOC's opinion, and leads to the possibility of a ripple effect of delays and coordination difficulties between contracts. There are very limited opportunities for the contractors to make up time lost to interface delays. Managing inter-contract handoffs and interfaces will be challenging. Schedule risks will be exacerbated if funding is not in place to award the options in the CS179 Contract Package as planned in November 2015. Access Restraints in the CS179 contract are correlated to the options in the Contract and the CS179 contract will also have multiple interfaces with the CM007 contract which has not yet been awarded. Given that this work is on the project critical path, delays in awarding the options will result in the use of Program schedule contingency.

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

## **6.2 Risk Register**

Status/Observation:

The PMT has resumed submitting its risk register on a regular basis.

Concerns and Recommendations:

ESA should continue to automatically submit Risk Register updates to the FTA and PMOC on a regular basis as called for in the RMP.

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

- Program Funding;
- Successful execution of dozens of hand-off interfaces across multiple contracts;
- Contractor access and work area coordination in Manhattan;
- Duration of integrated systems testing;
- Continued availability of adequate Amtrak and LIRR force account resources for both construction and third-party contractor support in Harold Interlocking; and
- Continued availability of required track outages in the Harold Interlocking.

### **6.3 Risk Mitigations**

#### Status/Observation:

Current Risk Mitigation Efforts: The PMOC notes that the PMT is implementing mitigation strategies for a number of identified risks. Examples include: advancing procurement of the 8 CILs for the Mid-Day Storage Yard and actively engaging Amtrak to develop some specific strategies for mitigating many of the identified risks, especially regarding initiatives with Amtrak to pursue labor agreements to allow more third-party work in the Harold Interlocking to provide flexibility and additional resources. Implementation of the Harold schedule re-sequencing to support the “ESA First” approach of advancing work elements required to provide LIRR service into GCT will help mitigate some of the schedule delay risks. Success of the Harold re-sequenced schedule, however, is contingent on both Amtrak and LIRR providing the necessary force account support to the third-party contractors and completing their own force account construction work elements on schedule.

#### Concerns and Recommendations:

Having performed several programmatic risk assessments and multiple package level risk reviews, the PMOC believes that MTACC is capable of developing effective mitigation strategies for the risks identified and tracking and reporting on them on a regular basis as required by the RMP. MTACC needs to continue to focus on developing, updating, and implementing effective mitigation plans for the identified major risks.

The many external stakeholder issues with Amtrak and LIRR will remain beyond MTACC’s direct control and this is likely to complicate problem resolution essential to completion of the project, especially those portions related to the Harold Interlocking.

## 7.0 PMOC CONCERNS AND RECOMMENDATIONS

### Priority in Criticality column

1 – Critical 2 – Near Critical

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
ESA-114-Sep13	3.0 ELPEP Compliance	<p><u>ELPEP Compliance:</u> With MTACC's submission of its East Side Access FTA Quarterly Report (Apr, May, June '13) and then continuing with all subsequent reports through August 2015, the PMOC notes that the ESA project continues to not be in compliance with ELPEP and is not meeting some of the more important requirements of the SMP and CMP sub-plans to the PMP.</p> <p><u>Status Update:</u> Specific areas of non-compliance were provided to MTACC at the September 12, 2013 ELPEP Quarterly Review Meeting and additional details provided on October 30, 2013. MTACC provided preliminary draft responses (partial) to the PMOC list of ELPEP non-compliances at the December 12, 2013, ELPEP Quarterly Compliance Meeting. MTACC and the PMOC met on February 27, 2014 to discuss the FTA and PMOC's concerns. At that meeting, MTACC acknowledged the need for more transparency/clarity in documenting the cost/schedule management processes to support traceability in the decision making process. Since that time, the PMOC has endeavored to engage the ESA Project Controls in productive discussions regarding improvements to cost and schedule reporting during the monthly cost and schedule review meetings. MTACC noted that both Cost and Schedule Management Plans will be revised, after completion of the PMP update, to improve the management processes and reporting. MTACC submitted the revised CMP on June 30, 2015.</p> <p>The PMOC notes that the updated TCC Plan was expected earlier in 2014 but was submitted on June 11, 2015, based on finalization of the role, responsibilities and level of authority of the ESA Change Control Committee. The FTA has provided MTACC with the PMOC review comments on both the TCC and the CMP. The PMOC is in the</p>	1



Number/ Date Initiated	Section	Issues/Recommendations	Criticality
		<p>process of resolving all remaining issues with MTACC via working level meetings.</p> <p><u>Recommendation:</u> The PMOC will continue to work with MTACC at the monthly cost and schedule review meetings to advance progress in this area. Although some improvements to the transparency/clarity and traceability of the decision-making process with regard to cost and schedule have been noted, the PMOC's opinion is that MTACC's continued efforts to improve are still needed.</p>	
ESA-119-Jun15	4.1 Schedule	<p><u>Contract Schedule:</u> The Baseline Schedule for Contract CS179 has yet to be approved. The Baseline Schedule represents an overall contract work plan that all stakeholders must agree upon and use to effectively progress the work.</p> <p><u>Status Update:</u> As of end of September 2015, 18 months out of this 68-month contract are already expended and there is still no "approved" Baseline Schedule that includes resource loading.</p> <p>Several iterations of the proposed baseline schedule have been submitted by the contractor, including the resource loaded schedule, but ESA has not approved any of them and has returned them to the contractor for re-submittal.</p> <p><u>Recommendation:</u> The PMOC recommends that the ESA CM convene a schedule workshop with all parties to discuss and finalize an "approved" Baseline Schedule.</p>	1
ESA-120-Sep15	3.0f Third Party Construction	<p><u>CM006 (Manhattan North Structures):</u> The contractor is behind schedule and is not meeting its recovery schedule.</p> <p><u>Status Update:</u> The contract is significantly behind schedule: actual cumulative total is only 37% complete against a planned total of 60%. Contractor was not able to achieve its approved recovery plan from 1Q2015 and continues to trend poorly. This delay may impact hand-off interfaces with the CM007 contract that is on the program critical path.</p>	1

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
		<u>Recommendation</u> : Working with the contractor, MTACC needs to finalize and implement an achievable recovery plan. The PMT should start development of schedule delay mitigation strategies regarding the CM006 and CM007 hand-off interfaces.	
ESA- 121- Sep15	2.2 Procurement	<p><u>CM007 (GCT Caverns and Finishes)</u>: The procurement of this contract that is on the program schedule critical path continues to be extended.</p> <p><u>Status Update</u>: The PMOC is concerned that the Contract CM007 proposal due date has been delayed a total of 4.5 months and this significantly reduces the time for negotiations on this very large contract that is currently on the program schedule critical path and is scheduled to be awarded by December 31, 2015.</p> <p><u>Recommendation</u>: The PMOC recommends that the ESA PMT begin developing mitigation strategies to address schedule and cost impact due to the late award of CM007.</p>	1

## 8.0 GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS

Priority in Criticality column 1 – Critical 2 – Near Critical

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution Date
ESA-A46-Dec12	Section 4.2	The ESA PMT agreed at a meeting held with FTA/PMOC on July 30, 2012 to develop a set of critical metrics jointly with the FTA/PMOC and MTA IEC that would be used as an early indicator of issues that need to be addressed by senior management. The need to do this was reiterated at the November 8, 2012 ESA/SAS mini-quarterly meeting. Critical metrics cannot be properly updated until approved baseline schedules are fully incorporated into their respective IPSs. At present, ESA has incorporated the latest Harold Re-Sequencing, developed in December 2014, into the IPS schedule. MTACC is currently working to correct discrepancies in the schedule baseline related to the activity ID numbering so that an accurate comparison can be completed between July 2014 baseline and the monthly IPS updates.	2	11/30/15

## **APPENDIX A - LIST OF ACRONYMS**

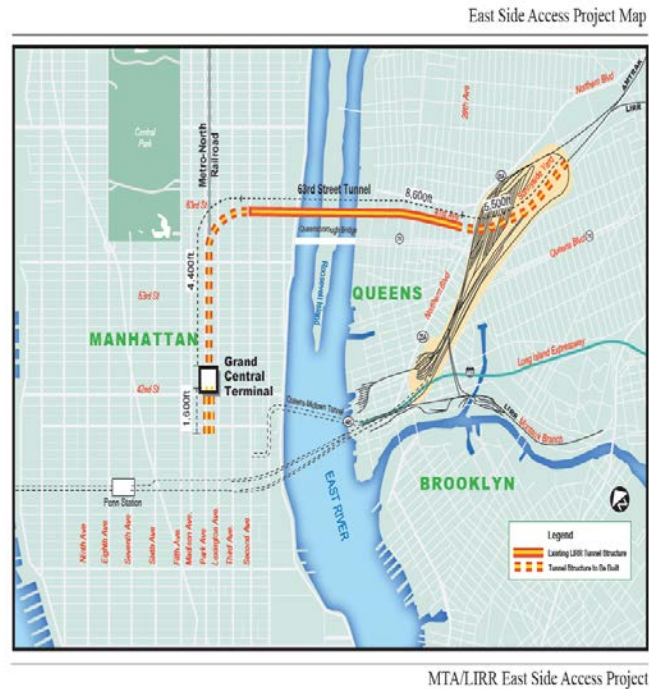
AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
BA	Budget Adjustment
CBB	Current Baseline Budget
C&S	Communication and Signals
CCC	Change Control Committee
CCM	Consultant Construction Manager
CM	ESA Construction Manager assigned to each contract
CMP	Cost Management Plan
CPOC	Capital Program Oversight Committee
CR	Candidate Revision
CSSR	Contact Status Summary Report
CIL	Central Instrument Location
CPRB	Capital Program Review Board
CPP	Contract Packaging Plan
DCB	Detailed Cost Breakdown
ELPEP	Enterprise Level Project Execution Plan
EPC	Engineering-Procurement-Construction
ERT	East River Tunnel
ESA	East Side Access
ET	Electric Traction
FA	Force Account
FAMP	Force Account Management Plan
FHACS	“F” Harold Alternate Control System
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GCT	Grand Central Terminal
GEC	General Engineering Consultant
HTSCS	Harold Tower Supervisory Control System
IEC	Independent Engineering Consultant (to MTA)
IFB	Invitation for Bid
IPS	Integrated Project Schedule
IST	Integrated System Testing
LIRR	Long Island Rail Road

LTA	Lost Time Accidents
MNR	Metro-North Railroad
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority Capital Construction
N/A	Not Applicable
NTP	Notice to Proceed
NYAR	New York and Atlantic Railroad
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCT	New York City Transit
NYSPTSB	New York State Public Transportation Safety Board
OCO	Office of Construction Oversight (MTA)
PCO	Preliminary Change Order
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 Access Plan
RFP	Request for Proposal
RMCP	Risk Mitigation Capacity Plan
RMP	Risk Management Plan
ROD	Revenue Operations Date
ROW	Right of Way
RSD	Revenue Service Date
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
TBD	To Be Determined

TBM	Tunnel Boring Machine
TCC	Technical Capacity and Capability
VE	Value Engineering
WBS	Work Breakdown Structure
WBY	Westbound Bypass Tunnel

## APPENDIX B-- PROJECT OVERVIEW AND MAP

### Project Overview and Map – East Side Access



### 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 63<sup>rd</sup> 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).

### 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
08/19	Revenue Service Date at date of this report (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) at date of this report including \$ 1,036.1 million in Finance Charges
5,807.3 million	Amount of Expenditures as of August 31, 2015 based on the Total Project Budget of \$10,177.8 million
58.6	Percent Complete based on the Re-plan budget of \$10,177.8 million and invoices in the August 2015 report
58.2*	Construction Percent Complete
58.6	Overall Project Percent Complete

\*As of August 31, 2015, based on the June 2014 ESA Re-plan Budget and excluding \$463 million for Rolling Stock Reserve, as provided by ESA in its August 2015 Report.



### APPENDIX C – LESSONS LEARNED

#	Date	Phase	Category	Subject	Lessons Learned
1	Dec-12	Construction	Construction	Muck Handling	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	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 the CH053 contract. The PMOC recommended that the MTACC and its 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 let.
3	June-13	Construction	Planning/ Construction	Haul Roads	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.

#	Date	Phase	Category	Subject	Lessons Learned
					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	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	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.
6	June-13	Administration	Quality	Submittals	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.

#	Date	Phase	Category	Subject	Lessons Learned
7	June-13	Contract Specs/ Construction	Construction	Pneumatically Applied Concrete (PAC)/ Shotcrete	Mismanagement of PAC/Shotcrete application has many different aspects which could adversely affect a project. Lesson learned is that all 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	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 do more harm than good. 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	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 estimates can have a large negative impact on project schedule.

## APPENDIX D – SAFETY AND SECURITY CHECKLIST

<b>Project Overview</b>			
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		
<b>Project Plans</b>	<b>Version</b>	<b>Review by FTA</b>	<b>Status</b>
Safety and Security Management Plan	12/2010 Rev. 2	2012	Grantee 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.
<b>Safety and Security Authority</b>	<b>Y/N</b>		<b>Notes/Status</b>
Is the Grantee 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 Grantee's SSPP as per Part	In Development		In Q4 of 2013, the SSOA has asked the FTA for

<b>Project Overview</b>		
659.17?		guidance on approving the SSPP.
Has the oversight agency reviewed and approved the Grantee's Security Plan or SEPP as per Part 659.21?	In Development	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.
Did the oversight agency participate in the last Quarterly Program Review Meeting?	N	<p>The SSOA has no plans to attend these meetings. Grantee to transmit SSMP to SSOA through the Grantee'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.</p> <p>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.</p> <p>The SSOA has stated that they will not interface with the safety certification process for ESA until such a time as</p>

<b>Project Overview</b>		
		it is signed and certified by LIRR.
Has the Grantee submitted its safety certification plan to the oversight agency?	Y	The Grantee has submitted its safety certification plan to the NYS SSOA.
Has the Grantee 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.
<b>SSMP Monitoring</b>	<b>Y/N</b>	<b>Notes/Status</b>
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	
Grantee reviews the SSMP and related project plans to determine if updates are necessary?	Y	Grantee has forwarded the revised SSMP directly to FTA.
Does the Grantee 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 Grantee's safety and security personnel are integrated

<b>Project Overview</b>		
		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 Grantee has added a "security function" assessment to its internal quarterly contractor audit.
Does the Grantee 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 Grantee's monthly project reports.
Has the Grantee established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	Contained within the Grantee's safety procedure documents.
Does the Grantee update the safety and security responsibility matrix/organizational chart as necessary?	Y	To be incorporated into the next revision of the SSMP.
Has the Grantee 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

<b>Project Overview</b>		
		consultant's report included programmatic and system security recommendations that are currently being reviewed by MTACC and MTA Police.
Has the Grantee 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 Grantee implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?	Y	Safety Certification committee meetings as well as project wide monthly safety meetings take place.
Does the Grantee 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 Grantee 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 Grantee ensured the development of safety design criteria?	Y	The Safety Certification Committee has validated the safety design criteria developed by the GEC.
Has the Grantee ensured the development of security design criteria?	Y	Accomplished through the SSMP Committee process.
Has the Grantee ensured conformance with safety and security requirements in design?	Y	Achieved through the Safety Certification Committee process.



<b>Project Overview</b>		
Has the Grantee verified conformance with safety and security requirements in equipment and materials procurement?	Y	The Grantee has not verified conformance for materials procured to date. Thus far, the Grantee 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 Grantee is attempting to devise a workable solution. Since the 4th quarter of 2014, the Grantee has begun to document said verifications by use of their Quality Department reports and CM inspection reports.
Has the Grantee verified construction specification conformance?	Y	Through ongoing contract review.
Has the Grantee identified safety and security critical tests to be performed prior to passenger operations?	N	Although the Grantee has established preliminary hazard analysis (PHA) and a system test plan, the Grantee needs to identify safety and security critical tests in its Test Program Plan. The Grantee 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

<b>Project Overview</b>		
		construction vs. incomplete critical testing. Grantee believes that all hazards listed on the PHA log are either safety and/or security critical.
Has the Grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	In Development	Project is not at these phases yet. The Grantee is in the process of implementing requirements of the SSMP to conform to construction testing and integration requirements.
Does the Grantee evaluate change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	In Development	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 Grantee ensured the performance of safety and security analyses for proposed workarounds?	In Development	
Has the Grantee 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 Grantee 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

Project Overview		
		<p>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 Grantee 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.</p>
Has the Grantee issued final safety and security certification?	N	Project is not at this stage.
Has the Grantee 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 - COST AND SCHEDULE ANALYSIS TABLES

**Table F-1: ESA Planned Cash Flow as of 6/30/15**

Quarter/year	Construction \$(000)	Engineering \$(000)	OCIP \$(000)	Project Mgmt. \$(000)	Real Estate \$(000)	Rolling Stock \$(000)
<b>Paid To Date</b>	<b>3,660,194,771</b>	<b>646,377,892</b>	<b>155,604,955</b>	<b>580,041,291</b>	<b>112,634,547</b>	<b>0</b>
<b>Remaining</b>	<b>3,719,144,273</b>	<b>74,237,918</b>	<b>127,008,665</b>	<b>392,127,353</b>	<b>69,441,683</b>	<b>202,000,000</b>
3Q2014	209,340,620	-3,311,163	4,774,951	16,667,454	0	0
4Q2014	168,280,817	-3,290,689	4,774,951	16,667,454	75,948	0
1Q2015	134,568,200	-3,183,384	4,619,246	16,123,950	4,506,241	0
<b>Remaining Planned</b>	<b>3,206,954,636</b>	<b>84,023,154</b>	<b>112,839,518</b>	<b>342,668,494</b>	<b>64,859,494</b>	<b>202,000,000</b>
<b>Remaining Actual</b>	<b>3,283,624,272</b>	<b>77,581,669</b>	<b>97,288,553</b>	<b>336,910,027</b>	<b>67,826,147</b>	<b>202,000,000</b>
2Q2015	147,357,357	-3,290,689	4,774,951	16,667,454	4,658,137	0
3Q2015	169,688,509	-3,290,689	4,774,951	16,667,454	4,658,137	0
4Q2015	201,239,698	-3,290,689	4,774,951	16,667,454	4,658,137	0
1Q2016	193,275,933	-3,219,153	4,671,147	16,305,118	4,556,873	0
2Q2016	180,854,738	-3,290,689	4,774,951	16,667,454	4,658,137	8,666,545
3Q2016	181,988,455	-1,983,850	4,774,951	16,652,320	4,658,137	13,070,855
4Q2016	214,173,807	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2017	210,556,624	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2017	199,737,103	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2017	189,382,506	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
4Q2017	182,084,699	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
1Q2018	174,210,593	6,509,009	4,619,246	15,450,479	4,506,241	12,644,631
2Q2018	170,524,739	6,728,414	4,774,951	15,971,281	4,658,137	13,070,855
3Q2018	168,497,619	6,728,414	4,774,951	15,971,281	4,658,137	14,014,767
4Q2018	155,245,094	6,728,414	4,774,951	15,971,281	50,632	14,014,767
1Q2019	148,441,548	6,509,009	4,619,246	15,450,479	0	13,557,764
2Q2019	110,893,994	6,728,414	4,774,951	15,971,281	0	14,014,767
3Q2019	93,559,944	6,728,414	4,774,951	15,971,281	0	14,014,767
4Q2019	71,649,848	6,728,414	4,774,951	15,971,281	0	14,014,767
1Q2020	20,704,406	6,582,144	4,671,147	15,624,080	0	5,043,553
2Q2020	11,682,057	6,728,414	4,774,951	15,971,281	0	943,912
3Q2020	7,573,078	2,267,183	4,947,825	5,381,627	0	0
4Q2020	2,750,374	0	5,035,679	0	0	0
1Q2021	881,913	0	3,256,771	0	0	0
<b>BL Subtotal</b>	<b>3,719,144,273</b>	<b>74,237,918</b>	<b>127,008,665</b>	<b>392,127,353</b>	<b>69,441,683</b>	<b>202,000,000</b>

**Table F-2: 90 Day Look-Ahead Schedule**

Activity ID	Activity Name	Start	Finish	IPS- CONTRACT
<b>FHA02: Harold Stage 2 - Amtrak F/A: Balance Work</b>				
SUMFHA02-1650	Install DN2 Switch (743B)		17-Oct-15	FHA02
SUMFHA02-1540	Cutover - ZJ1/ZJ2 (747)		8-Nov-15	FHA02
SUMFHA02-1560	Cutover - DN2 (743B)		8-Nov-15	FHA02
FHA02-1060	CH054A - Completed SMUS 1 & 2/Install New RTU		14-Oct-15	FHA02
<b>CM013A: 55th Street Vent Facility</b>				
CM013A-060	CM013A - MS#2 Substantial Completion		7-Dec-15	CM013A
<b>CM014B: GCT Concourse and Facilities Fit Out</b>				
CM014B-2320	Start EL-14, T-01	2-Dec-15		CM014B
<b>CM014A: GCT Concourse and Facilities Fit Out</b>				
CM014A-1100	CM014A - Substantial Completion (535CDs from NTP)		30-Oct-15	CM014A
CM014A-1090	Permanent Power Available @ B30		6-Dec-15	CM014A
<b>CM005: Manhattan South Structures</b>				
CM005-1010	Milestone 1 Escalator/Cavern Connections - Complete Wellways 1 thru 4 - MS30 (September 9 2014)		22-Dec-15	CM005
<b>CM006: Manhattan North Structures</b>				
CM006-MS5	CM006 Milestone #5 (GCT 4 Facility Room - 460 CD from NTP (7/4/2015)		3-Dec-15	CM006
<b>CM007: GCT Caverns</b>				
CM007-0160	CM007 Notice of Award		31-Dec-15	CM007
CM007-1020	CM007 NTP	4-Jan-16		CM007
<b>CQ032: Plaza Substation &amp; Queens Structures</b>				
CQ032-MS11	Milestone #11 Complete YLT Ductbench Work Between Station 1181+89--1225+10		12-Nov-15	CQ032
CS078-T1490	(YL Bench Walk) Completion of Bench Walk		1-Jan-16	CQ032
CQ032-MS01	MILESTONE #1 - COMPLETE B10 SUBSTATION STRUCTURE		9-Oct-15	CQ032
<b>CQ033: Mid-Day Storage Yard Facility</b>				
CQ033-1050	CQ033 Begin Preparation for Advertisement		28-Oct-15	CQ033
CQ033-1060	CQ033 Begin Advertisement	28-Dec-15		CQ033
<b>VQ033: CIL Procurement - Mid-Day Storage Yard(CQ033) - TBD</b>				
VQ033-1090	VQ033 Notice To Proceed (NTP)	4-Nov-15		CQ033.VQ033
<b>CH053: Harold Structures - Part 1 &amp; G.O.2 Substation</b>				
CH053-5140	Con-Ed Energize High Voltage Service at G02 Substation		16-Oct-15	CH053

CH053-6110	G02 Accepted - CH053 Perini Complete		13-Nov-15	CH053
CH053-5190	Turnover G02 Substation to LIRR - Prior to Burn In of Substation		13-Nov-15	CH053
CH053SC	Milestone #9 - CH053 - Substantial Completion		28-Dec-15	CH053
<b>CH054A: Harold Structures - Part 2A</b>				
CH054A-890	Milestone #3 - Substantial Completion - CH054A within 485 calendar days from NTP		14-Oct-15	CH054A
<b>CH057A: Westbound Bypass Structure (exclude Slab)</b>				
CH057A-1860	Complete CPR-21 Work		8-Nov-15	CH057A
CH057A-5580	CH057A Milestone 2 - Signal Bridge 16		25-Oct-15	CH057A
<b>CH057C: Harold Track Work - RPR Track (On call Contract)</b>				
CH057C.SC	CH057C - Substantial Completion - NTP + 123 ( Contract - 11/14/2014)		25-Dec-15	CH057C
CH057C.1170	CH057C - Access Restraint For RPR Track - NTP + 93 - Driven by H3 Cutover		16-Nov-15	CH057C
<b>CH057D: Harold Track Work (PW1/NH1/WBY)</b>				
CH057D-0030	100% Design Submission - Contract CH057D		30-Dec-15	CH057D
<b>CH057E: Harold Catenary Work</b>				
CH057E-8320	100% Design Submission - Contract CH057E		4-Nov-15	CH057E
CH057E-8360	CH057E Advertise Date	26-Nov-15		CH057E
CH057E-8380	CH057E - Bid Due Date		17-Dec-15	CH057E
<b>CH061A: Tunnel A</b>				
CH061ANTP	NTP CH061A - A Approach & D Approach (East End) : 3-July-17	5-Jan-16		CH061A
CH061A-2200	CH061A Advertise Date	13-Oct-15		CH061A
CH061A-2130	CH061A - Bid Due Date		19-Nov-15	CH061A
<b>CH057: Harold Structure - 48th Bridge and D Pit &amp; Approach Structure</b>				
CH057-2050	Issue Notice of Award (CH057)		14-Oct-15	CH057
CH057NTP	NTP CH057-Harold Struct Pt 2/3: 48th Bridge and D pit & Appr	15-Oct-15		CH057
CH057-Option	Excute Option Work	3-Nov-15		CH057
<b>CH058A: B/C Structure / Catenary Structure</b>				
CH058A-0030	GEC revised plan submission - CH058A		30-Dec-15	CH058A
<b>CH058B: Eastbond Reroute Structure</b>				
CH057-MS1000	Remove Signal Hut "B" - after H3 CIL cutover		15-Nov-15	CH058B
<b>FHA01: Harold Stage 1 - Amtrak F/A</b>				
CH053-DM001B	CH053 - Substantial Completion		28-Dec-15	FHA01
<b>FHL01: Harold Stage 1 - LIRR F/A</b>				
FHL01-1400	12 KV Cutover + Demo existng (CH053)		18-Dec-15	FHL01

FHL01-1150	Complete Trough H2 to H3 (Track A)		24-Nov-15	FHL01
FHL01-1210	Testing & Commissioning G02 Substation	13-Nov-15		FHL01
<b>VH051 (Part 1): Harold &amp; Point CILs</b>				
VH51C0340	FIAT COMPLETED (w/HTSCS Contract)		30-Oct-15	VH051-Part1
<b>CS179: System Facilities - Package #1</b>				
CS179-OPT2	Option 2 - Manhattan North - 11/06/15	6-Nov-15		CS179
CS179-OPT3	Option 3 - GCT Concourse - 12/26/15	26-Dec-15		CS179
CS179-OPT6	Option 6 - Obsolescence Mgmt. - 11/06./15	6-Nov-15		CS179
CS179-OPT7	Option 7 - Specialty Equipment for Options - 11/06/15	6-Nov-15		CS179
CS079-B4660	CR-110 @ 2nd Ave. - TEST - Start of Subsystem Testing (SST)	16-Nov-15		CS179
CS079-B8390	CR-116 @ 29th Street - Start of Subsystem Testing (SST)	21-Oct-15		CS179
CS079-B5280	CR-111 @ Roosevelt Is. - TEST - Start of Subsystem Testing (SST)	19-Oct-15		CS179
CS079-B11550	CR -115 @ 12th Street - TEST - Start of Subsystem Testing (SST)	24-Dec-15		CS179
CS179-1220	CS179 AR 6B - Yard Services Building	7-Nov-15		CS179
CS079-B3730	CR-122 @ Yard Lead Exit (39th St.) - TEST - Start of Subsystem Testing (SST)	16-Oct-15		CS179
<b>FHL02: Harold Stage 2 - LIRR F/A</b>				
FHL02.MS.00035	MS - Cutover H3 CIL (2E)		15-Nov-15	FHL02
FHL02-3190	Ready to Demo Rack at Woodside		30-Nov-15	FHL02
FHL02-7310	Woodside MG Operational		6-Nov-15	FHL02
FHL02-7280	L-4 Service Operational		9-Oct-15	FHL02
<b>VHA04: Procure Materials for Harold Stage 4 - Amtrak F/A</b>				
VHA04-1000	NTP VHA04 - Procure Materials Stage 4 - Amtrak	16-Nov-15		FHA04. VHA04
<b>(TBD Contract) Invert/Bench Walk @ Queens Y/L &amp; Tunnel A</b>				
CS078-T1300	Completion of 1st Concrete Slab (Invert) Ready for Trackwork @ Yard Lead		22-Oct-15	T40



**APPENDIX G - ESA CORE ACCOUNTABILITY ITEMS****Table G – ESA Core Accountability Items**

<b>Project Status:</b>		<b>Original at FFGA</b>	<b>Current*</b>	<b>ELPEP **</b>
<b>Cost</b>	Cost Estimate	\$7.368B	\$10.178B	\$8.119B
<b>Schedule</b>	RSD	December 31, 2013	December 2022	April 30, 2018
<b>Total Project %Complete</b>	Based on Invoiced Amount	58.6 (ESA Figure)		
<b>Project Performance Rate</b>	Based on Earned Value	84% of Re-Baselined Plan (PMOC Calculation)		
<b>Major Issue</b>	<b>Status</b>	<b>Comments</b>		
Major Procurements Delays	CM014B was advertised in May 2014; ESA did not make its recommendation to award forecast date of November 2014, and did not make its last forecast date of November 2014 for advertising CM007. CM007 was advertised in late December 2014, with proposals due on May 1, 2015, and this has slipped to September 15, 2015. The CM014B Award and NTP were issued February 2, 2015. Award of CM007 is contingent upon funding availability.	PMOC remains concerned about the potential project schedule impacts of procurement delays on these two packages, CM014B and CM007, since they are on the critical and near critical paths for the project. CM007 technical proposals were received on September 15, 2015 and cost proposals are due on October 20, 2015.		
Project Schedule	MTACC presented a new baseline schedule to the MTA CPOC in June 2014, with an RSD in December 2022. This schedule incorporates 22 months of Program level contingency. It should be noted that there have been significant changes in elements comprising the baseline schedule, including full re-sequencing of the Harold work and restructuring of the CM007 package.	CM006 has experienced significant delays and has yet to meet the approved recovery schedule production targets. The PMOC is also concerned about the ability of the CS179 Contractor to manage this key Contract that is complex and on the critical path based on the difficulties it continues to have in providing an “approved” baseline schedule.		
Harold Re-planning	The Harold baseline schedule that formed the basis of the Program schedule presented to the CPOC in June 2014, is no longer valid. Based on continuing issues with slow progress and inadequate force account support, ESA completed a Harold schedule re-sequencing in December 2014, also known as “ESA First,” that advances work elements required for the new LIRR service to GCT and delays the FRA funded High Speed Rail Work beyond 2017.	Work on the Harold Interlocking is subject to influences outside of the control of ESA. Continuing issues with the level of Amtrak force account support, currently providing only 70% of required resources, could further delay the Harold Interlocking work.		

\* Current Budget was approved by MTA CPOC in June 2014.

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