PMOC COMPREHENSIVE MONTHLY REPORT

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

Report Period December 1 to December 31, 2014

PMOC Contract No. DTFT60-09-D-00007

Task Order No. 7, Project No. DC-27-5235, Work Order No. 1

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

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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. DTFT60-09-D-00007, Task Order No. 007. 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 4th Quarter 2014

a. Engineering/Design Progress

As of the end of November 2014, MTACC reported that the overall Engineering effort had remained at 98.3% complete, based on Earned Value for Design Deliverables. Their Cost Report shows 86.8% of the overall EIS & Engineering category as invoiced and 86.9% of the budgeted section titled "Design" as having been invoiced.

b. New Contract Procurements

Bids for CS084 (Traction Power Substation) were opened on September 11, 2014. Notice of Award was issued on October 29, 2014.

c. Construction Progress

The PMT reported in its November 2014 Monthly Progress Report that the total construction progress reached 53.1% complete; the Expedition Cost Report shows 53.6% of Construction as having been invoiced.

d. Continuing and Unresolved Issues

The new baseline total cost and Revenue Service Date were presented to the MTA CPOC on June 23, 2014. ESA has begun to incorporate the new data into its regular reporting processes, but must now more effectively forecast and manage the scope, schedule and Program Budget. While not a new issue, the current potential shortfall in funding availability (and its timing) could have a significant impact on the Program schedule (discussed further in the risk section of this report).

e. New Cost and Schedule Issues

The PMOC is also concerned about the impact of the latest Harold schedule re-plan, and its potential impact on overall project schedule contingency as well as the ESA RSD forecast date of December 2022. ESA committed to including the latest Harold schedule in November 2014 update for the IPS, but has revised this commitment to February 2015, due to the continuing re-planning and structuring of the Harold work. The latest re-plan for the Harold work was completed in December 2014; however since the new plan pushes back High Speed Rail work beyond 2017 which may subsequently impact FRA funding, the plan needs approval by Amtrak and the FRA.

3 PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

There have been no changes in key ESA personnel during Q4 of 2014.

b. Real Estate Acquisition

Details of the Real Estate acquisition activities are provided in Section 2.6 of this report. The major open issue remains the finalization of an agreement with the property owners of 415 Madison Avenue for the 48th Street Entrance.

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 transfer between Contract packages. Details are provided in Section 2.1 of this report.

d. Procurement

Bids for CS084 (Traction Power Substation) were opened on September 11, 2014 and notice of Award was issued on October 29, 2014. For the CM014B Contract procurement, revised cost proposals were received by ESA in November 2014, and the top ranked proposers were called in for negotiations in December 2014. MTACC advertised the CM007 Contract package on December 23 2014. Proposal documents will be made available in January 2015.

e. Railroad Force Account (Support and Construction)

During 4Q2014, LIRR Force Account personnel installed 3 new turnouts and "cutover" the new "H4" Central Instrument House (CIL) in Harold Interlocking. LIRR C&S personnel also continued to install trough and conduit, pull cables, make revisions and pretest circuits at the new "H3", "H5", "H6" and Location 30 CILs in Harold. LIRR Electric Traction personnel continued limited construction of the signal power separation system and continued to install 3rd rail apparatus at the new turnouts installed previously in 2014. Amtrak C&S forces continued to install trough and conduit for the future "Loop" and "T" Interlockings under work release FQA65. Amtrak ET personnel continued to make limited catenary wire transfers between the East River Tunnel portals and Sub 44 and protected ESA contractors during their respective construction activities.

f. Third-Party Construction

Manhattan: During 4Q2014, the CM005 contractor (Manhattan South Structures) continued to place concrete for the first lift of intermediate level exterior walls in the GCT 1&2 East Wye Cavern, placed concrete for the exterior walls and intermediate level slab of GCT 1&2 West Wye Cavern, placed concrete for the exterior and interior walls and intermediate level slab over the equipment rooms at the 38th St. Vent Facility, placed invert concrete between the Air Wye at 37th St. and the East Fan Chamber of the 38th St. Vent Facility, and completed placement of pneumatically applied concrete (PAC) in escalator archways #s 1 through 4 adjacent to the Westbound Cavern. All 4 escalator-ways are now completely lined between the concourse and cavern levels. ESA and the contractor also executed a contract modification for the placement of the first lift of sidewall concrete in the East- and Westbound Caverns during the quarter. This was a scope transfer from future contract CM007.

The CM006 contractor (Manhattan North Structures) continued its construction with concrete placement of the first lift of exterior and interior walls on the westbound side of the plenum at the 55th St. Vent Facility, concrete placement of the intermediate level slab from the lower level westbound tunnels to the eastbound tunnels at the 50th St. Vent Facility, placement of sidewall concrete and archway smoothing shotcrete in the GCT 4 West Wye Cavern, utility conduit and invert concrete placement in the 2 Central Instrument Rooms adjacent to the GCT 4 West Wye Cavern, waterproofing and the start of sidewall concrete placement in the GCT 5 West Wye Cavern, and invert concrete placement in the lower level westbound tunnel between 55th St. and the GCT 5 West Wye Cavern. ESA and the contractor also executed a contract modification for

construction of the north Back-of-House (BOH) facilities, which was a scope transfer from future contract CM007.

On CM013 (50th Street Vent Facility), the Contractor completed the requirement to release the partial Stop Work Order placed by the MTACC Code Compliance Unit (CCU) on placement of pneumatically applied concrete (PAC). Sign-off by the independent engineer continues to be unresolved and this has become an impediment to sign-off for substantial and final completion.

Queens: During 4Q2014, the CQ032 contractor completed concrete placement of the C07 level slab between the Early Access Chamber and the eastern end of the Q-Tip (except for a small section under the North Runner railroad bridge), completed construction of C06 and C07 level interior walls, continued excavation of the Yard Service Building foundation, and began to install signal and communications conduit in Tunnel B/C, signal and communications conduit and bench wall in the 63rd St. Tunnel, and also began to backfill the Bellmouth area.

Harold Interlocking:

Contract CH053 (Harold Interlocking, Part 1 and G.O.2 Substation): During 4Q2014, the CH053 contractor continued to make 12kV cable pulls and conduit installations in Harold Interlocking, completed conduit installation and began to pull utility and communication cables through micro-tunnel bore #s 1 through 4, completed construction of the emergency exit at the Tunnel A Approach Structure, and completed construction of the 27kV, 2.4kV, and car wash feed duct banks between the Run #12 reception pit and Amtrak Substation S-1.

Contract CH054A (Harold Structures Part 2A): During 4Q2014, the CH054A contractor began to pull utility and communications cables through the Run #13 micro-tunnel, completed its construction of the 12kV duct bank and began to pull and splice 12kV cables between the East River Tunnel portals and Sub 44, and completed micro-tunnel installation of the 48" diameter storm sewer between Thomsen Avenue and Queens Boulevard.

Contract CH057A (Westbound Bypass): During 4Q2014, the CH057A contractor continued installation of soldier piles in the West Approach of the Westbound Bypass Structure (the contractor installed 99 piles from October 1 through December 31 and has installed 103 to date), continued construction of a work deck that it will use to drive piles in the East Approach, and continued early construction to establish a de-watering system throughout its work site.

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

A Quarterly Operational Readiness meeting was held December 18, 2014. 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.

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

Table 2: Project Budget/Cost Table

	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**	**100.00%**	***$5,947.50***	***53.04%***
Financing Cost	$1,036	14.00%	$617	$1,036	9.24%	***617.6***	59.61%
Total Project Cost	$6,350*	86.00%	$4,107	$10,178	90.76%	***$5,329.90***	***52.37%***
Federal Share	$2,683	36.30%	$1,148	$2,699	24.07%	*$1,980.40*	*73.38%*
5309 New Starts share	$2,632	35.60%	$1,098	$2,436.60	21.73%	*$1,718.40*	*70.52%*
Non New Starts grants	$51	0.70%	$50	$67	0.60%	$66.60	99.40%
ARRA	0	0.00%	0	$195.40	1.74%	195.4	100.00%
Local Share	$3,667	49.60%	$2,959	*$7,479*	66.69%	*$3,349.50*	*44.79%*

j. Project Risk

The MTACC held monthly risk meetings with the PMOC in October 2014 and November 2014 in 4Q 2014. An updated project risk register was provided in December 2014.

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. At the December 11, 2014 ELPEP Quarterly Review Meeting, MTACC reiterated that the TCC Plan revisions are not yet completed pending finalization of the role, responsibilities and level of authority of the ESA Change Control Committee. As of December 31, 2014, the revised TCC Plan has not been submitted.
- **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; Risk-Informed Decision Making.
- **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 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.

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 SMP and CMP sub-plans to the PMP. The PMOC's opinion is that this continues to be a serious deficiency and needs to be resolved immediately. The PMOC's major areas of concern include:

- **Cost/Schedule Contingency**: In November 2014 ESA has submitted its initial cost and schedule contingency utilization curves for the new baseline budget and schedule presented to CPOC in June 2014 in order to comply with ELPEP; however they then stated they would correct them to make the curves usable by ESA Project Controls staff and acceptable to the FTA/PMOC. The PMOC does note, however, that draft proposed cost and schedule contingency drawdown curves were presented by MTACC at the December 11, 2014 ELPEP Quarterly Review Meeting and are currently under review by the PMOC.
- **Schedule Management Plan (SMP)**: The ESA project remains non-compliant with requirements for 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 had expected that MTACC would start to meet the requirements set forth in its SMP in the above referenced areas. This has not occurred as MTACC just completed, in December 2014, the Harold Re-Plan and has commenced incorporating the Re-Plan results into the Interlocking Project Schedule.
- **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 instead have waited for the approval of PMP Rev. 10. MTACC says they will resubmit the CMP by 1Q2015.

Revisions to the ELPEP Document: Although the 2014 Re-Plan budget number and Revenue Service Date were presented to CPOC on June 23, 2014, MTACC has not yet fully incorporated the schedule details into its regular monthly reporting. MTACC had committed to providing these details by about August 25, 2014. As of December 31, 2014, however, MTACC has not provided the complete schedule data that is the basis for the RSD presented to CPOC. MTACC has taken the position that the IPS will not be finalized and presented to FTA/PMOC until the current Harold Interlocking re-planning effort has been completed and to not expect a revision until December 2014. The PMOC notes that this current Harold re-plan will supersede the earlier Harold Re-Plan that began in 4Q2013 and was completed in 1Q2014. Revisions to the ELPEP Document cannot be completed until the IPS is finalized. The PMOC notes that MTACC completed the Harold Re-Plan this month and has started incorporating the Re-Plan results into the IPS.

The ELPEP Quarterly Review Meeting was held on December 11, 2014. The following is a summary of the significant discussion:

- Revised TCC Plan. (see discussion above)
- Draft cost and schedule contingency drawdown curves were distributed and presented by MTACC. There was a discussion period when MTACC answered PMOC questions.
- MTACC is nearing completion of the revisions to the ESA/SAS Cost Management Plan and expects to issue the draft for FTA/PMOC review in 1Q2014.
- MTACC requested that outstanding PMP comments be resolved in January 2015.

The next ELPEP Quarterly Review Meeting with MTACC, FTA-RII, SAS and ESA projects and the PMOC has been scheduled for March 12, 2015.

MTACC Project Procedures Audit Related to ELPEP: MTACC performed a Quality Audit on the East Side Access (ESA) Project to assure compliance to ELPEP related MTACC Project Procedures. ESA Plans that were audited included: the Project Management Plan (PMP), Cost Management Plan (CMP), Schedule Management (SMP) and Risk Management Plan (RMP). There were 11 findings: 6 for the PMP, 2 for the CMP, 2 for the SMP, and 1 for the RMP. The PMOC has received a copy of each finding and the proposed corrective actions. Although MTACC has closed this audit, the PMOC believes that 8 of the 11 findings require additional confirmation before the audit can be closed. Details were provided to MTACC for each finding.

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

ESA had hired a new senior scheduler to assume responsibility for maintaining and updating the IPS.

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 [redacted] 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 (CS179; CM014B). This is the third re-planning effort undertaken by ESA since the FFGA in 2006 (the second 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.

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 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 reviewed Rev. 10 and provided its comments to the FTA in 4Q2014.

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 draw down plan as required by the ELPEP agreement and submitted it in December 2014.

b) Cost

MTACC presented its new baseline budget of $10.177B [redacted] to the MTA CPOC in June 2014. The PMT developed a draft cost contingency draw down plan as required by the ELPEP agreement and submitted it in December 2014

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

There are currently no issues to report with regard to the Uniform Property Acquisition and Relocation Act of 1970. The LIRR has requested a Buy America non-availability waiver from the FTA for four specific components of switches for crossover/turnouts to be installed at the Harold Interlocking. The request has been made following extensive market research which

didn't find any domestic companies that manufacture the components. As of Q42014, this waiver request has not been granted to the best of the PMOC's knowledge. LIRR and Amtrak are currently looking at revising their technical specifications in order to achieve compliance. This issue has already impacted the 2015 LIRR schedule for this work and could impact the 2016 track outage schedule if not resolved in a reasonable time frame

1.5 Safety and Security

a) Safety Certification Process

The following activities related to safety certification took place during Q4 2014:

Design packages for CH057; CH058; and CQ033 are ready to be presented to the Safety Certification Committee in January 2015. Design packages with Amtrak components in them (FHA03; FHA04; and FQA65) were sent to Amtrak for review in October 2014. Comments have not been received yet.

It was stated at the 4Q2014 Operational Readiness meeting that the ESA project was having difficulty getting Amtrak to "certify" its packages (e.g. the FHA… force account packages). The PMOC suggested that the final certification package for the ESA project is ultimately accepted by the single MTACC/ESA Safety Certification Committee and that the FHA packages are part of the ESA project and should be treated no differently than any of the other construction packages for the project.

The Operational Readiness Group continued on developing a document control process to facilitate the traceability of certifiable elements and their status. The Group initially investigated doing this in Skire, the ESA database management software package, but it was determined this wasn't a viable approach, so they are now looking at alternatives, including linking Excel spreadsheets.

The PMOC remains concerned that the Safety and Security Committee has not met on a regular basis as per the ESA Safety and Security Management Plan (SSMP). This lack of regular meeting 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, however this item will remain open until more definitive meeting dates are put on a calendar. [Ref: ESA-96-Sep12]

b) Project Construction Safety Performance

Project safety statistics for lost time accidents on active construction contracts continue to trend above the Bureau of Labor Statistics (BLS) national average at 2.23 vs. 1.70 lost time accidents (LTA) per 200,000 hours. This is slightly lower than last reporting period (2.26). The CM005 Contract has an average of 3.28 LTA, trending higher than the project average but decreasing (from 3.63 LTA) since the last reporting period. The Contractor has committed to actions to improve safety awareness among its supervisors and crews and is taking steps to improve the safety on site including: daily toolbox talks with crews where safe work plans for the work activity to be performed will be discussed; daily operations meetings to discuss and coordinate the planned work activities will be held; construction debris will be collected in an organized fashion and properly bagged and/or bundled for efficient removal; clear walking paths to all work areas will be provided and access/egress to the underground work area will be maintained at all times.

c) Security

The PMT did not report any significant security issues in its November 2014 Monthly Progress Report. However it was reported at a CM005 job progress meeting there have been a number of incidents of incursion/trespassing onto the work site by workers from the CM006 Contract and the CM005 Contractor stated that it believes that MTACC is not providing adequate site security.

1.6 Project Quality

ESA Project Quality Manual (PQM): Revision 7 to the Project Quality Manual incorporated the PMOC's suggestions. The PQM was signed by ESA and MTACC Executive Management and issued. The PMOC recommends that the FTA approve it. [Ref: ESA-93-Jun12]

As-Built Process Audit: The ESA Quality Manager will conduct an As-Built Process Audit on the Contractors for the CH057A and CM006 contracts in January 2015. Contracts CH053, CH054A, CQ032, CM004, CM014A, CM005, CM013, and CM013A were audited earlier in 2014. Follow up audits with the CM office and GEC will be performed beginning in the first quarter of 2015 to ascertain/identify any inconsistencies in the submittal process and implementation of any as-built information received by the GEC, including whether the GEC is actually reporting back to the CM. [Ref: ESA-117-Sep14]

CS179 (Systems Package 1 – Base Contract): The CS179 ESA Construction Manager sent a letter to the contractor regarding unacceptable performance of submittals and document control. There are a number of issues that were addressed with the contractor at a meeting in December 2014. The contractor was informed that they must have all their required submittals in and required/necessary staff in place by mid-January or ESA Quality will issue nonconformance reports. [Ref: ESA-118-Sep14]

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 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 and is still working with the ESA staff to resolve the remaining issues.

Quality Training: The Director of Training for MTACC conducted training for the ESA Quality Staff on the revised Quarterly Quality Oversight process on December 4, 2014. The ESA Quality Manager will conduct training on close-out procedures, as well as on nonconformance reports and as-builts, beginning in February 2015.

Quarterly Quality Oversight Checklists: The ESA quality auditors use a generic checklist when performing their Quarterly Quality Oversights (QQO). The Contractors' Quality Plans that were approved by ESA often contained additional requirements. The PMOC recommended to MTACC Quality Management that each element in the QQO checklist be tailored to include these requirements. MTACC Quality agreed and the revised the checklist. In addition, many redundant questions were eliminated from the initial checklist.

Quarterly Quality Oversights (QQOs)

During the fourth quarter of 2014, the PMOC attended a QQO on the CQ032 contract. The following are the PMOC's observations:

CQ032	• This QQO was held on October 14, 2014. • There were six action items from the last QQO that was conducted on July 17, 2014. All actions have been satisfactorily completed. • The contractor introduced a new Quality Manager with 35 years of Quality experience. The existing staff has benefitted from additional experience. ➢ It is the PMOC's opinion that the contractor's Quality Staff has significantly improved. • There were seven issues identified during this QQO including: update the Construction Work Plan (CWP) Log; reference drawing numbers on test procedures; update the Organization Chart; enter serial numbers on test data sheets; update the Nonconformance Report (NCR) form; include follow-up dates on audit reports; and expand the training description in the next revision of the Contractors Quality Plan (CQP). ➢ The PMOC suggested that the seven action items from this QQO be placed on the Monthly Quality Management Meeting agenda.

1.7 Stakeholder Management

a) Railroads

LIRR Force Account personnel installed 4 new turnouts and "cutover" the "H4" Central Instrument Location (CIL) in Harold Interlocking during 4Q2014. The turnout installations were for the diamond crossover near 48th Street, which will form a universal crossover between Port Washington #2 Track (PW2) and the raised Main Line #2 (ML2) when fully constructed.

b) Others

No other coordination efforts to discuss for this quarter.

1.8 Local Funding

a) MTA/New York State (Capital Plan)

MTACC announced at the May 2012 CPOC meeting that an additional $720 million had to be identified in the MTA 2015 – 2019 Capital Plan to cover the new project baseline budget. The current re-planned ESA budget, presented to the MTA CPOC in June 2014, is considerably larger than the budget presented to the CPOC in 2012. The funding request for 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 has to delay the planned Full NTP for CM007 and CQ033; split the CS179 Systems Package into a base contract with seven options to be exercised as funding becomes availabl [redacted].

b) Other Sources

The total Federal funding commitment as of December 2014 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 has 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. The RMP is currently being revised and was expected to be issued during June 2014. As of this report, this plan was not issued

b) Monitoring

ESA held monthly risk meetings in November and December 2014.

c) Mitigation

Current mitigations are discussed in Section 6.3 below.

2.0 PROJECT SCOPE

2.1 Engineering/Design and Construction Phase Services

Status:

As of the end of November 2014, MTACC reported that the overall Engineering effort was 98.3% complete, based on Earned Value for Design Deliverables, the same as the previous three months. Their Cost Report shows 86.8% of the overall EIS & Engineering category as invoiced and 86.9% of the budgeted section titled "Design" (including Design Settlement) as having been invoiced.

MTACC continued to investigate the potential scope transfer of the south back of house via a change order from the CM007 package to the CM005 Contract and negotiations continue with the CM005 contractor. At this time the scope remains in CM007 and the design documents are ready for solicitation.

Anticipated advertise date for the CH057 package was previously forecast for July 2014 with NTP forecast for September 2014. The forecast advertise date was not met. The PMT is still in the process of repackaging the work and is forecasting the completion of the design work in January 2015.

CH058 is being repackaged and the bid advertisement date has not been determined. The East Bound Re-route tunnel construction method is being revised from a top down to a traditional cut and cover method and the package is being split into two separate Contracts. CH058A will

contain the East Bound Re-route; CH058B will contain the loop box. A Preliminary Change Order (PCO) request was issued to the GEC to develop a new, stand-alone package CH061A (Tunnel 'A' and 'D' Construction). Negotiation with the GEC has been concluded and a contract modification is in process. Some additional scope transfers from CH053 & CH054A are also being considered by ESA Management.

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

Observation:

The GEC and PMT continue to consistently miss many of its target dates for remaining design activities on the project.

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 has made finalizing design documents and drawings extremely difficult. The PMOC had recommended that the PMT develop a design milestone tracking sheet for the remaining design work on the project similar to what was done for the catenary design work in 2012 in order to more effectively manage the design effort, however the PMT has not implemented this tracking sheet. [Ref: ESA-103-Dec12]

The PMOC maintains its long standing concern that a full constructability review was not conducted for the CM007 package. This is of particular concern given the number of interfaces with other contracts (CM006; CS179; CM014B; CS086). A very limited Constructability Review was conducted and a report issued in 4Q 2014, however the scope of the review was limited to only the addition of track work into the package and the constructability of the hybrid cast-in-place and pre-cast design.

2.2 Procurement

Status:

As of the end of November 2014, the Cost Report showed total procurement activity on the project as 64.5% complete, with $6.569 billion in contracts awarded out of the $10.178 billion current reported budget.

Revised cost proposals for CM014B were received on November 20, 2014. The top ranked proposers were called into negotiations in early December 2014 and there are currently two proposers under consideration. The PMT previously forecast that recommendation for award would be ready to present to the MTA Board in November 2014, however, this did not happen. Given the previous durations for negotiating a Best and Final Offer on a complex negotiated procurement, the PMOC believes that this Contract will not be awarded until 1Q 2015 at the earliest.

The CM007 package was advertised on December 23, 2014. Contract documents will be available for proposers on January13, 2015 with proposals due in May 2015.

The PMT remains undecided as to how to procure the signal installation work currently in a stand-alone package, CS086.

Concerns and Recommendations:

The lack of stability in the contracting strategy and Contract Packaging Plan remains a concern. The PMT continued to shift and split scope among different packages during 4Q2014, making 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. ESA should adhere to it without shifting scope for the remainder of the project.

The PMOC remains concerned about the continuing scope shift among existing and future Contract packages. The latest shifts under consideration include moving the back of the house work in CM007 into CM005; and moving scope from CH053 into the new CH061A (Harold Structures-Tunnel A) to mitigate some of the delay in CH053. Additionally, the East Bound Re-route tunnel construction method is being revised from a top down to a traditional cut and cover method and the package is being split into two separate Contracts. CH058A will contain the East Bound Re-route; CH058B will contain the loop box. These continuing moves represent an ad hoc approach to risk mitigation

2.3 Construction

The PMT reported in its December 2014 Quarterly Progress Report that the total construction progress reached 53.1% complete vs. 53.6% planned; the PMOC calculations based on data in the ESA Cost Report agree with the ESA Planned percentage completed of 53.6% (it appears that ESA under-reported its progress). Details for active construction contracts are provided below.

Manhattan Contracts

CM004 – 44th St. Demolition and Construct Fan Plant Structure and 245 Park Ave. Entrance

Status: MTACC reports that through November 30, 2014, the EAC has increased slightly to $55.52 million from the previous $55.15 million.

The Forecast Substantial Completion date for the CM004 contract has been moved back to September 9, 2014 from the previous October 15, 2014. The PMOC has been advised that MTACC has retracted its previous statements in monthly reports to the PMOC that substantial completion was contingent upon completion of the corrective work at the 245 Park Entrance; specifically, the repairs to the water intrusion at the platform level terrazzo flooring. During December 2014 the repairs to the terrazzo floor was completed and inspected. Only grinding and polishing remain.

Accordingly, MTACC has now placed this work as a punch list item and plans to execute a retroactive Substantial Completion Certificate for September 9, 2014. As of the date of this report no substantial completion documents have been executed.

Beneficial Use for the 245 Park Entrance was achieved October 21, 2013. The actual percent complete continued at 99.99% versus 100% planned.

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CM005 – Manhattan South Structures

Status: As of November 30, 2014, the MTACC increased its forecast for Estimate at Completion for CM005 to $239,339,603 largely due to the execution of a $26.7M contract modification for construction of lower level walls in the East- and Westbound Caverns (scope transfer from future contract CM007). The forecast date for Substantial Completion remained at February 6, 2016. Actual construction progress for November 2014 was 5.6% versus 4.4% planned. Cumulative progress through November 30, 2014, was 63.2% actual versus 57.8% 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)	$236.1M	+$35.5M +17.7%	$239.4M	+$38.8M +19.3%	+$3.3M +1.4%
Scheduled SC Date	02/06/16	02/06/16		02/06/16		
Duration (NTP - SC)	29 mos.	29 mos.	0 mos. 0.0%	29 mos.	0 mos. 0.0%	0 mos. 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**
57.8%	63.2%	56.7%	4.7%	33.2%	5.5%	3.4%	2.8%/mo.

From November 2014 ESA Monthly Report

Construction Progress: During December 2014, the contractor completed application of pneumatically applied concrete (PAC) at each of the 4 escalator archways adjacent to the Westbound Cavern, continued to pour concrete for the intermediate level exterior walls in GCT 1&2 East Wye Cavern and the intermediate level slab in the GCT 1&2 West Wye Cavern, poured concrete for the interior walls and intermediate slab at the 38th St. Vent Facility, and poured invert concrete from the Air Vent Cavern at 37th St. to the East Fan Chamber of the 38th St. Vent Facility.

Observations/Analysis: The contractor remains ahead of its construction schedule at each of its work locations and its actual progress exceeds planned progress each month. The PMOC has observed that ESA management and the contractor work well together to make this possible.

Concerns and Recommendation: The PMOC has no concerns about the CM005 contract at this time and recommends that ESA and the contractor continue to administer the contract in the same fashion until it is completed.

CM006 – Manhattan North Structures

Status: As of November 30, 2014, the Estimate at Completion for CM006 remained at $317,795,750 and included the execution of a $22.3M contract modification for north Back-of-House (BOH) construction, which was a scope transfer from future contract CM007. The MTACC forecast for Substantial Completion remained at November 30, 2016. Actual construction progress for November 2014 was 2.3% versus 2.8% planned. Cumulative progress through November 30, 2014, was 11.4% versus 19.4%. The PMOC notes that November 2014 was the first month that the MTACC generated a progress curve for CM006.

	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	$316.5M	+$22.3M +1.6%	$317.8M	+$23.6M +8.0%	+$1.3M +0.4%
Scheduled SC Date	11/30/16	11/30/16		11/30/16		
Duration (NTP - SC)	32 mos.	32 mos.	0 mos. 0.0%	32 mos.	0 mos. 0.0%	0 mos. 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**
19.4%	11.4%					3.1%/mo.	3.7%/mo.

From November 2014 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 December 2014, the contractor completed the concrete pours of: the intermediate level slab at the 50th St. Vent Facility between the westbound lower level tunnels and the eastbound tunnels, the exterior and interior walls of the 55th St. Vent Facility between the westbound tunnel and the eastbound tunnel, and the lower level westbound tunnel invert between 55th St. and the GCT 5 West Wye Cavern. The contractor also waterproofed the archway and began sidewall concrete pours in the GCT 5 West Wye Cavern.

Observations/Analysis: The PMOC notes that the CM006 contractor significantly increased its construction pace during 4Q2014, although November was the first month that the MTACC generated a progress curve for the contract. The curve indicates that the contractor is approximately 8% behind the planned schedule after 9 months of its 33 month contract life. The PMOC also notes that, henceforward, the contractor must average 3.7% actual construction per month to finish the contract on its planned schedule.

Concerns and Recommendation: The PMOC is concerned that, if the construction pace is not increased, it could take at least 5 additional months to complete the contract (PMOC projection). The PMOC recommends that the CM006 contractor employ more laborers to begin construction in additional locations within the contract limits to achieve the 3.7% actual construction rate. There are many other work sites where this is possible.

CM013A – 55th Street Vent Facility

Status: MTACC reports that through November 30, 2014 the EAC has decreased slightly to $57.23 million from the previous $57.29 million. Forecast Substantial Completion remains April 5, 2015. MTACC reports that the actual percent complete is 74.21% vs.80.00% planned. However, the Progress Curve presented in this same report shows the actual progress at approximately 74% vs approximately 60% planned. This discrepancy has been consistent in the MTACC Monthly Reports for the last several months.

	Original Baseline	Current Approved Baseline	Change to Original (2 – 1)	EAC / Forecast	Change to Original (4 – 1)	Change to Current (4 – 2)
Contract Cost	$56.04M	$57.23M	+$1.19M +2.12%	$57.23M	+$1.19M 2.12%	0 0
Scheduled SC Date	04/05/15	04/05/15		04/05/15		
Duration (NTP - SC)	31 mos.	31mos.	+0 mos.	31 mos.	+0mos.	+0mos.

Percent Complete		Actual - 12 mos.		Actual - 6 mos.		Avg. Req'd. Progress	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
N/A	N/A	N/A	N/A	N/A	NA	N/A	N/A

From November 2014 ESA Monthly Report

Construction Progress:

Plenum: Concrete lining of the east & west walls is ongoing. Concrete placement of the Plenum Roof continues in the East & West Plenum.

Cavern: Welding and erection of the permanent precast stairs is ongoing through the cavern upper levels. Completed pneumatically applied concrete final lining of the Cavern Arch.

Operations for the lining of the Shaft began. The temporary construction stair and construction of a moving platform up the shaft was completed.

Observations:

The work of this contract continues to progress towards substantial completion, although the ability to complete within 5 months is questionable.

Concerns and Recommendations:

The pace of construction and reliability of reporting.

CM014A – GCT Concourse & Facilities Fit-Out

Status: MTACC reports that through November 30, 2014, the EAC is slightly reduced to $57.28 million from the previous $57.65 million. Forecast Substantial Completion has been extended to May 1, 2015 from the previous March 31, 2015. Through November 2014, the actual percent complete reported was 82.61% versus 96.40% planned. The large gap between percent complete versus planned continues to be attributed to the overall Supervisory Control and Data Acquisition (SCADA) system redesign (based on LIRR requirements), but also on the contractor's slow rate of progress. The forecast dates for Con Edison to energize the system are also factoring into the extensions of forecast Substantial Completion.

	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)	$51.55M	+$8.05M +18.50%	$57.28M	+$13.78M +31.67%	+5.73M +11.11%
Scheduled SC Date	04/25/13	12/15/14		05/01/15		
Duration (NTP - SC)	18 mos.	38 mos.	+20 mos. +111.11%	+42 mos	+24 mos. +133.33%	+4.5 mo. +10.52%

% Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total.**	**Avg./mo**	**Contract SC**	**Forecast SC**
96.40%	82.61%	NA	NA	NA	NA	N/A	3.48%/mo.

From November 2014 MTA Monthly Report

Construction Progress: During December 2014 installation of fire stopping continued with daily quality inspections. CMU erection is ongoing and near completion. Ductwork and piping installation is ongoing in Zones #1 & #2. Sprinkler/Standpipe installation continued in Zones #4 & #5. Installation of 16341 switchgear continued. 600V cable installation continued throughout. Branch feeder and conduit installation is ongoing throughout. Installation of conduit in Shaft #2 continued. Asbestos abatement is complete and the subcontractor is demobilizing.

Observations/Analysis: Previously the PMOC continuously recommended that MNR prioritize removal/relocation of the obstructing utilities to the new ramp, stairs and escalator in the Dining Concourse access to the Main Concourse area. The PMOC has been advised that, finally, MNR has performed abatement to the pipes as a precursor to removal/relocation of the utilities. This work takes place at night.

Concerns and Recommendation: The PMOC has previously reported that the contractor will require at least 8-10 weeks minimum to test this 6 transformer system & provide the report to ConEd for approval. Approval takes an additional 4 weeks. This must be done prior to the May 15, 2015 ConEd summer moratorium or wait to complete the work until after Labor Day 2015 when the moratorium ends. Accordingly, testing must start at least by February 2015. As of the date of this report, the PMOC has been advised that the SCADA equipment has still not been

delivered to the site, let alone installed. Apparently, the cause of this delay is not design or fabrication related, but instead a financial issue between the contractor and the electrical sub-contractor. Regardless, this issue further erodes any optimism that this partial permanent power system will be energized through May 2015. Accordingly, the PMOC forecasts that energization of the power system in this contract will be complete in Quarters 3 – 4 of 2015.

Queens Third-Party Contracts

CQ032 Contract – Plaza Substation and Queens Structures

Status: As of November 30, 2014, the Estimate at Completion for CQ032 was reduced slightly to $236,065,911 due to contract modification updates. The MTACC forecast for Substantial Completion was extended to March 28, 2016, a 1 month extension. Actual construction progress for November 2014 was 2.3% versus 3.7% planned. Cumulative progress through November 30, 2014, was 70.7% actual versus 76.1% 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)	$213.4M	+$66.0M +44.8%	$236.1M	+$88.7M +60.2%	+$22.7M +10.6%
Scheduled SC Date	08/14/14	10/7/15		3/28/16		
Duration (NTP - SC)	36 mos.	50 mos.	+14 mos.	55 mos.	+14 mos. +38.9%	+19 mos. +38.0%

Percent Complete		**Actual - 12 mos.***		**Actual - 6 mos.***		**Avg. Req'd. Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
76.1%	70.7%	28.5%	2.4%/mo.	11.3%	1.9%	2.8%/mo.	1.7%/mo.

From November 2014 ESA Monthly Report

Construction Progress: During December 2014, the contractor completed the concrete pour of the C07 level slab in the Q-Tip and continued installation of signal and communications conduit in the B/C and 63rd St. Tunnels, excavation and pile driving for the foundation of the Yard Services Building, demolition of the adjacent slurry wall in Area 1A, structural steel erection at the C06 level, and backfill in the Bellmouth.

Observations/Analysis: The contractor continues to progress its construction of Plaza Substation and the Queens Tunnels, Yard Services Building, and the Bellmouth. Although it is slightly behind its cumulative planned progress, nonetheless its monthly average percent complete for the past 12 months are greater than the percentage required to meet the forecast Substantial Completion (SC) date of March 28, 2016. The PMOC believes that the contractor will be able to maintain its construction pace to either shorten or meet the forecast SC date.

Concerns and Recommendations: The PMOC has no concerns about the CQ032 contract at this time. Therefore, the PMOC has no recommendations than for the contractor other than to do everything possible to maintain or exceed its current construction pace.

Harold Interlocking Contracts

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

Status: As of November 30, 2014, the Estimate at Completion for CH053 increased slightly to $298,033,945 due to MTACC re-forecast of existing contract modifications. The MTACC forecast for Substantial Completion remained at May 11, 2015. Actual construction was 0.5% versus 0.0% planned (contract was supposed to be complete). Cumulative progress through was 92.5% 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)	$295.6M	+$158.3M +115.3%	$298.0M	+$160.7M +117.0%	+$2.4M +0.8%
Scheduled SC Date	05/05/10	9/9/14		5/11/15		
Duration (NTP - SC)	28 mos.	80 mos.	+52 mos. +185.7%	88 mos.	+60 mos. _+214.3%	+8 mos. +10.0%

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%	92.5%	6.6%	0.6%	3.1%	0.5%	N/A	1.9%

From November 2014 ESA Monthly Report

Construction Progress: During December 2014, the contractor completed construction of the Tunnel A Emergency Exit at 39th St. and continued to install utility and communications cables in the Run #s 1-4 duct banks at the new G02 Substation, pull and splice 12kV cables between Sub 44 and the Sunnyside Yard Frequency Converter, abate lead on several catenary poles that it will remove in the future, and perform other miscellaneous electric traction construction throughout Harold Interlocking.

Observations/Analysis: At its average construction rate for the past 12 months, the PMOC projects that it will take the contractor an additional 7 months beyond May 2015 to achieve SC (i.e. December 2015). Insufficient F/A support has slowed production since the beginning. The PMOC doubts that, at this point, ESA and the contractor will be able to garner the additional F/A support necessary to significantly improve on the PMOC's projected completion date.

Concerns and Recommendations: The PMOC is concerned that, as other contracts CH057A and CH057 ramp up in 2015, the limited Force Account support available to CH053 will become even more limited. To avoid this, the PMOC therefore recommends that ESA and the contractor not only complete CH053 construction as quickly as possible, but also decelerate CH057A construction and not award the CH057 contract in June 2015, as presently planned.

CH054A Contract – Harold Structures Part 2A

Status: As of November 30, 2014, the Estimate at Completion for CH054A was reduced to $56,679,770 from $61,271,166 due to MTACC's re-forecast of several existing contract modifications. The MTACC forecast for Substantial Completion was extended to April 29, 2015, an extension of approximately 2 weeks. Actual construction progress for November 2014 was 1.4% versus 0.0% planned (contract was supposed to be complete). Cumulative progress through November 30, 2014, was 91.2% 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	$21.80M (Award)	$56.4M	+$34.6M +158.7%	+$56.7M	+$34.9M +160.1%	+$0.3M +0.5%
Scheduled SC Date	12/21/10	8/9/14		4/29/15		
Duration (NTP - SC)	16 mos.	60 mos.	+44 mos.	+65 mos.	+44 mos. +275.0%	+5 mos. +8.3%

Percent Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress ***	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
100.0%	91.2%	27.8%	2.3%	11.1%	1.9%	N/A – Past Due	1.8%

From November 2014 ESA Monthly Report

Construction Progress: During December 2014, the CH054A contractor completed construction of the 475 LF - 48"diameter micro-tunnel storm sewer between Thomson Avenue and Queens Boulevard and continued to pull and splice 12kV cables between the East River Tunnel portals and Sub 44 and pull utility, signal, and communications cables through micro-tunnel Run #13 west of Thomson Avenue.

Observations/Analysis: Although the contractor will be late in completion of construction, over the past 12 months, it has maintained an average completion rate greater than that necessary to achieve Substantial Completion by the forecast date of April 29, 2015.

Concerns and Recommendations: The CH054A contractor shares the same Force Account resources that existing contracts CH053 and CH057A do. This concerns the PMOC because F/A support has historically been sporadic and has led to lengthy contract extensions, which could be a possibility with CH054A. To avoid this, the PMOC recommends that, to the best of its ability, the contractor continue to complete construction at the same or better monthly rate that it has for the past 12 months.

Contract CH057A – Part 3 Westbound Bypass

Status: As of November 30, 2014, the Estimate at Completion for CH057A was increased slightly to $105,663,688, although the MTACC did not explain the increase. The MTACC forecast for Substantial Completion remained at August 8, 2016. Actual construction progress for November 2014 was 0.9% versus 5.5% planned. Cumulative progress through November 30, 2014, was 12.97% actual versus 28.6% 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	$104.4M	+$1.1M	+$105.7M	+$2.4M +2.3%	+$1.3M +1.2%
Scheduled SC Date	1/31/16	1/31/16		8/8/16		
Duration (NTP - SC)	26 mos.	26 mos.	0	32 mos.	+6 mos. +23.1%	+6 mos. +23.1%

Percent Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress ***	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
28.6%	12.97%	13.0%	1.1%	2.5%	0.4%	3.8%/mo.	4.3%/mo.

From November 2014 ESA Monthly Report

Construction Progress: During December 2014, the Contractor installed 26 soldier piles for the West Approach Structure of the Westbound Bypass. The Contractor also continued to construct a working platform to install piles for the East Approach Structure and a de-watering system throughout the project limits.

Observations/Analysis: After a slow construction start in 3Q2014, the Contractor increased its production pace during 4Q2014 and to date has installed 103 soldier piles required for the west end of the westbound bypass. In doing so, it established its capability to install approximately 1.1 piles per work shift.

Concerns and Recommendations: Since it shares Force Account resources with contracts CH053 and CH054A, the PMOC is concerned that CH057A could suffer through the same sporadic support that those two contracts have, although it is early enough in CH057A that similar support could be overcome over the contract life. For this reason, the PMOC recommends that ESA and the contractor continue to work together to adequately share F/A resources until CH053 and CH054A achieve Substantial Completion and that the CH057 contract award be delayed until CH057A has reached a point that it can afford to share these limited resources.

Systems Contracts

VH051A (Part 1) – Harold and Point Central Instrument Locations (CILs)

Status: The Estimate at Completion is $27.59M through November 2014. Forecast Substantial Completion remained the same. Actual Progress was 90% versus 93% planned (note: progress on this Contract is contingent upon the CIL cutover schedule developed by ESA).

	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	$30.89M (Award)	$30.72M	-0.17M -0.6%	$27.59M	-3.3M -10%	-3.13M -10%
Scheduled SC Date	06/25/12	06/25/12		07/31/15		
Duration (NTP - SC)	37 mos.	37 mos.	+ 0mos. (+0%)	74 mos.	37 mos. 100.5%	37 mos. 100.5%

Percent Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
93%	90%	-	-	-	-	(N/A)	(N/A)

From November 2014 ESA Monthly Report

Construction Progress: LIRR signal personnel cutover the "H4" Central Instrument Location (CIL). POINT CIL is in service.

Observations/Analysis: Progress on this Contract is contingent upon the CIL cutover schedule developed by ESA.

Concerns and Recommendations: PMOC is concerned about the impact of the delays to the CIL cutovers and the consequent overall impact to the Harold schedule.

VH051B (Part 2) – Harold Tower Supervisory Control System (HTSCS)

Status: The Estimate at Completion was $9.12M through November 2014, an increase of approximately $300K from last month due to escalation and cost of Contract extension to July 2015. Forecast Substantial Completion remained the same.

	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	$7.10M (Award)	$8.58M	+$1.48M +20.8%	$9.12M	+$1.02M +14%	$.54M 6%
Scheduled SC Date	08/24/10	08/24/10		07/31/15		
Duration (NTP - SC)	18 mos.	18 mos.	+0 mos. 0%	74 mos.	56	56

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%	96.7%					(N/A)	(N/A)

From November 2014 ESA Monthly Report

Construction Progress: No progress reported this month planned (note: progress on this Contract is contingent upon the CIL cutover schedule developed by ESA).

Observations/Analysis: Substantial completion of this project cannot be achieved until the remaining CILs are cutover.

Concerns and Recommendations: As stated above for VH051A, the PMOC is concerned about the impact of the delays to the CIL cutovers and the consequent overall impact to the Harold schedule.

CS179 (Systems Package 1-Base Contract)

Status: MTACC awarded this contract in March 2014. As of November 2014, the Estimate at Completion for CS179 is $550,388,000. The MTACC forecast for Substantial Completion is November 25, 2019

Construction Progress: The Contractor needs direction/permission to excavate test pits at 2nd avenue. ESA is awaiting permission from NYCT. The Contractor is coordinating with adjacent ESA Contractors to shut down jet fans at 2nd avenue to support the LIRR shaft work.

Observations/Analysis: Problems continue with producing a viable schedule for this Contract. The Contractor has not demonstrated that it has the capability to produce a viable baseline schedule almost ten months after NTP. The Contractor has also fallen behind in its submittals and appears to be struggling with basic aspects of the mobilization stage of the Contract. . The Contractor re-submitted a revised baseline schedule in December 2014 which is currently under review by ESA. The PMOC believes however, that given the quality of previous schedule submittals, production of an acceptable baseline in this time frame will be unlikely.

Concerns and Recommendations: The CS179 Contractor has been unable to produce an acceptable baseline schedule ten months into the Contract. This package is large and complex, with a significant number of interfaces to other packages. Without a proper baseline schedule, it will be extremely difficult to manage the coordination with the other Contract packages that CS179 interfaces with. The Contractor has also fallen behind on key submittals which need to be in place before design begins.

Harold Stage I Amtrak FA (FHA01)

Status: As of November 30, 2014, the Estimate at Completion for FHA01 remained at $18,824,861. The MTACC reduced its forecast for Substantial Completion to February 16, 2016, a reduction of 5 months. Actual construction progress for November 2014 was 0.0% versus 0.3% planned. Cumulative progress through November 30, 2014, was 97.3% actual versus 99.0% planned.

FHA01	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	$9.50M	$18.8M	+$9.3M +97.9%	$18.3M	+$8.8M +92.6%	-$0.5M -2.7%
Scheduled SC Date	09/30/10	2/4/16		2/16/16		
Duration (NTP - SC)	39 mos.	104 mos.	+65 mos. +166.7%	105 mos.	+66 mos. +169.2%	+1 mo. +0.9%

Percent Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
99.0%	97.3%	3.4%	0.3%	1.1%	0.2%	N/A – Past Due	0.2%

From November 2014 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.

Construction Progress: Although not reflected in the MTACC's progress curve, Amtrak Electric Traction personnel performed limited catenary wire and structure relocations during November 2014.

Observations/Analysis: Current catenary construction has reached a point where work locations are extremely limited and will continue so until additional predecessor work is done to establish more areas in which to work. Until that occurs, FHA01 construction will be at a relative standstill.

Concerns and Recommendations: The PMOC recommends that ESA, Amtrak, and the CH053/CH054A contractor work together to schedule the additional work noted above to reinvigorate the FHA01 work package as necessary.

Harold Early Stage 2 Amtrak FA (FHA02)

Status: As of November 30, 2014, the Estimate at Completion for FHA02 increased to $49,381,321, although the MTACC did not explain the cause. The MTACC's forecast for Substantial Completion remained relatively the same at December 12, 2017, a 5 day increase over its last forecast. Actual construction progress for November 2014 was 0.6% versus 0.3% planned. Cumulative progress through November 30, 2014, was 90.4% actual versus 91.5% 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	$44.2M	+$34.5M +355.7%	$49.4M	+$39.7M +409.3%	+$5.2M +5.4%
Scheduled SC Date	9/30/13	8/15/17		12/12/17		
Duration (NTP - SC)	58 mos.	105 mos.	+47 mos. +81.0%	109 mos.	+51 mos. +87.9%	+4 mos. +3.8%

Percent Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
91.5%	90.4%	14.6%	1.2%	8.8%	1.5%	1.7%	0.4%/mo.

From November 2014 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.

Construction Progress: During December 2014, Amtrak C&S personnel supported LIRR C&S personnel to prepare for the cutover of the new "H4" Central Instrument Location in Harold Interlocking and returned to limited FQA65 construction.

Observations/Analysis: ESA continues to re-baseline the Harold Interlocking Force Account construction schedule. As a result, some FHA02 activities have been/will be re-scheduled. Historically, Amtrak has proven its capability to favorably respond to frequent schedule changes, so the PMOC is confident that it will be able to respond to whatever re-baseline schedule ESA adopts.

Concerns/Recommendations: The PMOC has no concerns about or recommendations for FHA02 construction at this time other than to encourage ESA and Amtrak to continue to work together to complete the project.

Loop Interlocking CIL Amtrak FQA65

Status: As of November 30, 2014, the Estimate at Completion for FQA65 increased slightly to $29,687,824. The MTACC forecast for Substantial Completion was extended by 1 week to October 26, 2019. Actual construction progress for November 2014 was 0.5% versus 4.3% planned. Cumulative progress through November 30, 2014, was 7.3% actual versus 18.5% planned.

FQA65	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	$29.7M	+$20.6M +226.4%	+$8.7M +41.4%
Scheduled SC Date	8/12/18	8/12/18		10/26/19		
Duration (NTP - SC)	55 mos.	55 mos.	(no change)	68 mos.	+13 mos. +23.6%	+13 mos. 23.6%

Percent Complete		**Actual – 12 mos.**		**Actual – 6 mos.**		**Avg. Req'd Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
18.5%	7.3%	N/A	N/A	5.2%	0.9%	1.8%/mo.	1.6%/mo.

From November 2014 ESA Monthly Report

Construction Progress: During December 2014, Amtrak C&S personnel installed a limited amount of signal trough between future "Loop" and "T" Interlockings.

Observations/Analysis: The Loop Interlocking work will be included in the Harold re-baseline effort and its schedule has preliminarily been extended into 2019. Consequently, FQA65 construction has taken a lower priority to other work in recent months (e.g. support for LIRR cutover of "H4" CIL). The PMOC believes that its scope of work is such that, at the present time, Amtrak should be able to accomplish it well before the forecast Substantial Completion date.

Concerns/Recommendations: Because FQA65 priority has temporarily been lowered, thereby reducing its criticality, the PMOC has no present concerns about or recommendations for it.

Harold Stage 1 LIRR FA (FHL01)

Status: As of November 30, 2014, the Estimate at Completion for FHL01 was increased to $23,603,130, although the MTACC did not explain the cause. Substantial Completion remained at September 18, 2015. Actual construction progress for November 2014 was 0.0% versus 0.9% planned. Cumulative progress through November 30, 2014, was 99.1% actual versus 96.1% planned.

FHL01	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	$28.80M	$20.80M	-$8.00M -27.8%	$23.6M	-$5.2M -18.1%	+$2.8M +13.5%
Scheduled SC Date	09/30/10	4/9/15		9/18/15		
Duration (NTP - SC)	39 mos.	94 mos.	+55 mos. +141.0%	100 mos.	+61 mos. +156.4%	+6 mos. +6.4%

Percent Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
96.1%	99.1%	21.8%	1.8%	16.0%	2.7%	0.1%/mo.	0.1%/mo.

From November 2014 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: No significant FHL01 work was performed during December 2014.

Observations/Analysis: The PMOC notes that LIRR personnel continue to work in locations to complete tasks started earlier in the schedule. It is important that LIRR continue to do so and to establish a checklist of all such locations so that work is complete when the overall Harold cutover is scheduled.

Concerns and Recommendations: Since LIRR is progressing its FHL01 work in the manner railroad projects are normally performed, the PMOC is not overly concerned about partially complete work at this time. As noted above, however, the PMOC recommends that LIRR establish a comprehensive checklist of all partially done work so that it can assure itself that all predecessor construction is complete before the overall Harold cutover.

Harold Early Stage 2 LIRR FA (FHL02)

Status: As of November 30, 2014, the Estimate at Completion for FHL02 was increased to $83,544,021, although the MTACC did not explain the reason in its monthly report. The MTACC's forecast for Substantial Completion remained at January 2, 2018. Actual construction progress for November 2014 was 2.2% versus 3.2% planned. Cumulative progress was 61.6% actual versus 67.8% planned.

FHL02	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	$48.2M	+$40.8M +551.4%	$83.5M	+$76.1M +1028.4%	+$35.3M +73.2%
Scheduled SC Date	11/30/15	11/25/16		1/2/18		
Duration (NTP - SC)	75 mos.	87 mos.	+12 mos. +16.0%	100 mos.	+25 mos. +33.3%	+13 mos. +14.9%

Percent Complete		**Actual - 12 mos.**		**Actual - 6 mos.**		**Avg. Req'd. Progress**	
Plan	**Actual**	**Total**	**Avg./mo**	**Total**	**Avg./mo**	**Contract SC**	**Forecast SC**
67.8%	61.6%	31.1%	2.6%	24.0%	4.0%	1.3%/mo.	1.1%/mo.

From November 2014 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 Memoranda of Understanding (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: LIRR signal personnel cutover the "H4" Central Instrument Location (CIL) and continued to install signal trough between the new "H5" and "H6" CILs. Communications personnel continued to relocate aerial communications cables between 48th St. and Location 30 in Woodside Interlocking. ET personnel continued to install and splice 3rd rail cables to new turnouts in Harold Interlocking that were installed earlier in the year.

Observations/Analysis: The LIRR accomplished approximately 77% of the work that it originally planned to do for the year (2 of 2 track "cut and throws", 1 of 2 Signal location cutovers, and 7 of 9 turnout installations). While this is a significant accomplishment, the PMOC believes that it has the capability to do much more (perhaps as much as twice the amount). To do so, the PMOC also believes that the LIRR needs to continue to develop a "can-do, plan-the work and work-the-plan" corporate approach to the ESA project if it plans to be more productive in the future.

Concerns and Recommendations: Although the LIRR had a relatively successful production year in 2014, it still has over $110M of construction (or approximately 67%) ahead of it. The PMOC is concerned about LIRR's will to see this project through to completion. The PMOC

therefore recommends that the LIRR establish more aggressive, yet realistic, yearly programs to which it can commit throughout its organization. The PMOC further recommends that the LIRR follow those yearly roadmaps through to conclusion.

2.4 Operational Readiness

The 4Q2014 Quarterly Operational Readiness meeting was held on December 18, 2014. The following activities related to operational readiness were undertaken by the ESA Operational Readiness team during the quarter:

- LIRR is planning for an upgrade of Maximo, the asset management database, from version 7.1 to version 7.5; the asset data template was revised and approved with additional data validations for ease of Contractor input; and data verification is ongoing with the CM/Contractor for the CM004 and CM014A Contracts.
- The PMOC asked at the Operational Readiness Quarterly Meeting if the Rail Activations Task Group 3- Infrastructure, Systems, and Engineering has reviewed the staffing requirements for LIRR review of the CS179 (Systems Package 1) submittals, which will be voluminous. The LIRR representative stated that they are aware of the need to line up resources to perform the reviews in a timely fashion. They have requested a submittal schedule from the CS179 CM, and will prepare a list of submittals that they have to review and those that they want just for informational purposes. The LIRR representative also noted that LIRR has retained two signal engineers from a technical consulting firm to help with the submittal reviews.
- Continued work on draft of Volume 3 (monitoring) of the Rail Activation Plan.

Observation:

The Operational Readiness group continues to progress activities comprising system start-up and commissioning.

Concerns and Recommendations:

The PMOC is concerned that the rail activation activities are scheduled based on a March 2020 (early start) opening date, which in the PMOC's opinion has a very low probability of being achieved. Many of the activation activities by LIRR will include the hiring of new personnel and considerable training. Planning of these activities based on an early forecast RSD could create operational issues for the LIRR if that date isn't achieved. LIRR needs to look at the ramifications if this early start date isn't met.

2.5 Vehicles

Board Approval was received and Notice of Award executed September 18, 2013 for the LIRR M-9 vehicle procurement. These cars will initially be part of the M-3 replacement Program and will be used for ESA when it comes on line (this procurement does not use federal funding).

Status:

Initial and preliminary design review meetings have continued with the car builder and its major subcontractors during 4Q 2014.

Observations:

All Initial Design Reviews (IDRs) were scheduled to be completed by the end of July 2014, however there were two IDRs held during December, 2014. Preliminary Design Reviews (PDR) scheduled to be held in the August through October 2014 timeframe, started in September 2014, and continued throughout the fourth quarter of 2014.

Concerns and Recommendations:

Although the design reviews are trending slightly behind schedule, there are no significant concerns at this time.

2.6 Property Acquisition and Real Estate

Status/Observations

415 Madison Ave:

MTA continues to meet with the property owner to discuss the following outstanding issues associated with property acquisition:

- MTACC Design team has reached a verbal and informal agreement that the owner will be responsible for the construction of the utility relocation, as well as the structural work associated with their entrance to the building, including the construction of the shell which will enclose their new entrance. MTA will be responsible for fitting out the entrance and all other associated work.
- Work under 48th Street, not within the property boundary, will begin in early 2015.
- The retail space on the ground floor of the building that will be impacted is occupied by a commercial bank whose lease expires in April 2015.

280 Park:

The sub-surface excavation for the elevator is complete. The final details of design continue to be coordinated with the owners.

335 Madison Ave:

Visited 335 Madison Avenue's Health Club with members of the GEC design team and the CM014B Construction Manager in order to assess the work that will be needed to construct the shafts of two elevators that will impact the Health Club level of the property.

Concerns and Recommendations:

The PMOC remains concerned about the length of time it is taking to finalize all of the Real Estate aspects of the 48th Street Entrance to GCT. MTA Real Estate apparently has little control on the protracted timeframes.

2.7 Community Relations

Status:

The ESA Community Relations staff continued its outreach efforts during 4Q2014. The effort included the following activities:

- Met with property management and owners from 485 Park Avenue to follow up on issues raised during the previous month's meeting about the 58th Street Concrete drop site;
- Attended annual shareholder meeting for 475 Park Avenue and provided a briefing on the 58th Street Concrete Drop Site by CM006;
- Held monthly joint construction management and community outreach update meetings for Manhattan and Queens Contracts; and
- Continued to execute strategy for providing monthly mailing notifications to the Sunnyside Community in Queens.

Observation:

The ESA Community Relations staff, working with the ESA Construction Managers and MTACC management, continues to reach out to inform the Manhattan and Queens communities affected by the ESA project, of upcoming construction work and planned changes.

Concerns and Recommendations:

There are no significant concerns at this time.

3.0 PROJECT MANAGEMENT PLAN AND SUB PLANS

3.1 Project Management Plan

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 on November 13, 2014.

Observation:

The PMOC will follow up with FTA on finalizing responses and working with MTACC to resolve the remaining issues with the PMP.

Concerns and Recommendations:

There are no major concerns at this time.

3.2 PMP Sub-Plans

Status: The status of the key sub-plans is discussed in the ELPEP section of this report. At the Quarterly ELPEP Compliance Review Meeting held on December 11, 2014, MTACC notified the FTA and the PMOC that they are nearing completion of revisions to the CMP and expect to issue the draft revision in 1Q-2015. Subsequently, MTACC will commence an update of the SMP.

Observations:

Updated status information is expected at the March 12, 2015 Quarterly ELPEP Compliance Review Meeting.

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 that ESA's SMP addresses the following items in their revision of this plan:

- Logical diagram of schedule control
- Visibility in decision making procedure
- Schedule products at three levels and their relationships with each other to
- Establish its usefulness as a management tool
- Demonstrate MTA's project control capabilities
- Forecasting reliable revenue service date and other significant milestones
- Define, responsibilities, authorities, and measure of performance

- Allocate schedule contingency properly with respect to constraints including financial constraints
- Description and basis of project control products (e.g. objectives/issues, identifiable constraints, clear and useful background info., available alternatives)
- Traceability of Management Plan.

3.3 Project Procedures

Status:

ESA needs to modify its Change Control Procedures to reflect the creation of the Executive Change Review Committee (ECRC) and its interface with the existing ESA Change Control Committee.

Observations:

The ESA Senior Program Executive has acknowledged that the proposed changes should be reviewed in detail at the CCC level before being presented to the ECRC in order to ensure that stakeholder input is concerned, as well as the pros and cons of a proposed change. This issue was discussed at the June 2014 MTACC/FTA Executive Meeting.

Concerns and Recommendations:

The PMOC strongly recommends that MTACC revise its Change Control Procedures showing that any proposed major changes are presented to the CCC first, and if it is accepted at that level, then be presented to the ECRC for review and approval. As of this report, there is no indication that the Change Control Procedures have been modified to reflect the role of the ECRC.

4.0 PROJECT SCHEDULE

4.1 Integrated Project Schedule

Status:

ESA submitted its IPS #64, data date December 1, 2014, 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 new 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 July 1, 2014 baseline. This amount of contingency is equivalent to 47% of the remaining IPS duration.

Observations:

The PMOC analysis of the IPS indicates that the "early RSD dates of March 2020 and February 2021" are unrealistic and not achievable. Duration between IPS baseline data date July 1, 2014 till March 25, 2020 is 2,094 calendar days. In addition, ESA states that the IPS has 993 days of contingency from March 2020 to December 2022 and this means ESA can lose one day in every two calendar days and still be on time to finish the project in December 2022.

ESA has not submitted its basis of schedule yet, although the PMT has stated that there is work being done on the production of the basis and hopefully it will be submitted to the PMOC sometime in January 2015; however, the PMOC is concerned about the way the matter is being handled because the PMT has informed the MTA Board about the RSD without having a basis of schedule for the IPS. Additionally, for clarification, it should be understood that schedule float which is a calculated value based on network logic should not be considered as schedule margin.

Although ESA had established a baseline schedule in July 2014, it does not have a proper logic and assumptions of Harold work yet. ESA has projected that the IPS will be updated by February 2015 to reflect the current Harold work plan. The current changes in the Harold schedule compared to the baseline schedule of July 2014 include "rescheduling the 2015 Harold track outage to 2016 after the cutover of H2." Also, Harold third party contracts NTP have changed. Table below shows the changes.

Contract	Baseline IPS (7/1/2014)	Current IPS (12/1/2014)	Difference
CH057	12/1/2014	6/1/2015	(182)
CH058	7/1/2015	2/1/2017	(581)
Ch061A	7/1/2016	2/1/2017	(215)
CH059	2/1/2017	1/1/2017	31

It should be noted that in the baseline IPS, Harold substantial completion excluding of IST was June 2019, and current IPS shows this date for October 2019 which is three months of slippage in 6 months duration since July 2014. This is a loss of a day for every two days of work in Harold. ESA has reported that Amtrak resources have been below planned at about a 60% rate and have caused delays also. In March 2014, the PMT issued the following statement: "*The*

schedule control of physical construction packages is done through the awarded contractor schedules. These schedules provide ESA management a vehicle to control and track the specific amount of time allotted contractors to complete their assigned scope of work, and at the same time provide program management a means to preserve and protect schedule contingencies (measured by float) for the overall program. ESA uses the specific construction contract milestones for these packages to establish these key intermediate control points in the master program schedule (as opposed to using the overall revenue start date solely. These programs intermediate milestones serve as control points in the program master schedule. This approach allows the master schedule to provide program float values that can be analyzed, accessed and prioritized by MTACC management. The Harold Program Master Schedule (PMS) was developed through a series of iterative workshops with LIRR, Amtrak and ESA construction management. Each railroad was represented by both construction and transportation management to ensure coordination and priority consensus which allowed the establishment of control points understood by all parties, and implemented in the PMS. The following discipline areas were represented by both LIRR and Amtrak as follow:"

- LIRR Signal • Amtrak A&P ET A-Men
- LIRR High Tension • Amtrak A&P Watchman
- LIRR Third Rail • Amtrak A&P Foreman
- LIRR PES Gang • Amtrak ET-Catenary
- LIRR Track • Amtrak Communication
- LIRR A&P Flagger
- Amtrak ET-Power & Substation
- LIRR Communication • Amtrak Third Rail
- LIRR Transportation
- Amtrak Signal
- Amtrak Track

Observations

The following provides the basis of assumptions for Harold baseline IPS in July 2014 and the PMOC's associated observations;

- The Harold construction plan is contingent on Amtrak/LIRR providing sufficient manpower levels. The full resource loaded schedule has been transmitted to Amtrak and LIRR for concurrence in March 2014 and the presumption was both agencies agreed upon the proposed assumptions.
- Based on the success of long term summer outages in 2012 and 2013, future long term outages have been jointly developed with LIRR/Amtrak. The IPS reflects these outages in 2015 and 2016 and associated work and timing involved. These will be managed in similar fashion to the 2012/13 outages through joint progress/coordination meetings and implementation plans.

- For Contract CH057A, which is under construction, the PMT assumed the projected duration of the tunneling operation is thirty one weeks (31) or four hundred and sixty-five shifts (165) (3 shifts per day and working 5 days a week) to complete the tunneling operation from the initial advance of the shield excavation equipment at the East Portal through the exit at the West Portal of the tunnel. It is clear that there is not room for improvement when a schedule is based on three shifts work on the critical path of the contract. (This is an important issue since the PMT has the same assumption about CM007 work on the IPS critical path, which has RSD of March 2020.)
- Although the actual average number of Amtrak ET linemen for Harold in 2013 was 9.96/day (below 10) the ESA scheduled the entire Harold with the assumption of 10 linemen/day. Additionally, ESA assumed 26 watchmen per weekday. In reality, there was only five months of the year ESA had more than 26 watchmen available. Although the average number was 26 watchmen, simply averaging the number of actual resources for a prior year is not a good practice in the PMOC's opinion. In the PMOC's opinion, the PMT should recognize the complexity of Harold, and the fact Amtrak resources are not available only for ESA project; therefore, scheduling with use of a weighted average rather than a simple average would be more realistic. Finally, the ESA assumption for direct force account work was 7.25 crews per shift in the baseline schedule, and the PMT is currently proposing 3.2 crews per shift per week. If the entire schedule for third party construction is based on three shifts of work, and Harold direct force account resource availability is going to be based on half the available resources in the baseline schedule, then substantial completion of Harold, excluding its IST, is longer than the forecasted date of June 2019 in the baseline schedule. This work could potentially extend out a few more years.

Concerns and Recommendations:

The PMOC believes that the PMT should review and use all project documentation that is available to support schedule development. The information gained from these documents provides critical insights needed by the PMT for developing a schedule with a valid basis.

The PMOC is concerned that ESA does not follow their current SMP regarding its policies and procedures. Because the current SMP in Section 3, Organizational Chain of Command clearly states that "Responsibility and Accountability, Company-Wide**:** The MTACC Vice President of Project Controls is accountable to the MTACC President and responsible for the accuracy of the Current IPS and overall schedule management. The MTACC *Chief Scheduler is responsible for quality control and quality assurance of the Current IPS,* maintaining consistency among the programs, ensuring the process is managed in accordance with MTACC policies and procedures, and *providing expertise of lessons learned.* In addition, *MTACC Project Controls staff approves assumptions, verifies timeframes, and checks data* presented in Design Engineer and Contractor schedules and the FTA Quarterly Reports in accordance and as specified in the PMP (see Section 7 - Quality Control/Quality Assurance). If there is disagreement between the MTACC Project Controls staff and the Project Team, the issue is elevated to the MTACC President." It should be noted that the PMOC has not received an IPS update that was signed by the MTACC chief scheduler since the baseline of July 2014.

The PMOC recommends that ESA develops a resource leveled schedule with Amtrak and LIRR resource availability assumptions below the maximum number of available resources, and change 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. . [Ref: ESA-109-June 13]

4.2 90-Day Look-Ahead of Important Activities

Table 4.1 below shows important milestones in next 90 days:

Table 4.1: Important Milestones in Next 90 Days

Activity ID	IPS-CONTRACT	Activity Name	Start	Finish	Total Float
CM014B: GCT Concourse and Facilities Fit Out					
CM014B-1280	CM014B	CM014B - Notice of Award		31-Jan-15	53
CM014B-1270	CM014B	NTP CM014B GCT Concourse	2-Feb-15		52
FHL02: Harold Stage 2 - LIRR F/A					
FHL02.SI.335	FHL02	Complete Trough (East of H3-CIL)		22-Jan-15	55
FHL02503750	FHL02	CH053 Hand over E35 Location (Ball Field)		9-Mar-15	24
FHL02.SI.345	FHL02	Complete Trough (Ball Field Area)		20-Mar-15	51
FHL02.SI.325	FHL02	Complete Trough (West of H3-CIL)		3-Apr-15	24
FHL02.SI.365	FHL02	Complete Cable Installation for H3-CIL Cutover		6-Apr-15	51

Table 4.2 summarizes the status of activities per location and contract since the baseline IPS data date of July 1, 2014, that were scheduled to start or finish by December 1, 2014.

Table 4.2: Status of Activies since Baseline (July 2014)

Row Labels	Count of BL Project Start	Count of Actual Start	Count of BL Project Finish	Count of Actual Finish
Harold	**569**	**116**	**640**	**96**
2*	34		40	
2	34		40	
CH053	125	38	133	29
CH054A	50	10	54	5
CH057	11		11	
CH057A	55	19	57	14
CH057B	5	5	7	5
CH057C	8	5	8	4
CH057D	3		3	
CH058	3		6	
CH061A	1		1	
FHA01	4	1	5	
FHA03	3	3	2	1
FHL01	95	18	108	21

Row Labels	Count of BL Project Start	Count of Actual Start	Count of BL Project Finish	Count of Actual Finish
FHL02	164	14	197	15
FHL02.VHL02	1	1	1	1
FHL03			1	1
FHL04	2	1	1	
VH051-Part1	1		3	
VH051-Part2	1		2	
VHA04	1			
VHL03	1	1		
VHL04	1			
LIRR	**2**	**1**	**2**	
OP-LIRR	2	1	2	
Manhattan	**131**	**63**	**131**	**34**
CM004	1	1	3	
CM005	41	25	43	10
CM006	53	27	52	22
CM007	2		1	
CM012B	1		1	
CM013	2	2	2	2
CM013A	9	4	10	
CM014A	2	2	2	
CM014B	15	1	13	
CM014C	1		1	
CM015	4	1	3	
Queens	**44**	**8**	**47**	
CQ032	12	6	15	
CQ033	1		1	
FQA65	10	1	10	
T40	21	1	21	
Systems	**13**	**2**	**10**	**2**
CS084	10	2	8	2
CS284	2		1	
VS086	1		1	
Grand Total	**759**	**190**	**830**	**132**

*This package represents unassigned Harold work.

It is apparent that the rate of progress is low, and ESA does not status its IPS properly. This is an issue that requires the attention of MTACC's vice president of project controls as ESA's organization chart (SMP, figure 1 Project Controls Organization Chart) shows.

Once the Harold re-plan schedule is finalized, a set of critical metrics can be developed to monitor project schedule performance [Ref: ESA-A46-Dec12].

4.3 Critical Path Activities

As of December 1, 2014, the East Side Access Program Critical Path begins with CM005 Manhattan South Structures (GCT 1 and 2 structures), followed by CM007 building the structure within the GCT Caverns (specifically the nodes), then cavern structures, MEP and architectural fit outs, and ends with CS179 Integrated System Testing. The critical path then flows into overall program completion activities and finishes at the Revenue Service Date (RSD) of March 25, 2020 (additional contingencies, as mentioned in the paragraph immediately above, result in target RSD of February 12, 2021, and late RSD of December 13, 2022).

Because ESA has not been able to procure contract CM014B yet (Notice of award for contract CM014B was scheduled for November 1, 2014 in baseline IPS of July 1, 2014) this Contract is now on the critical path, and additionally advertising of the CM007 package has slipped at least three months from the IPS baseline (from October 2014 to January 2015).] It should be noted that ESA has scheduled Contract CM007 critical path with three shifts of work and therefore effectively removes the ability to recover schedule should delays be encountered.

4.4 Project Schedule Contingency Analysis

ESA's IPS #64 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 new 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. In the PMOC's opinion, this is an inordinate amount of contingency that indicates the lack of confidence in the actual durations and logic in the baseline schedule.

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 $10,177M [redacted] to the MTA CPOC. The detailed monthly cost reports received by the PMOC reflect the budget as of the end of November 2014. Table 5.1 on the following page shows the changes in the SCC budget breakdown between the FFGA Baseline budget and the 2014 re-planned budget.

Observations:

The re-planning effort has provided the opportunity for the PMT to re-examine each of the Contract packages and every active Contract Package value. Some budgets changed due to major re-estimates, other due to adjustments in the Contingencies. Some Contracts packages were redefined by splitting off sections of work or re-allocating portions of the budget to Regional Investments (RI).

Concerns and Recommendations:

ESA informed the PMOC that it had reassigned values to each of the SCCs as part of their re-plan but they have not yet demonstrated how the values were determined or that the structural problems in the SCC have been addressed. Whereas SCC breakdowns are assigned to scope transfers, there still remain issues of proper allocation of contingencies by SCC.

5.2 Project Cost Management and Control

Status:

The PMT has reported that, as of November 30, 2014, the actual total project progress was 53.2% vs. 53.7% planned progress resulting from the June 2014 re-baseline, however the actual project progress was 53.7% vs.54.1% planned based on invoiced amount and the new budget. As stated above, MTACC ESA presented a new budget to the MTA CPOC in June 2014 and provided a cash flow chart in September 2014; however, MTACC-ESA withdrew it in November 2014 to be re-submitted at a later date. The PMOC notes that they have begun to fall behind the planned pace of completion.

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 $)	Oct 2014 SSC (YOE $) M	Nov 2014 SSC (YOE $) M	Nov 2014 % of Re-Plan	Sept '14 to Nov'14 Change $M	CBB Variance from FFGA %
10	1,989	3,405	3,426	3,409	99.97%	-17	71.39%
20	1,169	2,238	2,233	2,250	98.02%	17	26.95%
30	356	474	473	474	100.26%	1	33.15%
40	205	611	606	605	106.56%	-1	153.66%
50	619	606	571	571	100.00%	0	-7.75%
60	165	220	219	219	100.00%	0	23.64%
70	957	210	210	210	100.00%	0	-78.06%
80	1,184	1,975	1,975	1,975	100.00%	0	39.27%
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Subtotal	**6,813**	**10,178**	**10,178**	**10,178****	**100.00%**	0	**49.39%**
100	1,036	1,036	1,036	1,036	100.00%	0	0.00%
Total Project Cost (10 – 100)	**7,849**	**11,214***	**11,214***	**11,214***	**100.00%**	0	**42.87%**

Table 5.2 shows the current budget status of contracts awarded to date and invoiced amounts to date.

Table 5.2: Project Budget and Invoices as of November 30, 2014

Elements	Baseline Total Budget (June 2014)	Current Baseline Budget (Nov 2014)	Actual Awards (Nov 2014)	Paid to Date (Nov 2014)	Actual % Budget Invoiced
Construction	$7,379,296,706	$7,353,687,141	$4,965,423,099	$3,809,019,232	51.80%
Soft Costs Subtotal	**$2,798,474,304**	**$2,824,083,869**	**$1,603,571,661**	**$1,520,835,873**	**53.85%**
Engineering	$720,615,810	$720,615,810	$653,226,882	$630,428,927	87.48%
OCIP	$282,613,620	$282,613,620	$187,960,159	$174,847,432	55.09%
Project Mgmt.	$972,168,644	$972,168,644	$646,491,911	$601,469,058	60.47%
Real Estate	$182,076,230	$182,076,230	$115,892,709	$114,090,456	61.87%
Rolling Stock	$202,000,000	$202,000,000	$0	$0	0.00%
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Project subtotal w/o Financing & RI	**$10,177,771,010**	**$10,177,771,010**	**$6,568,994,760**	**$5,329,855,105**	**52.37%**
Regional Investment Subtotal	**$758,260,953**	**$758,260,953**	**$272,435,735**	**$77,451,851**	**47.22%**
Construction (RI)	$611,214,337	$611,214,337	$213,020,634	$41,614,493	47.22%
Design (RI)	24,595,433	24,595,433	$24,595,433	$15,976,887	47.22%
OCIP (RI)	$16,939,198	$16,939,198	$16,939,198	$16,939,198	47.22%
Project Mgmt. (RI)	$24,181,291	$24,181,291	$17,880,470	$2,921,273	47.22%
Real Estate (RI)	$0	$0	$0	$0	47.22%
Rolling Stock(RI)	$50,000,000	$50,000,000	$0	$0	0.00%
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Project Subtotal W/O Financing	**$10,936,031,963**	**$10,936,031,963**	**$6,841,430,496**	**$5,407,306,956**	**47.22%**
Finance Charges	$1,036,100,000	$1,036,100,000	$617,607,000	$617,607,000	59.61%
Grand Total	**$11,972,131,963**	**$11,972,131,963**	**$7,459,037,496**	**$6,024,913,956**	**47.22%**

[redacted]

Table 5.3 below shows the PMOC's cost forecast, based on a trending analysis using data provided by ESA in Q4 2013 (note: this forecast has not changed since then).

Table 5.3: PMOC ESA Cost Forecast

Category	Cost
Construction*	$ 7,859,922,230
PM/CM; OCIP; RE; and Engineering*	$ 2,243,759,078
Rolling Stock	$ 202,000,000
[redacted]	[redacted]
ESA Budget Forecast	$ 10,455,681,308
[redacted]	[redacted]
ESA Total Forecast**	$ 10,918,681,308

*PMOC Forecast is based on Historical trends; known costs; and schedule slippage. ESA provided data is utilized

**Figures represents Low Degree of Risk Mitigation, The PMOC had developed summary levels of Forecast cost values at the Medium Degree of Mitigation($10.772B) and High Degree of Mitigation ($10.587B Levels also.

Observations:

The PMT has been providing package estimates for future contract packages generally only after several prompts from the PMOC, and often not including the latest cost updates. What is provided often is in formats without the underlying coding structures and without an adequate Basis of Estimate (BOE), which hinders analysis. Without a BOE, thorough analysis is difficult and one cannot identify the assumptions of the Estimator. [Ref: ESA-107-Dec12] At a March 19, 2014 meeting with the PMOC, ESA stated that it would provide reports within two months. Unfortunately this date has not been met and recently ESA notified the PMOC that Unifier is no longer their reporting system and they have gone back to Expedition for now. The lack of data migration or data warehousing structures and the lack of a system development plan and schema of data sources appear to show that they had not planned this effort well and cannot fully describe its targets and methods of reaching them, let alone a time table. This has been a main topic of discussion at the Monthly Cost Update meeting with ESA for the last several months.

Concerns and Recommendations:

The PMT provides monthly cost reporting data in a series of update documents provided by separate PMT staff instead of in a unified report. This lack of singular reporting responsibility and the lack of a single integrated cost document weaken the capacity for analysis and for a joint review of the cost relationships. Five months have elapsed since ESA provided their Re-Plan budget, but development and usage of the Unifier Reporting system does not appear to be advancing. Despite monthly requests by the PMOC, and monthly assurances by ESA that the

Unifier system be demonstrated, ESA has not yet held such a training or presentation; a scheduled training this month was cancelled by ESA the morning it was scheduled. The PMOC has been able to gain access and based on its observations little is being input and the system is not being used by the staff; ESA confirmed these observations at the December 18, 2014 Cost Review Meeting. Without an integrated system that is used regularly and consistency, the integrity and credibility of any cost reporting is seriously undermined. The PMOC recommends that ESA continue to work to finalize its new cost reporting and control system as soon as possible to verify the new re-plan budgets and management of costs. [Ref: ESA-112-June 13].

The PMT should reforecast its monthly cash flow curve, linking it to the current schedule forecast [Ref: ESA-99-Dec12].

5.3 Change Orders

Table 5.4 below shows the executed mods greater than $100,000 during November 2014.

Table 5.4: ESA's Change Order Log in November 2014 (>$100,000)

BA #	Package	Mod#	Description	Mod. Amount ($)	Nov 2014 package value ($)
756	CH053	129	Support of 12kV at Microtunnel Runs 1 & 2	314,144	316,168,634
756	CH053	131	Upgrade to Car Wash Switchgear Components	199,808	316,168,634
756	CH053	133	Synertech Manhole removal	133,000	316,168,634
757	CH054A	40	Installation of Signal Power Separation Equipment	433,766	55,958,505
759	CM005	8	Allowance items No. 5, 10A, 10B, and 10C	2079842	250,138,905
759	CM005	12	Lower Level Cavern Walls	26,700,000	250,138,905
760	CM006	1	Back of House Scope Transfer	22,250,000	340,335,632
N/A	CQ031	98	Closeout	2,154,714	762,333,676
764	CQ032	51	Additional invert Slab & Duct Bench at Tunnel B/C	547,326	238,970,818
764	CQ032	55	Yard Services Building Piles and Foundation Revised Access	608257	238,970,818
N/A	GEC	75	Data Sheets/Track Relocation/CM007 Revised Access	283,421	437,062,265
N/A	GEC	78	Inspection Pits/Bellmouth Transfer to CM007/Water infiltration Survey	246,640	437,062,265
N/A	GEC	79	MNR Transformer Removal	252,243	437,062,265

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

Prior to the Re-Plan, ESA was often 5-7% too low on its budget for MODs. The Re-plan has added 2.5% in many lines and included other risk-based amounts as Additional Contingency, but it is not yet clear that those adjustments will be adequate.

Concerns and Recommendations:

The PMOC had recommended that the PMT perform a more thorough analysis of the change order trends and budget for them, and also prepare an analysis and outline its plan for allocated and unallocated contingency consumption for its re-plan, which they appear to have done. However, while the previous format included all the possible costs for MODs, no matter their status, some of these costs are now excluded, which does not appear to be prudent and not following widely accepted Good Practices. The PMOC recommends that these exclusions be reinstated as a policy. [Ref: ESA-108-May12]

5.4 Project Funding

a) Federal Funding

As shown in Table 5.2 above, as of November 30, 2014, the PMT has awarded a total of $6.569B, in contract work. The Federal share of awarded contracts is $2.333B. The total Federal funding commitment as of November 30, 2014 remained at $2.699 billion (See Appendix G.1 for project cash flow, and Table 2 for detailed cost distribution.)

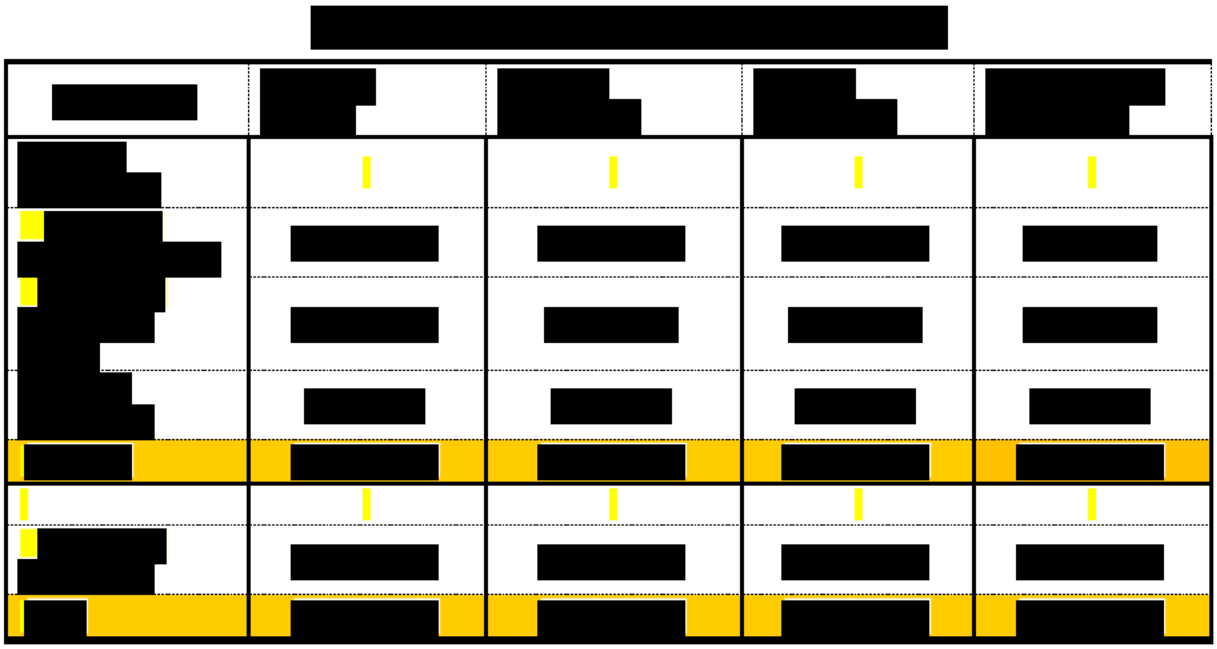
b) Local Funding

The obligated local share was $4,371M. There has been a $617,607,000 incurred finance cost (for local share) to date.

5.5 Cost Variance Analysis

ESA has been working on its variance analysis primarily for use in its proposed Re-Plan Budget, which it presented at the June 2014 CPOC meeting. It has provided partial detailed back up to the PMOC as of this report.

[redacted]



[redacted]

Concerns and Recommendations:

Since the new Budget was developed prior to the independent CM007 Estimate as well as issues related to significant changes at Harold the PMOC is concerned that higher costs in those areas could diminish the Contingency.

6.0 RISK MANAGEMENT

6.1 Risk Process

Status/Observations:

ESA had resumed its monthly risk meetings and has submitted an updated risk register. ESA held a risk meeting in November 2014, however one was not scheduled in December 2014.

MTACC intends to perform a package level risk assessment for CM007. Conducting the CM007 Risk Assessment before the RFP is advertised is even more critical in the PMOC's opinion, given the fact that ESA did not conduct a full constructability review for this package as called for in its management plans. Although CM007 package was advertised on December 23, 2014, a risk workshop has not been scheduled as of the end of December 2014. The ESA Risk Manager stated at the November 2014 monthly risk meeting that the CM007 Risk assessment will most likely not take place until early 2015.

Continuing issues with the level of Amtrak force account support, currently at about 30-35% of what is required to maintain the current schedule would be significant and could delay completion of the Harold Interlocking work another three years until 2022 under the worst-case trending scenario. MTACC has sent a letter to the Amtrak Chief Engineer requesting a support commitment sufficient to complete the Harold work by 2019. The PMOC is not aware of a response to this letter as of this report.

ESA initially forecasted that it would recommend an award of the CM014B Package at the November 2014 MTA Board Meeting. As of the end of December 2014, ESA has not made a selection to recommend for award. ESA Management stated that they believe that a recommendation will be ready to present to the MTA Board in January 2015. As stated above, the CM007 package was advertised in December 2014 (plan was to advertise in November 2014), although the RFP documents will not be available until early January 2015. Both of these packages are on the project near critical and critical paths, and delays will impact available Program schedule contingency.

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 2015 due to budget constraints; and the restructuring of the CS179 Contract by splitting it into a base contract with seven options, based predominately on access restraints imposed by the CM005; CM006; CM007; and CM014B packages, which will significantly increase the interface risks. This segmentation of construction packages has resulted in multiple inter-contract interfaces and milestones. The probability of successfully achieving all of them is minimal in the PMOC's opinion, and leads to the possibility of a ripple effect of delays and coordination difficulties between contracts. There is very limited opportunity 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. Access Restraints in the CS179 Contract are correlated to the options in the Contract; and the CS179 Contract will also have multiple interfaces to the CM007 and CM014B Contracts, which have 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. Preliminary indications from ESA are that the Harold work could extend as far out as April 2022 given current production trends coupled with delays due to changes in cutover sequencing; delays to current work (e.g. 12KV relocation); and design changes necessitated by Civil Speed Enforcement requirements mandated by the MTA.

6.2 Risk Register

Status/Observation:

The PMT has begun 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. An updated risk register was submitted for December 2014.

6.3 Risk Mitigations

Status/Observation:

Current Risk Mitigation Efforts: The PMOC has not seen evidence of any efforts by the PMT at this point to develop mitigation strategies for the key risks identified in the Manhattan/Systems and Harold/Queens Risk Workshops held during 1Q2014. However the PMT has implemented risk mitigations strategies for other risks in 4Q2014. ESA has exercised advance procurement of the switchgear that was originally in the CM014B package as mitigation for the risk of delay in the fabrication and delivery of the equipment due to the potential delay in awarding CM014B. ESA is also transferring scope out of the current CM014A Contract into the CM014B Contract to mitigate site delay risk during mobilization of the CM014B Contract.

Concerns and Recommendations:

Having performed the risk workshops noted above, MTACC should develop mitigation strategies for the risks identified in the workshops reference above, and track and report on them on a regular basis as required by the RMP. MTACC continues to try to mitigate risk on an ad hoc basis rather than having a mitigation plan for major risks.

7.0 PMOC CONCERNS AND RECOMMENDATIONS

Priority in Criticality column

1 – Critical 2 – Near Critical

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
ESA-93-June12	1.6 Quality	Project Quality Manual (PQM): The ESA Quality Manager had committed to update Revision 6 of the ESA Project Quality Manual (PQM) that was issued in February 2009 by the end of February 2013. The PMOC provided suggestions to the ESA Quality Manager. Status Update: Revision 7 to the PQM incorporated the PMOC's suggestions. The PQM was signed by ESA and MTACC Executive Management and issued in August 2014. Recommendation: The PMOC recommends that the FTA approve Revision 7 to the PQM.	2
ESA-96-Sep12	1.5 Safety and Security	Safety Certification Process: The PMOC remains concerned that the Safety and Security Committee has not met on a regular basis as per the ESA SSMP. This lack of regular meeting will hamper the effectiveness of the Committee in coordinating activities related to the Safety Certification Process. Status Update: A calendar showing general meeting dates (by quarter) was presented at the December 18, 2014 Operational Readiness Quarterly Meeting. Recommendation: The PMOC continues to recommend that the Safety Certification Committee produce a calendar for regularly scheduled meetings and adhere to it.	2
ESA-98 Sep 12	5.6 Cost Contingency Analysis	ELPEP Contingency Drawdowns: The schedule and cost contingency drawdown plans in the ELPEP document have been superseded by the new (2014) schedule and cost baseline. Status Update: In November 2014 ESA submitted a preliminary Contingency Draw Down schedule and Curve. It was discussed at the November 18, 2014 Cost Review	1

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
		meeting and was informally agreed by both sides that it was not meeting the needs of ESA Project Controls or the PMOC, as constructed. ESA and MTACC will revise the Curve to, among other things, include as a Base the amounts of Management Reserve.. Recommendation: MTACC needs to update the ELPEP document and create new contingency drawdown plans for schedule and cost. This has to be worked at, at first, between ESA and MTACC before it can be submitted to the FTA.	
ESA-99-Dec12	5.2 Project Cost Management	The PMOC is concerned that even after the Re-Plan the rate of invoiced amount for construction and total project to date compared to the forecast amount in the re-baseline cash flow has lagged. This continues the trend of ESA historically not keeping up with its monthly expenditure plans. Status Update: ESA has recently provided its Re-Plan Cash Flow Chart however for the first quarter after the Re-Plan, expenditures continued to be lower than they had projected in June 2014. ESA withdrew its initial cash flow schedule and will submit a new one by 1Q2015. Recommendation: ESA should reforecast its monthly cash flow curve, linking to the adjusted schedule forecast, and extend the date for the end of the payout curve to be no earlier than the middle one of their three schedule paths.	1
ESA-103-Dec12	2.1 Engineering Design	The GEC and PMT continue to consistently miss most of their target dates for remaining design activities on the project. In several instances (CM014B; CH057), this has resulted in delaying the procurement packages. Resolution: The PMOC recommended that the PMT develop a design milestone tracking sheet for the remaining design work on the project, similar to what was done for the catenary design work, in order to more effectively manage the design effort. This recommendation was made a year ago to the PMT but was not implemented. The PMT's position is that this is being done in the Contract Status Summary Report (CSSR). This item will be closed with the understanding that the PMOC maintains that this tracking sheet would have been a useful tool for the PMT	2

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
ESA-107-May 13	5.2 Project Cost Management and Control	Contract Package Engineer's Estimates: ESA has been providing the PMOC with the backup for the package Estimates more frequently; however, what is provided often is not in formats useful for analysis and generally delivered too late to fully prepare for Risk Workshops. The Basis of Estimate, when provided, generally does not provide enough detail for thorough analysis, nor to identify to the PMT the assumptions of the Estimator. No opportunity for reconciliation, records of any reconciliation meetings that may have occurred, or explanation as to why those costs are to be used are provided. Status Update: The ESA PMT provided the CM007 Contract Estimate in December 2013, but at the March 2014 Harold Risk Assessment provided only summary level estimate values with no Basis of Estimate documents without the planned scope movement of the Track and has stated it will provide an updated independent Estimate by an independent estimator retained by MTACC. As of the end of November 2014, this information was not provided. After several requests ESA provided the Estimate for the CQ033 package, at first only the 60% but then after further requests the 90% was provided; the EAC is now nearly $100M higher. ESA has stated it is getting separate independent estimates for three major components of the revised CM007 scope and they will be provided during the first quarter of 2015. Recommendation: The PMOC continues to recommend that the MTACC's Project Control Manager submit estimates and proper documentation for review as well as a full analysis of the elements in the ESA estimate prior to each package bid date, allowing adequate time for review and comment. The PMT should also invite the PMOC to attend reconciliation meetings with the Estimating Firm(s) providing the Estimates. ESA should make sure the Estimating firms provide full and inclusive Basis of Estimate (BOE) documents as an integral part of the Estimate deliverable. The PMOC additionally recommends that the PMT have the estimates for the major packages, to be identified in collaboration with the PMOC, for independent cost review, as well as have the CCM perform a "check estimate" and conduct a constructability review prior to estimate. The PMOC recommends that all costs provided by ESA to MTA as the basis	1

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
		for the Contract Bid be incorporated into the PWE and EAC for the package/project and then be replaced upon actual opening of Bids. A thorough analysis of the Estimate is essential for estimate validation needed for the Risk Assessment that must be held prior to going out to Bid. A review of the CM007 and CM014B Estimates demonstrates a lack of standard processes and lack of transparency as to how Estimated costs are determined.	
ESA-108-May 13	5.3 Change Order	Estimate at Completion: ESA had introduced a budget line designation "Assigned for MODs" in its CBB to adjust active packages budget for the value of Pending and Potential MODS. Funds in those amounts were shifted from the Contingency to be part of the package EAC. Status: [redacted] In the Re-Plan ESA has also started assigning values from Contingency to some packages to reflect Risk Assessment projections. The EAC on the package level is determined by those elements. However, it does not include any Possible MODs- including those Contractor submitted- which have not been assigned a value by ESA or Disputed/Claim issues. The Assigned for MODs procedure has led to continual "churning" of Contingency values into and out of the EAC which leads to a lot of volatility in budget activity. Over the last several months it has become apparent that many of the Potential MOD values are far off from the actual negotiated value so there is high uncertainty in the MOD budgets. , Recommendation: The PMOC had recommended that the PMT budget for MOD costs still in development and also prepare an analysis and outline its plan for allocated and unallocated contingency consumption for its re-plan. The Hold Points for Un-Allocated Contingency use are not set yet. The PMOC has advised against the continual moving of funds in and out of Contingency as it makes the Budget and Contingency statuses very unclear due to difficulty in tracing where costs are	1

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
		assigned as well as due to values carried for Potential MODs being far off from the settled values.	
ESA-109-June 13	4.1 Schedule	Project Schedule: The IPS update does not adequately represent the current state of the project and events. The Harold portion of the IPS will have to be changed based upon the recent re-look and re-planning of the Harold work. Status: ESA has committed to placing the latest re-plan of the Harold work in the November 2014 IPS update. This commitment has now shifted to February 2015. Recommendation: Establish a stable project baseline schedule that can be used to measure actual project performance going forward.	1
ESA-112-June 13	5.6 Project Contingency	Project Cost Reporting: The Re-Plan Budget has now been included in the ESA reporting, however they have promised for nearly one year that to provide an Integrated Cost System and Report, but has not delivered nor provided system development updates. Status: In September 2013 ESA said they were developing an Integrated Tracking and Reporting System; in March 2014 ESA notified the PMOC that they had hired a Unifier developer who was working with staff to get data and would provide the new reporting very shortly. As of October 2014, ESA has only been able to develop small portions of the Unifier system and notified the PMOC that until further notice they will use Expedition reports while continuing to work on Unifier. It has also notified the PMOC that it intends to stop the distribution of the Project Working Budget (PWB) report. The PMOC has identified a number data elements in the PWB that ESA is not able to provide in its Expedition or planned Unifier reports. ESA has been unable to provide either a projected timetable for development, or a plan showing data source flow for reporting. A training/demonstration session set up for November 2014 was cancelled by ESA that morning. ESA has acknowledged that few of the staff is using Unifier and that data is incomplete in many areas that were to have already been fully populated. Recommendation The PMOC recommends that ESA continue to work to finalize its new cost reporting and control system as soon as possible to verify the new Re-Plan	1

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
		budgets and management of costs, and immediately demonstrate a plan for development and a detailed data sources and flow schema. In addition ESA should continue with the PWB report until such a time as all the existing data can be provided in its new Unified Cost Report.	
ESA-114-Sep13	3.0 ELPEP Compliance	ELPEP Compliance: With MTACC's submission of its East Side Access FTA Quarterly Report (Apr, May, June '13) and then continuing with all subsequent reports through December 2014, 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. Status: 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 is productive discussions regarding improvements to cost and schedule reporting during the monthly cost and schedule review meetings. PMP Rev. 10 was initially submitted to the FTA and the PMOC on July 18, 2014 and was subsequently revised and re-issued on September 18, 2014 based on additional comments by the PMOC and the results of several working meetings. The PMOC completed its review and evaluation of MTACC's revisions and responses and submitted its findings to FTA-RII on November 13, 2014. 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. The PMOC notes that the updated TCC Plan was expected earlier in 2014 but as of December 31, 2014 has not yet been submitted pending finalization of the role, responsibilities and level of authority of the ESA Change Control Committee.	1

Number/ Date Initiated	Section	Issues/Recommendations	Criticality
		Recommendation: 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.	
ESA-117-Sep12	1.6 Quality	As-Built Process Audit: The ESA Quality Manager conducted an As-Built Process Audit on the contractors for the following eight contracts: CH053, CH054A, CQ032, CM004, CM014A, CM005, CM013, and CM013A. Status Update: Each contractor was rated in eighteen categories. Two contractors received a final rating of Fail; one contract received a final rating of Pass, and the remaining five contracts were rated as Need Improvement. Follow up audits with the CM office and GEC will be performed beginning in the first quarter of 2015 to ascertain/identify any inconsistencies in the submittal process and implementation of any as-built information received by the GEC, including whether the GEC is actually reporting back to the CM. Recommendation: The PMOC recommends that the ESA Manager request corrective action from each contractor and conduct a follow-up audit.	2
ESA-118-Sep12	1.6 Quality	The CS179 Contractor is not meeting its Quality requirements. Status Update: The CS179 ESA Construction Manager sent a letter to the contractor regarding unacceptable performance of submittals and document control. There are a number of issues that were addressed with the contractor at a meeting in December 2014. The contractor will be informed that they must have all their required submittals in and required/necessary staff in place by mid-January or ESA Quality will issue nonconformance reports. Recommendation: The PMOC recommends that ESA Quality Management continue to work closely with the contractor so that the required actions are accomplished in a timely manner.	2

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 re-iterated at the November 8, 2012 ESA/SAS mini-quarterly meeting. Critical metrics cannot be properly updated until approved baseline schedule is fully incorporated into the IPS. At present, ESA still has to incorporate the latest Harold re-plan, developed in December 2014, into the schedule.	2	3/30/15

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
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 63rd Street tunnel under the East River and new tunnels in Manhattan and Sunnyside yard. Ridership forecast is 162,000 daily riders (27,300 new riders).

Guideway: This two-track project is 3.5 route miles long, it is below grade in tunnels and does not include any shared use track. In Harold interlocking, it shares ROW with Amtrak and the freight line.

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

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

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

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

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
5,329.9 million	Amount of Expenditures as of November 30, 2014 based on the Total Project Budget of $10,177.8 million
53.7	Percent Complete based on the Re-plan budget of $10,177.8 million and invoices in the December 2014 report
[redacted]	[redacted]
53.1*	Construction Percent Complete
53.2*	Overall Project Percent Complete

*As of November 30, 2014, based on the June 2014 ESA Re-plan Budget [redacted], as provided by ESA in its November 2014 Report.

[redacted]

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. Deep,

#	Date	Phase	Category	Subject	Lessons Learned
					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 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 E – SAFETY AND SECURITY CHECKLIST

Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Rail		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGC, etc.)	Primarily Design Bid/Build		
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan	12/2010 Rev. 2	2012	Grantee has forwarded the revised SSMP directly to FTA, according to the grantee, in Q2 of 2014.
Safety and Security Certification Plan	11/2008 Rev. 1		Is within the SSPP of LIRR.
System Safety Program Plan	11/2008 Rev. 1		N/A
System Security Plan or Security and Emergency Preparedness Plan (SEPP)	11/2010		Is within the SSPP of LIRR.
Construction Safety and Security Plan	3/2007 Rev. 1		Project Construction Safety and Security Plan, contractors' site specific safety and security plans,
Safety and Security Authority	**Y/N**		**Notes/Status**
Is the 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 SOA has stated that they will not interface with the safety certification process for ESA until such a time as it is signed and certified

Project Overview		
		by LIRR.
Has the oversight agency reviewed and approved the grantee's SSPP as per Part 659.17?	In Development	In Q4 of 2013, The SSOA has asked the FTA for 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 SOA 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	The SOA has no plans on attending these meetings. Grantee to transmit SSMP to SSOA through the Grantee's System Safety Dept. The SSOA's representative has had a meeting with NYCT system safety and the grantee. The PMOC attended a meeting with the grantee and the SSOA. Additionally, in accordance with new MAP- 21 provisions, the FTA recently audited the NYS SSOA. Preliminary FTA findings indicate a need for more funding in order for the SSOA to accomplish its mandate from FTA. Simultaneously, the SSOA was able to transfer an existing NYS employee into the SSOA. It is anticipated

Project Overview		
		that the above events will lead to a greater ability for the SSOA to more effectively and efficiently accomplish its mission moving forward. The SOA 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 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.
SSMP Monitoring	**Y/N**	**Notes/Status**
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	

Project Overview		
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 Assistant Chief of Safety and Security for the MTACC meets regularly with the project management team. The CCM and the Grantee's safety and security personnel are integrated into the management team. Integration is also achieved through implementation of ESA HASP, monthly project wide safety meetings, quarterly audits, OCIP inspections, weekly MTACC and contractor joint safety audits, and interface w/ MTA Police and NYPD Infrastructure Protection Unit of the NYPD's Counter-Terrorism Division. The 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 meeting 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.

Project Overview		
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 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

Project Overview		
		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.
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 previous quarterly report, the grantee has begun to document said verifications by use of their Quality Department 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

Project Overview		
		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 construction vs. incomplete critical testing. The grantee is uncertain as to what determines criticality for testing purposes. The grantee is in the process of identifying the critical tests. 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

Project Overview		
		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 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

Project Overview		
		LIRR and MNR's GCT incident commanders report to a unified incident commander from MTA Headquarters.
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 F – ON-SITE PICTURES
(TRANSMITTED AS A SEPARATE FILE)

APPENDIX G

COST AND SCHEDULE ANALYSIS TABLES

Table G-1: ESA Planned Cash Flow (as of 8/1/14)

Quarter/year	Construction $(000)	Engineering $(000)	OCIP $(000)	Project Mgmt. $(000)	Real Estate $(000)	Rolling Stock $(000)
Paid To Date	**3,660,194,771**	**646,377,892**	**155,604,955**	**580,041,291**	**112,634,547**	**0**
Remaining	**3,719,144,273**	**74,237,918**	**127,008,665**	**392,127,353**	**69,441,683**	**202,000,000**
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	0	0
1Q2015	134,568,200	-3,183,384	4,619,246	16,123,950	0	0
2Q2015	147,357,357	-3,290,689	4,774,951	16,667,454	0	0
3Q2015	169,688,509	-3,290,689	4,774,951	16,667,454	0	0
4Q2015	201,239,698	-3,290,689	4,774,951	16,667,454	0	0
1Q2016	193,275,933	-3,219,153	4,671,147	16,305,118	0	0
2Q2016	180,854,738	-3,290,689	4,774,951	16,667,454	0	0
3Q2016	181,988,455	-1,983,850	4,774,951	16,652,320	0	0
4Q2016	214,173,807	6,728,414	4,774,951	15,971,281	0	0
1Q2017	210,556,624	6,509,009	4,619,246	15,450,479	0	0
2Q2017	199,737,103	6,728,414	0	15,971,281	0	0
3Q2017	189,382,506	6,728,414	4,774,951	15,971,281	0	0
4Q2017	182,084,699	0	4,774,951	15,971,281	0	0
1Q2018	174,210,593	6,509,009	4,619,246	15,450,479	0	0
2Q2018	170,524,739	6,728,414	4,774,951	15,971,281	0	0
3Q2018	168,497,619	6,728,414	4,774,951	15,971,281	0	0
4Q2018	155,245,094	6,728,414	4,774,951	15,971,281	0	0
1Q2019	148,441,548	6,509,009	4,619,246	15,450,479	0	0
2Q2019	110,893,994	6,728,414	4,774,951	15,971,281	0	0
3Q2019	93,559,944	6,728,414	4,774,951	15,971,281	0	0
4Q2019	71,649,848	6,728,414	4,774,951	15,971,281	0	0
1Q2020	20,704,406	6,582,144	4,671,147	15,624,080	0	0
2Q2020	11,682,057	6,728,414	4,774,951	15,971,281	0	0
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
2Q2021	0	0	0	0	0	0
Subtotal	**3,719,144,273**	**67,509,504**	**122,233,714**	**392,127,353**	**0**	**0**

Table G-1b: Manhattan Interface Milestones

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
Manhattan South General Activities							
CM005	MS#4	Substantial Completion	6-Feb-16	6-Feb-16	0	**F**	
CM005	MS#5	Final Completion	6-May-16	6-May-16	0	**F**	
38th St. Vent Facility							
CM005	TO	Turnover to CS179 AR#5					
CS179	AR#5	CS179 Access @ 38th Street Facility	26-Apr-16	6-Feb-16	80	**S**	CM005 MS#4 Turnover (S.C)
Tail Tracks							
CM005	TO	Turnover to CS179 AR#5 (UL Tail Tracks)			0		
CS179	AR#5	CS179 Access - Upper Level Tail Tracks	26-Apr-16	6-Feb-16	80	**S**	CM005 MS#4 Turnover (S.C)
CM005	TO	Turnover to CS179 AR#5 (LL Tail Tracks)			0		
CS179	AR#5	CS179 Access - Lower Level Tail Tracks	26-Apr-16	6-Feb-16	80	**S**	CM005 MS#4 Turnover (S.C)
CM005	TO	Turnover to CM007 AR05 (LL Tail Tracks)			0		

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CM007	AR	Lower Level Tail Track Access	7-Apr-16	6-Feb-16	61	**S**	CM005 MS#4 Turnover (S.C)
CS179	MS#9	CS179 Works Ready for CS284 Work @ C01/C02 TPSS	9-Jun-17	9-Jun-17	0	**F**	
CS084	AR	GCT 1/2 Access for C01 & C02 TPSS	7-Aug-17	9-Jun-17	59	**S**	CS179 MS#9 Turnover
CS084	MS	C01 TPSS-Energize Substation - Tail Track	14-May-18	20-Jun-18	-37	**F**	C01-TPSS Test
CS084	MS	C02 TPSS-Energize Substation - Tail Track	17-Oct-18	17-Oct-18	0	**F**	C02-TPSS Test
GCT 1&2							
CM005	TO	Turnover to CS179 AR05 (GCT 1/2)	6-Feb-16	6-Apr-16	0		
CS179	AR#5	CS179 Access @ GCT 1/2	26-Apr-16	26-Apr-16	0	**S**	CM005 MS#4 Turnover (S.C)
Manhattan Caverns General Activities							
CM007	NTP	Notice to Proceed	1-Jul-15	2-Nov-15	-124	**S**	
CM005	MS#4	Substantial Completion	6-Feb-16	6-Feb-16	0	**F**	

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CM005	TO	CM005 MS#4 Turnover to CM007 Unlimited NTP			0		
CM007	Award	Access to Caverns	6-Apr-16	6-Feb-16	60	**S**	CM005 MS #4 Turnover
CM007	MS#4	CM007 Ready for IST	22-Mar-19	19-Feb-19	31	**F**	Have lost two month of Cont. so far
CM007	TO	Schedule Contingency					
CM007	MS#3	Substantial Completion	8-Jul-19	8-Jul-19	0	**F**	
GCT Caverns							
CM005	MS#2	Complete North Half of EB Cavern Slab	06-Jul-14 **(A)**	06-Jul-14 **(A)**	0		Completed
CM005	MS#3	Complete South Half of EB Cavern & Entire WB Cavern	12-Jan-15	29-Dec-14	14	**F**	
CM005	TO	MS#4 Turnover to CS179 AR#11 (Access Tunnel)					
CS179	AR#11	CS179 Access - Access Tunnel #11	5-May-16	6-Feb-16	89	**S**	CM005 MS#4 Turnover (S.C)
CM006	TO	CM006 MS#3 Turnover to CM007 Manhattan Access					
CM007	AR	Manhattan Access (From CM006 S.C.)	30-Jan-17	30-Nov-16	61	**S**	CM006 MS#2 Turnover
CM007	MS#1	TOC & BOH Areas Complete	28-Feb-17	9-Dec-16	81	**F**	
CM007	TO	CM007 MS#1 Turnover to CS179 AR 17A					
CS179	AR#17 A	CS179 TOC & Comm Rooms in the WB/EB Caverns including Fiber Routes	23-Aug-17	23-Aug-17	0	**S**	CM007 MS#1 Turnover SBOH

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CS179	AR#17 B	CS179 EB Cavern Access while Lower Level MEP is occurring	1-Dec-17	1-Dec-17	0	**S**	CM007 East Cavern U.L Precast Beams
CS179	AR#17 B	CS179 WB Cavern Access while Lower Level MEP is occurring	1-Dec-17	1-Dec-17	0	**S**	CM007 East Cavern U.L. Precast Beams
CM007	MS#2	Superstructure Complete	29-Mar-18	26-Feb-18	31	**F**	Lost two month of Cont.
CM007	TO	CM007 MS#2 Turnover to CM014B AR#5					
CM014B	AR#5	Access for Cavern Signage	30-May-18	28-Jun-18	-29	**S**	CM007 MS#2 TO
CM007	TO	CM007 MS#2 Turnover to Upper Cavern & Tail Track					
CM007	AR	Upper Cavern & Tail Track Access	29-May-18	29-May-18	0	**S**	CM007 MS#2 Turnover
CM014B	MS#9	Cavern Signage Complete	13-Dec-18	16-Jan-19	-34	**F**	
CS179	MS	WB/EB Cavern/Platform Completion	5-Mar-19	5-Mar-19	0	**F**	
CM007	TO	CM007 MS#4 Turnover to CS179 AR#18B					
CS179	AR#18 B	Commence Integrated Testing of equipment installed under Adjacent Contract CM007	31-Mar-19	31-Mar-19	0	**S**	CM007 MS#4 CM007 Ready for IST
CS179	MS#12 B-1	Completion of IST of all equip installed by CM007	9-Oct-19	19-Nov-19	-41	**F**	
Well ways 1-4							
CM005	MS#1	Escalator/Cavern Connections - Complete Well ways 1-4	9-Sep-14	17-Nov-14	-69	**F**	

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CM005	TO	MS#1 Turnover to CM014B AR#1					
CM014B	AR#1	Access to Bottom Of Well way #1, 2, 3, 4	2-Dec-14	9-Jan-15	-38	**S**	Available at NTP of CM014B
VM014	AR#1	WW1-WW4 ARIIIB-1a,1b,2a,2b					
CM014B	AR#5A	Vacate WW1 Platform	26-Aug-16	4-Apr-17	-221	**S**	
VM014	MS#1A	Complete construction, installation & testing of ES-34 thru 38 in WW1	29-Jul-16	29-Jul-16	0	**F**	
CM014B	AR#5B	Vacate WW2 Platform	23-Jan-17	7-Aug-17	-196	**S**	
VM014	MS#1A	Complete construction, installation & testing of ES-39 thru 42 in WW2	27-Dec-16	27-Dec-16	0	**F**	
CM014B	AR#5C	Vacate WW3 Platform	22-Jun-17	3-Apr-18	-285	**S**	
VM014	MS#1A	Complete construction, installation & testing of ES-43 thru 46 in WW3	25-May-17	25-May-17	0	**F**	
CM014B	AR#5D	Vacate WW4 Platform	19-Nov-17	13-Apr-18	-145	**S**	
VM014	MS#1A	Complete construction, installation & testing of ES-47 thru 50 in WW4	22-Oct-17	22-Oct-17	0	**F**	
Manhattan North General Activities							
CM006	MS#3	Substantial Completion Milestone 3	30-Nov-16	30-Nov-16	0	**F**	
CM006	MS#4	Final Completion Milestone 4	28-Feb-17	28-Feb-17	0	**F**	
50th St. Vent Plant Facility							
CM013	MS#3	Substantial Completion	20-Mar-14 **(A)**	20-Mar-14 **(A)**	0		Completed
CM013	MS#4	Final Completion	18-Apr-14 **(A)**	18-Apr-14 **(A)**	0		Completed
CM013	MS#5	Early Turnover of Loading Dock, Shaft &	18-Apr-14 **(A)**	18-Apr-14 **(A)**	0		Completed

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
		Plenum Tunnel for A.					
CM006	MS#2	Lower Level Tunnels & 50th	1-Feb-16	1-Feb-16	0	**F**	
CM014B	MS#2	50th St. Comm Room CR102, Tunnel Fan Control Room, Electrical RM #126 & ICC (R.R)	3-Mar-16	3-Mar-16	0	**F**	
CM014B	TO	CM014B MS#2 Turnover to CS179 AR#13A					
CS179	AR# 13A	50th Street Vent Phase 1	9-Jun-16	9-Jun-16	0	**S**	CM014B MS#2 Turnover
CM006	TO	CM006MS#3 Turnover to CM014B AR#4					
CM014B	AR#4	Access CM006 footprint after S.C. (Shaft 5, 50th St. & 52nd St. Drop)	30-Jan-17	9-Apr-17	-69	**S**	CM006 MS#3 Turnover
VM014	AR#3	EL-10 at 50th Street Loading Dock, Shaft 4	5-Jun-15	2-Nov-17	-881	**S**	
CM014B	MS#7	CM014B MS - Completion of 50th Street 2nd phase	26-Oct-17	26-Oct-17	0	**F**	
VM014	MS#3	Complete all vertical elements outside WW's @50th St	19-May-18	19-May-18	0	**F**	
CM014B	TO	CM014B MS#7 Turnover to CS179 AR#13B					
CS179	AR# 13B	CS179 AR @50th Street for 2nd Phase	26-Dec-17	26-Dec-17	0	**S**	CM014B MS#7 Turnover
55th St. Vent Plant Facility							
CM013A	MS#1	Completion @TPSS-FPSS Level/Com RM Level in Tunnel	1-Oct-14	1-Oct-14	0	**F**	Completed
CM013A	MS#2	Substantial Completion	5-Apr-15	5-Apr-15	0	**F**	
CM013A	MS#3	Final Completion	3-Jul-15	4-Jul-15	-1	**F**	

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CM006	MS#2A	55th Street Vent Facility Complete	2-Mar-16	2-Mar-16	0	**F**	
CM006	TO	CM006 MS#2A Turnover to CS179 AR#14					
CS179	AR#14	CS179 Access to 55th St Facilities, TPSS/FPSS Level	30-Jan-17	30-Jan-17	0	**S**	CM006 MS#2A Turnover
CS179	MS#11	CS179 Works Ready for CS284 Work @ C03 TPSS	26-Dec-17	26-Dec-17	0	**F**	
CS179	TO	CS179 MS#11 Turnover to CS284 Work @ C03					
CS084	AR	C03 TPSS Access @ 55th Street	21-Feb-18	21-Feb-18	0	**S**	CS179 MS#11 Turnover
CS084	MS	C03 TPSS-Energize Substation - 55th Street TPSS	28-Dec-18	28-Dec-18	0	**F**	C03-TPSS Test
GCT 3 & 4							
CM006	MS#5	GCT 4 Facility Room	4-Jul-15	4-Jul-15	0	**F**	
CM006	TO	CM006 MS#5 Turnover to CS179 AR#12					
CM006	TO	CM006 MS#2 Turnover to CS179 AR#12					
CS179	AR#12	CS179 Access GCT 4 & 5, X-Flue, 53rd Pump, X-Passages 6 & 7	25-May-16	25-May-16	0	**S**	CM006 MS#2 Turnover
CM006	MS#6	GCT 3 Xover Signal CIR	28-Jul-16	28-Jul-16	0	**F**	
CM006	TO	CM006 MS#6 Turnover to CS179 AR#15					
CS179	AR#15	GCT3 Facilities Rooms	30-Jan-17	30-Jan-17	0	**S**	CM006 MS#3 Turnover (S.C)
CS179	MS#8	CS179 Works Ready for CS284 Work @ GCT4 CIR	6-Mar-17	6-Mar-17	0	**F**	
CS179	TO	CS179 MS#8 Turnover to CS284 Work @ GCT4 CIR					

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor	
CM007	AR	Works GCT4 Rooms (From CS179)	3-May-17	3-May-17	0	**S**	CS179 MS#8 Turnover	
CS179	MS#10	CS179 Works Ready for CS284 Work @ GCT3 CIR	7-Sep-17	7-Sep-17	0	**F**		
CS179	TO	CS179 MS#10 Turnover to CS284 Work @ GCT3 CIR						
CM007	AR	Works GCT3 Rooms (From CS179)	7-Nov-17	7-Nov-17	0	**S**	CS179 MS#10 Turnover	
GCT 5 & 6								
CM006	TO	CM006 MS#1 Turnover to CS179 AR#9C						
CS179	AR#9C	GCT6 Rooms	7-Dec-15	8-Mar-16	-92	**S**	CM006 MS#1 Turnover	
CS179	MS#5	CS179 Work Ready for CS284 GCT6 CIR Room	18-Aug-16	18-Aug-16	0	**F**		
CS179	TO	CS179 MS#5 Turnover to other contracts						
CM007	AR	GCT6 CIR- Room Available (from CS179)	18-Oct-16	18-Oct-16	0	**S**	CS179 MS#5 Turnover	
CS179	MS#7	CS179 Works Ready for CS284 Work @ GCT5 CIR	21-Dec-16	21-Dec-16	0	**F**		
CS179	TO	CS179 MS#7 Turnover to other contracts						
CM007	AR	Access to GCT5 Rooms (From CS179)	18-Feb-17	18-Feb-17	0	**S**	CS179 MS#7 Turnover	
63rd St Tunnel								
CQ032	MS#8	COMPLETE MOD 32 (63rd St. Tunnel Eastbound Rehab)	11-Dec-14	16-Mar-15	-95	**F**		
CM006	AR#1	Eastbound 63rd St. Tunnel	29-Oct-14	29-Oct-14	0	**S**	Complete MS#8 63rd St. Tunnel from CQ032	
CM006	MS#1	63rd Street Work Complete	29-Sep-15	19-Feb-16	-143	**F**		
CM006	TO	CM006 MS#1 Turnover to CS179 AR#9A						

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CS179	AR#9A	EB 63rd St Tunnel for Primary Work	7-Dec-15		7-Dec-15	0	**S**	CM006 MS#1 Turnover
CS179	TO	CS179 MS#2 Turnover to CS179 AR#9B						
CS179	AR#9B	WB 63rd St Tunnel	25-May-16		25-May-16	0	**S**	CM006 MS#2 Turnover
Running Tunnel Lengths between Cavern & GCT 6 (Excludes GCT 3,4,5,6)								
CM006	TO	CM006 MS#2 Turnover to CS179 AR#12						
CS179	AR#12	CS179 Access WB1 Lower Level	25-May-16		1-Feb-16	114	**S**	CM006 MS#2 Turnover
CM006	TO	CM006 MS#2 Turnover to CS179 AR#12						
CS179	AR#12	CS179 AR - EB2 Lower Level	25-May-16		25-May-16	0	**S**	CM006 MS#2 Turnover
CM006	TO	CM006 MS#3 Turnover to CS179 AR#15						
CS179	AR#15	CS179 WB3/EB4 UL Tunnel Access	30-Jan-17		30-Jan-17	0	**S**	CM006 MS#3 Turnover (S.C)
2nd Ave. Vent Facility								
CS179	AR#1	2nd Avenue Ventilation Facility	3/31/2014 **(A)**		3/31/2014 **(A)**	0	**S**	Available at NTP of CS179
CS179	MS#4A	CS179 Works Ready for CS084 @ 2nd Ave	5-May-16		5-May-16	0	**F**	
CS179	MS#4B	2nd Ave Temporary Power	5-May-16		5-May-16	0	**F**	
CS179	TO	CS179 MS#4A&B Turnover to CS084						
CS084	AR	C04 TPSS Access @ 2nd Ave.	5-Jul-16		5-Jul-16	0	**S**	CS179 MS#4A &4B Turnover
CS084	MS	C04 TPSS-Energize Substation - 2nd Ave. TPSS	20-Jun-18		20-Jun-18	0	**F**	C04-TPSS Test
Concourse General Activities								
CM014B	Award	Notice of Award	1-Dec-14		1-Dec-14	0	**S**	NTP

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CM014A	MS#3	Substantial Completion	27-Feb-14	31-Mar-15	-397	**F**	
CM014A	MS#4	Final Completion	28-May-14	15-May-15	-352	**F**	
CM014B	MS#10	Substantial Completion	24-Jul-19	24-Jul-19	0	**F**	
GCT Concourse							
CM014B	AR#2	Need MNR North Transfer Station Switches Moved and Operational	1-Jul-15	31-Jul-15	-30	**S**	N/A
CM014B	MS#1	TMC,CC-C5,CR-C2 Comm Room & F/O Backbone Route from TMC-CRC2	1-Jan-16	1-Jan-16	0	**F**	
CM014B	TO	CM014B MS#1 Turnover to CS179 AR#10A					
CS179	AR#10 A	Access to GCT Concourse Zone 1	23-Feb-16	23-Feb-16	0	**S**	CM014B MS#1 T.O
CM014B	TO	CM014B MS#1 Turnover to CS179 AR#10A					
CS179	AR#10 A	TMC Facility & Comm Room CR-C2, & BCS/ FON from TMC to CR-C2	23-Feb-16	23-Feb-16	0	**S**	CM014B MS#1 T.O
CM014B	MS#3	CR-C1, Cl CC-C1, C2 & C6 & F/O Backbone Route from CR-C2 to CR-C1	4-May-16	4-Aug-16	-92	**F**	
CS179	AR#10 A	Access BCS Empty Conduit & CR-C1, CC-C1, C2, C6 & MTAPD R.R.	26-Jan-16	25-Jun-16	-151	**S**	CM014B MS#3 T.O
CM014B	TO	CM014B MS#3 Turnover to CS179 MS#10B					
CS179	AR#10 B	Access to GCT Concourse Zone 2	17-Sep-16	17-Sep-16	0	**S**	CM014B MS#3 T.O
CM014B	MS#4	Comm Closets CC-C3, CC-C7, CC-C8 & Room B3265	2-Jan-17	2-Jan-17	0	**F**	
CS179	AR#10 A	Access to Comm Closets CC-C3, C7, C8 & B3265	26-Jan-16	26-Jan-16	0	**S**	CM014B MS#4 T.O

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
CM014B	TO	CM014B MS#4 Turnover to CS179 AR#10C					
CS179	AR#10 C	Access to GCT Concourse Zone 5	6-Mar-17	6-Mar-17	0	**S**	CM014B MS#4 T.O
CM014B	TO	CM014B MS#4 Turnover to CS179 AR#10C					
CS179	AR#10 C	Access to GCT Concourse Zone 4	6-Mar-17	6-Mar-17	0	**S**	CM014B MS#4 T.O
CM014B	TO	CM014B MS#4 Turnover to CS179 AR#10C					
CS179	AR#10 C	Access to GCT Concourse Zone 3	6-Mar-17	6-Mar-17	0	**S**	CM014B MS#4 T.O
CM014B	MS#6	Comm Closet CC-C4	12-Jun-17	12-Jun-17	0	**F**	
CS179	AR#10 A	Access to CC-C4	26-Jan-16	26-Jan-16	0	**S**	CM014B MS#4 T.O
VM014	MS#3	Complete all vertical elements outside of WW's	19-May-18	19-May-18	0		
CM014B	MS#8	All construction (EXCEPT CAVERN SIGNAGE) and local testing complete. GCT Concourse ready for IST	29-May-18	20-Nov-18	-175	**F**	
CM014B	TO	CM014B Turnover to CS179 AR#18A					
CS179	AR#18 A	Commence IST of equip. installed under Adjacent Contracts CM014A/B	23-Aug-18	23-Aug-18	0	**S**	CM014B MS#8 T.O
CS179	MS	Completion of All works in Concourse (Less IST)	26-Mar-18	26-Mar-18	0	**F**	
CS179	MS#12 B-2	Completion of IST GCT Concourse with CM014B Support (IPS)	6-Jun-19	6-Jun-19	0	**F**	
CS179	MS#12 B	Completion of IST of all equip installed by CM014A/B	24-Jul-19	24-Jul-19	0	**F**	

Contract #	Type	Description of Activity	Baseline Date	Current Up Date	Diff.	S/F	Driving Predecessor
44th St. Vent Facility							
CM005	AR#1	Access at 44th St.	7-Jan-14	7-Jan-14	0	**S**	
CM004	MS#1	Substantial Completion	31-Dec-13	14-Nov-14	-318	**F**	
CM004	MS#2	Final Completion	30-Mar-14	13-Feb-15	-320	**F**	MS#1 S.C
CM005	TO	CM005 MS#4 Turnover to CM014B AR#3					
CM014B	AR#3	Access to the 44th Street Vent Plant and CM005 CONEX	9-May-16	9-May-16	0	**S**	CM005 MS#4 T.O
VM014	AR#3	All vertical elements outside WW's (EL-12 @44th St.)	5-Jun-15	5-Jun-15	0	**S**	
VM014	MS#3	All vertical elements outside WW's (EL-12 @44th St.)	19-May-18	19-May-18	0	**S**	
CM014B	MS#5	44th St Vent Facility Complete	3-Mar-17	8-Mar-17	-5	**F**	
CM014B	TO	CM014B MS#5 Turnover to CS179 AR#16					
CS179	AR#16	44th Street Vent	21-Apr-17	21-Apr-17	0	**S**	CM014B MS#5 T.O
48th St. Entrance							
CM015	MS	Substantial Completion	18-Jun-18	18-Jun-18	0	**F**	48th St.
CM015	TO	CM015 MS SC Turnover to CS179 AR (48th Street)					
CS179	AR	Access to 48th Street Entrance	20-Aug-18	20-Aug-18	0	**S**	CM015 MS S.C.
CM014B	MS#10	Complete Shaft 4	1-Apr-18	1-Apr-18	0	**F**	
VM014	MS#3	Complete all vertical elements outside of WW's (EL3/4) @shaft 4	19-May-18	19-May-18	0	**F**	

Table G-2b: Project Critical Path

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	BL1 Total Float	IPS-CONTRACT	IPS-LOCATION
CM012-Cavern-P10	CM007 Preparation and Ready for Advertisement including Design, ESA PMT Cost Estimate	194	03-Jun-13 A	31-Oct-14	45	130	CM007	M
LOE180	Waterproof - WB GCT Caverns 1 & 2 (Water Barrier)	10	03-Apr-14 A	4-Sep-14	-1	52	CM005	M
LOE660	WB GCT 1 & 2 - End walls/East Sidewalls (Mezz to Inv)	40	27-Aug-14 A	28-Oct-14	-1	0	CM005	M
LOE680	WB GCT 1 & 2 - Interior Walls and Mezzanine Slab	66	29-Oct-14	4-Feb-15	-1	0	CM005	M
CM012-Cavern-P40	CM007 Initial Bid Period	63	3-Nov-14	4-Feb-15	45	109	CM007	M
CM012-Cavern-P20	CM007 Advertise	0	03-Nov-14*		45	109	CM007	M
LOE1470	Waterproof East/West Wall	10	5-Feb-15	20-Feb-15	-1	0	CM005	M
CM012-Cavern-P50	CM007 Addendum Period & BAFO	53	5-Feb-15	22-Apr-15	45	109	CM007	M
LOE690	WB GCT 1 & 2 - East Side Wall @ Mezzanine	19	23-Feb-15	19-Mar-15	-1	0	CM005	M
LOE700	WB GCT 1 and 2 West Side Wall @ Mezzanine	19	20-Mar-15	15-Apr-15	-1	0	CM005	M

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	BL1 Total Float	IPS-CONTRACT	IPS-LOCATION
LOE440	WB GCT 1 and 2 Interior Walls between Mezzanine and Upper Slab	65	16-Apr-15	16-Jul-15	-1	0	CM005	M
CM012-Cavern-P60	CM007 Bid Open	0		22-Apr-15	45	109	CM007	M
CM012-Cavern-P30	CM007 Ready for Award	48	23-Apr-15	30-Jun-15	45	109	CM007	M
A1060	CM007 NTP	0	01-Jul-15*		45	114	CM007	M
LOE710	WB GCT 1 and 2 Upper Slab	86	3-Jul-15	3-Nov-15	-1	0	CM005	M
LOE140	WB GCT 1 and 2 Arch	47	4-Nov-15	14-Jan-16	-1	0	CM005	M
LOE190	WB GCT 1 and 2 Demob	10	15-Jan-16	28-Jan-16	-1		CM005	M
MS60FLOAT	Contract Level Contingency on MS #4	9	28-Jan-16	6-Feb-16	0	0	CM005	M
MS60	Milestone 4 Complete Balance of Project (Substantial Completion) - MS60 - (February 6, 2016)	0		06-Feb-16*	0	0	CM005	M
CM005-TO55	CM005 MS #4 Turnover to CM007 Unlimited NTP	60	6-Feb-16	6-Apr-16	0	0	CM005	M
CCM0121570	CM007 Access to Caverns	0	6-Apr-16		0	0	CM007	M
A1120	CM007 Mobilization	63	6-Apr-16	6-Jul-16	0	0	CM007	M
A21070	East Cavern GCT - 45th Street Node	42	6-Jul-16	2-Sep-16	0	8	CM007	M

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	BL1 Total Float	IPS-CONTRACT	IPS-LOCATION
A21300	West Cavern GCT - 45th Street Node	42	6-Jul-16	2-Sep-16	0	8	CM007	M
A21080	East Cavern GCT - 46th Street Node	42	2-Sep-16	2-Nov-16	0	8	CM007	M
A2030	West Cavern GCT - 46th Street Node	42	2-Sep-16	2-Nov-16	0	8	CM007	M
A21090	East Cavern GCT - 47th Street Node	42	2-Nov-16	4-Jan-17	0	8	CM007	M
A21310	West Cavern GCT - 47th Street Node	42	2-Nov-16	4-Jan-17	0	8	CM007	M
A21100	East Cavern GCT - 48th Street Node	42	4-Jan-17	3-Mar-17	0	8	CM007	M
A21320	West Cavern GCT - 48th Street Node	42	4-Jan-17	3-Mar-17	0	8	CM007	M
A21260	East Cavern GCT - Upper Level Precast Beams & Panels (Incl. closure pours)	126	3-Mar-17	30-Aug-17	0	0	CM007	M
A20890	West Cavern GCT - Upper Level Precast Beams & Panels (Incl. closure pours)	126	3-Mar-17	30-Aug-17	0	0	CM007	M
A21270	East Cavern GCT - Upper Level CIP Walls	115	18-Apr-17	29-Sep-17	0	0	CM007	M
A20870	West Cavern GCT - Upper Level CIP Walls	115	18-Apr-17	29-Sep-17	0	0	CM007	M
A21280	East Cavern GCT - Overhead Smoke Plenum	84	1-Aug-17	29-Nov-17	0	0	CM007	M
A20900	West Cavern GCT - Overhead Smoke Plenum	84	1-Aug-17	29-Nov-17	0	0	CM007	M

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	BL1 Total Float	IPS-CONTRACT	IPS-LOCATION
A21290	East Cavern GCT - Upper Level Platform Panels	42	30-Oct-17	29-Dec-17	0	0	CM007	M
A20920	West Cavern GCT - Upper Level Platform Panels	42	30-Oct-17	29-Dec-17	0	0	CM007	M
A2010	East Cavern GCT - MEP & Architectural Upper Level	250	29-Dec-17	21-Dec-18	0	0	CM007	M
A20930	West Cavern GCT - MEP & Architectural Upper Level	250	29-Dec-17	21-Dec-18	0	0	CM007	M
A20960	CM007 Demobilization	21	21-Dec-18	23-Jan-19	0	0	CM007	M
CM12-CSC10	CM007 Schedule Contingency	116	23-Jan-19	8-Jul-19	0	0	CM007	M
CM12-CSC	CM007 Milestone #3: Substantial Completion	0		8-Jul-19	0	0	CM007	M
RISK-12355	GCT Caverns - Communication IST - EMI/RFI Testing (JAM)	1	9-Jul-19	9-Jul-19	0	0	CS179	IST
RISK-12365	GCT Caverns - Communication IST - FON System wide (JAM)	1	10-Jul-19	10-Jul-19	0	0	CS179	IST
RISK-12345	GCT Caverns - Facility Power IST (JAM)	2	11-Jul-19	12-Jul-19	0	0	CS179	IST
RISK-12415	GCT Caverns - Fire Detection IST (TMC)	22	15-Jul-19	13-Aug-19	0	0	CS179	IST
RISK-12425	GCT Caverns - Security IST (MTA Police)	8	14-Aug-19	23-Aug-19	0	0	CS179	IST
RISK-12435	GCT Caverns - BMS IST (TMC) (ALL Duration in Cavern & Concourse)	10	26-Aug-19	6-Sep-19	0	0	CS179	IST

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	BL1 Total Float	IPS-CONTRACT	IPS-LOCATION
RISK-12445	GCT Caverns - Fire Protection & Tunnel Lighting IST (JAM)	10	9-Sep-19	20-Sep-19	0	0	CS179	IST
RISK-12375	GCT Caverns - Communication IST - Message Priority, Remote Op, Local Op, A/D, Messaging (TOC)	6	23-Sep-19	30-Sep-19	0	0	CS179	IST
RISK-12385	GCT Caverns - Communication IST - Signage (TOC)	1	1-Oct-19	1-Oct-19	0	0	CS179	IST
RISK-12395	GCT Caverns - Communication IST - Police AID (MTA Police)	1	2-Oct-19	2-Oct-19	0	0	CS179	IST
RISK-12405	GCT Caverns - Communication IST - Passenger Comm, Comm. Racks & Equip, Voice Communication (TOC)	5	3-Oct-19	9-Oct-19	0	0	CS179	IST
RISK-5600	Communication IST - Passenger Comm, Comm. Racks & Equip, Voice Communication (TOC)	5	10-Oct-19	16-Oct-19	0	0	CS179	IST
RISK-5660	CS179 Contract Contingency	29	17-Oct-19	26-Nov-19*	0	0	CS179	IST
SYS01-9000	(CS179 MS 13) CS179 Substantial Completion w/ Integrated System Testing Completion	0		26-Nov-19*	0	0	CS179	S
RISK-5740	ESA IST Contingency 1 (IST Completion Contingency to LIRR)	170	27-Nov-19	14-May-20	0		STCO	F
RISK-12485	Stakeholder agreed additional IST Contingency 2 (5 months)	154	15-May-20	15-Oct-20	0		STCO	F
DMT9020	COMPLETION OF INTEGRATED SYSTEM TESTING (WITH CONTINGENCY)	0		15-Oct-20	0		STCO	F
ESA-CONT40	ESA Program Schedule Contingency	365	16-Oct-20	15-Oct-21	0		STCO	F

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	BL1 Total Float	IPS-CONTRACT	IPS-LOCATION
ESA-CONT50	Stakeholder agreed additional Program Contingency (10 months)	304	16-Oct-21	15-Aug-22	0		STCO	F
ESA-C70	ESA Project Substantial Completion for LIRR Final 3 Months	0		15-Aug-22	0		STCO	F
LIRR-3M-CONT20	ESA Planning Contingency Ready for LIRR Final 3 Months Period	30	16-Aug-22	14-Sep-22	0		STCO	F
LIRR-3M20	LIRR Final 3 Months Period	90	15-Sep-22	13-Dec-22	0		STCO	F
RSD	LATE - Begin LIRR Revenue Service To GCT	0		13-Dec-22*	0	0	STCO	F

Table H- ESA Core Accountability Items

Project Status:		Original at FFGA	Current*	ELPEP **
Cost	Cost Estimate	$7.368B	$10.178B	$8.119B
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]
Schedule	RSD	December 31, 2013	December 2022	April 30, 2018

Total Project Percent Complete		
	Based on Invoiced Amount	53.7
	Based on Earned Value	NA

Major Issue	Status	Comments
Major Procurements Delays	CM014B was advertised in May 2014; Technical proposals for CM014B were received in August and cost proposals in September 2014. Proposal evaluations continued as of the end of December 2014. ESA did not make its recommendation to award forecast date of November 2014 for this package and did not make its last forecast date of November 2014 for advertising CM007. CM007 was advertised in late December 2014, and CM014B is still in the BAF0 stage	PMOC is concerned about the potential project schedule impacts of procurement delays on these two packages, since they are on the critical and near critical paths for the project.
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 a re-planning of the Harold work and a restructuring of the CM007 package procurement.	The CM006 Contract has experienced significant delays. ESA has requested a recovery schedule from the Contractor. Additionally, as noted above, procurement of the CM014B and CM007 continue to be delayed. The PMOC is also concerned about the inability of the CS179 Contractor to produce a viable schedule. This is a key remaining Contract which is on the critical path and also one of the most complex.
Harold Re-planning	The ESA re-planned the remaining work at Harold, as such, the Harold baseline schedule that formed the basis of the Program schedule presented to the CPOC in June 2014, is no longer valid.	Work within and around the Harold Interlocking is subject to influences outside of the control of ESA. Continuing issues with the level of Amtrak force account support, which is

		currently providing only 30-35% of the planned level required to maintain the current schedule would be significant and could delay completion of the Harold Interlocking work another three years until 2022 under the worst-case trending scenario.

* 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