

PMOC COMPREHENSIVE MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project Metropolitan Transportation Authority New York, New York

September 1 to September 30, 2015



PMOC Contract No. DTFT6014D00017

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

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

TABLE OF CONTENTS

Page No.

SECOND AVENUE SUBWAY (SAS)

THIRD PARTY DISCLAIMER.....	1
REPORT FORMAT AND FOCUS.....	1
MONITORING REPORT	1
EXECUTIVE SUMMARY	1
ELPEP SUMMARY	9
1.0 GRANTEE’S CAPABILITIES AND APPROACH	10
1.1 TECHNICAL CAPACITY AND CAPABILITY	10
1.2 PROJECT CONTROLS.....	13
1.3 FTA COMPLIANCE	20
2.0 PROJECT SCOPE.....	22
2.1 STATUS & QUALITY: DESIGN/PROCUREMENT/CONSTRUCTION	22
2.2 THIRD-PARTY AGREEMENT	28
2.3 CONTRACT PACKAGES AND DELIVERY METHODS	29
2.4 VEHICLES.....	29
2.5 PROPERTY ACQUISITION AND REAL ESTATE.....	29
2.6 COMMUNITY RELATIONS	29
3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS.....	31
3.1 PROJECT MANAGEMENT PLAN.....	31
3.2 PMP SUB PLANS	31
3.3 PROJECT PROCEDURES.....	31
4.0 PROJECT SCHEDULE STATUS	32
4.1 INTEGRATED PROJECT SCHEDULE.....	32
4.2 90-DAY LOOK-AHEAD.....	39
4.3 CRITICAL PATH ACTIVITIES	40
4.4 COMPLIANCE WITH SCHEDULE MANAGEMENT PLAN.....	42
5.0 BUDGET/COST.....	46
5.1 PROJECT COST MANAGEMENT AND CONTROL.....	46
5.2 PROJECT EXPENDITURES AND COMMITMENTS	ERROR! BOOKMARK NOT DEFINED.

5.3	CHANGE ORDERS	48
5.4	PROJECT FUNDING	52
5.5	COST VARIANCE ANALYSIS	53
5.6	PROJECT CONTINGENCY	54
6.0	PROJECT RISK.....	56
6.1	INITIAL RISK ASSESSMENT	56
6.2	RISK UPDATES	56
6.3	RISK MANAGEMENT STATUS	56
6.4	RISK MITIGATION	56
6.5	COST AND SCHEDULE CONTINGENCY	59
7.0	LIST OF ISSUES AND RECOMMENDATIONS	60
8.0	GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS	61

TABLES

TABLE 1: SUMMARY OF CRITICAL DATES	6
TABLE 2: PROJECT BUDGET/COST TABLE	7
TABLE 1-1: STANDARD COST CATEGORIES.....	18
TABLE 1-2: APPROPRIATED AND OBLIGATED FUNDS	19
TABLE 4-1: SUMMARY OF SCHEDULE DATES	32
TABLE 4-2: SCHEDULE MILESTONE PERFORMANCE.....	33
TABLE 4-3: 90-DAY LOOK-AHEAD SCHEDULE.....	39
TABLE 5-1: ALLOCATION OF FFGA AND CURRENT WORKING BUDGET TO STANDARD COST CATEGORIES.....	46
TABLE 5-2: AWO SUMMARY	49
TABLE 5-3: APPROPRIATED AND OBLIGATED FUNDS (FEDERAL).....	52
TABLE 5-4: CWB VS. EAC	53
TABLE 6-1: SCHEDULE CONTINGENCY.....	59

APPENDICES

APPENDIX A – LIST OF ACRONYMS

APPENDIX B – PROJECT OVERVIEW AND MAP

APPENDIX C – LESSONS LEARNED

APPENDIX D – SAFETY AND SECURITY CHECKLIST

APPENDIX E – ON-SITE PICTURES

APPENDIX F – CORE ACCOUNTABILITY ITEMS

THIRD PARTY DISCLAIMER

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

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

Therefore, the information in the monthly reports may change from month to month, based on relevant factors for the month and/or previous months.

REPORT FORMAT AND FOCUS

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

This report covers the project management activities on the MTACC (Capital Construction) Second Avenue Subway (SAS) Mega-Project, Phase One, managed by MTACC with MTA as the grantee and financed by the FTA FFGA.

MONITORING REPORT

The contents of this report are cumulative in nature, and may reference or build upon topics discussed in previous reports. All comments received pertaining to previous reports have been incorporated in this report.

EXECUTIVE SUMMARY

1. PROJECT DESCRIPTION

The Second Avenue Subway project will include a two-track line under Second Avenue from 125th Street to the Financial District in lower Manhattan. It will also include a connection from Second Avenue through the 63rd Street tunnel to existing tracks for service to West Midtown and Brooklyn. Sixteen new ADA accessible stations will be constructed. The Second Avenue Subway will reduce overcrowding and delays on the Lexington Avenue line, improving travel for both city and suburban commuters, and provide better access to mass transit for residents of the far East Side of Manhattan. Stations will have a combination of escalators, stairs, and, in compliance with the Americans with Disabilities Act, elevator connections from street-level to station mezzanine and from mezzanine to platforms.

Phase One of the project includes construction of new tunnels from 92nd Street and Second Avenue to 63rd Street and Third Avenue, with new stations along Second Avenue at 96th, 86th and 72nd Streets and new entrances to the existing Lexington Ave./63rd Street Station at 63rd Street and Third Avenue. New track and rail systems will extend from the 63rd Street Station through the new tunnels and previously constructed tunnels to 105th Street; facilitating intermediate service at the completion of Phase 1 between 96th Street and Brooklyn via the connection to the existing Broadway Line.

2. CHANGES DURING 3rd Quarter 2015

a. Engineering/Design Progress

The Design Consultant continues to provide contract administrative and technical support for ongoing construction contracts, develop design modifications as required and provide technical support throughout the construction phase of the project.

b. New Contract Procurements

Procurement of all design and construction services required for the execution of SAS, Phase 1 has been completed.

c. Construction Progress

All construction is approximately 85.5% complete (overall project completion is approximately 81%) as of September 30, 2015. Summary progress for each contract is as follows:

- 96th Street Station Heavy Civil/Structural (Contract C2A) achieved Substantial Completion on November 5, 2013. Contract closeout is ongoing;
- The 96th Street Station Finishes, Mechanical, Electrical, and Plumbing Systems and Ancillary Building and Entrances contract (C2B). Substantial Completion is forecasted for November 16, 2016, and is being driven by construction activities at Ancillary #2. Mitigation measures are being investigated to improve the completion date;
- At the 86th Street Station (Contract C5B). Substantial Completion of all contract work was achieved on December 16, 2014. Contract closeout is ongoing. Punchlist work, consisting of correcting the architectural finish in escalators incline has been completed in Entrance #2. Corrective work in Entrance #1 has not started;
- 86th Street Station Architectural and MEP (Contract C5C). At the below grade portion of Ancillary #1 the roof deck was completed, the roadway restored and the MPT has been switched to the west side of 2nd Ave.;
- 72nd Street Station Heavy Civil/Structural (Contract C4B). Achieved Substantial Completion on January 14, 2014. Contract closeout is underway;
- The 72nd Street Station Finishes, MEP Systems, Ancillary Buildings and Entrances (Contract C4C). The Ancillary #2 concrete structure is complete. The Ancillary #1 concrete structure has reached the 3rd floor. Steel framing in the elevator shaft at Entrance #3 is ongoing. Traction power equipment has been installed in the TPSS;

- Rehabilitation of the 63rd Street Station (Contract C3). Installation of rails continues at the Entrance #2 ADA Elevator. Installation of escalators at Entrance #1 continues. Installation of elevator cabs (4) in the shaft continues. Architectural glass canopies have been installed at Entrances #3 & #4. Room inspections and equipment testing is ongoing throughout; and
- The Track, Signal, Traction Power, and Communication Systems Contract (C6) continued installation of communications, traction power and signal systems in all station areas. Major accomplishments during this reporting period were the installation of escalators at Entrances #1 and #2, and the layout of the crossover south of the 96th Street Station.

d. Continuing and Unresolved Issues

- As station fit out continues, the access points for the delivery of equipment and removal of refuse from the underground areas are being eliminated. The shaft at 87th St. is now the primary access plan; and
- Despite previous schedule resequencing and acceleration initiatives, track installation again controls the schedule critical path. The root cause(s) of delays to this work do not appear to have been resolved.

e. New Cost and Schedule Issues

- Design changes by the user group resulting from preliminary inspection walkthroughs are impacting the contractor's schedules; and
- Contracts C4C and C5C are not achieving the desired architectural concrete finishes at the escalator inclined arches; Remedial work of sandblasting the concrete has impacted installation of the escalator.

f. Amended FFGA

- In March 2015, the Amended FFGA for Phase 1 of the Second Avenue Subway Project between the FTA and MTA was executed;
- The Amended FFGA established the Total Project Cost as \$5,574,614,000; and
- The Amended FFGA defined the Revenue Operations Date as occurring on or before February 28, 2018.

3. PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

The Grantee has generally demonstrated the technical capacity and capability to execute Phase 1 of the SAS project. With overall project completion nearing 81%, the Grantee has successfully managed the project through several "phases" of construction. Significant staffing changes have been made with negligible adverse impact on performance. While several elements of the project and construction management effort may not have been optimally executed, MTACC has generally demonstrated the effort and ability to respond to and resolve deficiencies.

b. Real Estate Acquisition

All real estate for the SAS Phase 1 Project has been acquired. Real estate acquisition and tenant relocation was performed in accordance with the approved SAS Real Estate Acquisition

Management Plan, and Relocation Plan. These plans address Title 49 CFR Part 24, which implements the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and FTA real estate requirements 5010.1C.

c. Engineering/Design

The final design phase of the project was completed in late November 2010. Construction phase support by the Design Engineering Consultant during this reporting period focused on review of submittals, technical assistance in resolving construction discrepancies, and evaluation of user group requested changes.

While some delays in technical submittal processing have been noted, the Design Engineering Consultant has generally provided adequate support to the project during the construction phase in a timely fashion. Design Engineering Consultant support is projected and funded through December 2017.

d. Procurement

All design and construction services required for the execution of SAS, Phase 1 have been completed.

e. Railroad Force Account (Support and Construction)

The Force Account requirements are documented in the SAS Force Account Plan. The plan gives a description and cost estimate of the NYCT services required for design of the track and signal elements of the system, construction support activities for each individual contract (general orders, work trains, and flagging support) and start-up and commissioning.

f. Vehicles

No additional vehicles will be procured for the SAS Phase 1 Project. MTA has previously demonstrated to FTA, and FTA has agreed, that the rolling stock needed for Phase 1 SAS operations can be provided from the existing fleet of New York City Transit (NYCT).

g. Systems Testing and Start-Up

Due to the size and complexity of the project it is crucial for the project to follow a comprehensive systems integration and test program to manage and monitor the testing of systems components and the integration and interconnectivity of the systems. Each Station MEP Contractor (C-26006, C-26010, C 26011 and C26012) will install, integrate and test the equipment via a Test Plan. Interconnectivity of systems in each station is under the scope of the C-26009 Systems Contractor. The C-26009 Systems Contractor has a Systems Integration Manager (SIM) supported by Systems Engineering Specialists (SES) who will coordinate the efforts of the Systems Contractor and the Stations MEP Contractors in the preparation of their Plans. Testing of the equipment provided by the C-26009 Systems contractor and the interconnectivity of the equipment installed by the Station MEP Contractors will be per a three volume System Test Plan. Volume 1 is the Management Plan, Volume 2 is the Interface Control Plan, and Volume 3 is the System Test Procedures. Tests that will be performed, include, but are not limited to Factory Acceptance Tests (FAT), Field Installation Acceptance Test (FIAT), Facilities Integrated Systems Testing (FIST), and Systems Integrated Testing (SIT).

The Systems Test Program is a commissioning process that is designed to ensure that the project will meet the design requirements. The program spans the entire construction process beginning with the product and work submittal reviews and ending with the post-Substantial Completion review of the systems performance with the O&M staff. The program will be conducted in five phases: Pre-Installation Phase, Installation Phase, Integration Phase, Post-Station Construction Substantial Completion Phase, and System Acceptance Phase. Each phase will have a unique set of deliverables from the Contractors Test Group.

- **Pre-installation Phase:** The focus of the Contractors Test Group during the pre-installation phase is to determine and document the systems performance requirements, plan the test process and integrate the test schedule into the construction schedule. The SIM will develop the list of Contractors Test Group tasks and their durations to be included in the construction schedule. Factory Acceptance Testing (FAT) will be scheduled and performed with the Systems Test, Engineer and User representatives as required. The Manufacturer/Vendor/Contractor performing the FAT will submit the FAT procedures to the SIM, who will review and forward them to the Engineer for approval. At the conclusion of FAT, the SIM will write an executive summary of the FAT results to submit along with the test data to the Engineer. Factory Acceptance Testing is ongoing with NYCT personnel performing test witnessing on selected equipment;
- **Installation Phase:** The System Test Team's focus during the installation phase will be to document the systems installation progress, report and track deficiencies, and conduct and report on the Field Installation Acceptance Tests (FIAT). Key Contractors Test Group tasks will include development of individual System Test Plans, conduct site installation inspections, report on progress and deficiencies, attend progress meetings, track corrective actions and update the integrated test schedule. FIAT activity is ongoing with the installation of equipment at each station. Resequencing of equipment installation to mitigate delays is an ongoing process and is being effectively implemented;
- **Integration Phase:** During the systems integration phase, the Contractors Test Group will demonstrate that the systems work together in accordance with the design specifications. Facilities Integrated Systems Tests (FIST) will be conducted to confirm that the systems function together as a fully integrated system. Simulated Integrated System Testing (SIST) will be performed when necessary. FIST data, with an executive summary prepared by the SIM, will be submitted for approval to the Engineer. No FIST activity has started;
- **Post-Station Construction Substantial Completion Phase:** Systems Integrated Testing (SIT) will be conducted with the Station Construction contractor once the station construction project achieves Substantial Completion. SIT will confirm that the system functions properly in accordance with contract documents and will be witnessed by the Engineer or representative. At the conclusion of SIT, the SIM will prepare an executive summary and submit it along with SIT data to the Engineer for approval. No SIT activity has started; and

- **System Acceptance Phase:** Final Systems Acceptance Testing will occur after the Systems Substantial Completion milestone is achieved. All systems will be shown to be operating as designed and meeting all functional requirements and Contractor’s Quality Program specifications. FSIT will be a collaborative effort of the Systems and Station Contractors and MTACC. At the conclusion of FSIT, a final test report and as-built documentation will be submitted to the Engineer for approval. No Final Systems Acceptance Testing activity has started.

The PMOC’s previous concern about MTACC’s process for the verification and validation of functional requirements has been addressed. Functional requirements as identified in the various sections of the specification are traceable to specific steps in the test procedures.

h. Project Schedule

During the 3Q2015, progress was made in advancing the project to a timely completion. MTACC continues to forecast a Revenue Service Date (RSD) of December 30, 2016. In the opinion of the PMOC, there is a high probability that this goal will not be achieved unless dramatic improvement in schedule performance is immediately realized. Specific areas requiring attention include:

- Achievement of intermediate construction goals (milestones) and timely turnover of spaces to follow-on contractors. Over the past twelve months, MTACC has struggled to execute work in a timely manner;
- MTACC must develop the ability to limit internal review and acceptance of criteria included in contract documents scopes of work. Despite best efforts, late owner-initiated changes have and continue to negatively impact the construction schedule; and
- Despite these challenges, the PMOC remains confident that all construction can be completed within the risk-adjusted RSD of February 2018.

Table 1: Summary of Critical Dates

	FFGA (Amended March 2015)	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	August, 2016	November 23, 2016	October 2017
Revenue Service	February 28, 2018	December 30, 2016	February 2018

i. Project Budget/Cost

The Current Working Budget (Estimate Revision 10) for the SAS Phase 1 Project is still \$4,451,000,000 (exclusive of \$816,614,000 financing cost). The MTA Board has approved Local Funds totaling \$3,509,000,000. Total Federal participation in the SAS Phase 1 Project is

\$1,373,893,000 of which \$1,250,508,000 has been obligated. On March 17, 2015, the NYMTA and the FTA executed an amendment to the FFGA for Phase 1 of the SAS Project. With the execution of the amendment the restrictions on the distribution of funds from Grant NY-03-0408-9 were lifted.

MTA's Estimate at Completion (EAC) and the PMOC's analysis currently indicate that the SAS Phase 1 project can be completed within the limits of the Current Working Budget, assuming substantial completion of all construction and testing activities within the overall time frame identified in the current Integrated Project Schedule (IPS).

Table 2: Project Budget/Cost Table 

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of September 30, 2015	
	\$ Millions	% of Total	Obligated (\$ Millions)	3/17/2015	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost	4,866.614	100	4,572.942	5,574.614	5,267.614	100	3,601.685	68.37
Financing Cost	816.614	16.78		816.614	816.614	15.50	3,601.685	68.37
Total Project Cost	4,050.000	83.22	4,572.942	4,758.000	4,451.00	84.50	3,468.732	65.85
Total Federal	1,350.693	27.75	1,063.942	1,373.893*	1,350.693	24.60	1,119.570	21.25
Total FTA share	1,300.000	96.25	990.049	1,300.000	1,300.000	23.68	1,045.707	19.85
5309 New Starts share	1,300.000	100	990.049	1,300.000	1,300.000	23.68	1,045.707	19.85
Total FHWA share	50.693	3.75	73.893	73.893	50.693	0.96	73.893	1.40
CMAQ	48.233	95.15	71.433	71.433	48.233	0.88	71.433	1.35
Special Highway Appropriation	2.460	4.85	2.460	2.460	2.460	0.04	2.460	0.05
Total Local share	2,699.307	55.47	3,509.000**	3,384.107	3,509.000**	63.92	2,482.115	47.12
State share	450.000	16.67	100.000		450.000	8.20		
Agency share	2,249.307	83.33	1,145.782		3,059.000	55.72		
City share	0	0			0	0		

* Obligated and expended amounts obtained from the Transportation Electronic Award Management (TEAM) system and MTACC's Grant Management Department.

** Current MTA Board approved budget.

j. Project Risk

Major issues that have either increased or decreased the risk of project schedule and cost increases during the 3rd Quarter 2015 have been summarized as follows:

Decrease	Increase
	<ul style="list-style-type: none"><li data-bbox="829 394 1438 569">• Achieving the desired architectural finishes at the escalator inclined arches; Contracts C4C and C5C. Remedial work impacts escalator installation and site access for contractor workforce.<li data-bbox="829 596 1438 806">• Despite previous schedule resequencing and acceleration initiatives, track installation again controls the schedule critical path. The root cause(s) of delays to this work do not appear to have been resolved.

MONTHLY UPDATE

The information contained in the body of this report is limited, 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 SUMMARY

The most recent ELPEP Quarterly Review Meeting was held on September 17, 2015. The next ELPEP Quarterly Review Meeting with MTACC, FTA-RII, SAS and ESA projects and the PMOC is scheduled for January 21, 2015. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** MTACC has resolved all remaining FTA/PMOC comments and has issued the final revised PMP. MTACC is not planning any further updates to the PMP;
- **Schedule Management Plan (SMP):** MTACC's position is that the SAS management processes remain ELPEP compliant. No other update this period;
- **Cost Management Plan (CMP):** Comments on the ESA/SAS Cost Management Plan (CMP) were received on June 2, 2015. MTACC revised the CMP and reissued it on June 30, 2015. The PMOC provided the FTA with its evaluation of the MTACC's responses to the PMOC's review comments and the FTA forwarded the evaluation to MTACCC. MTACC expects to set up a working meeting to resolve remaining issues. MTACC's position is that the SAS management processes remain ELPEP compliant; and
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** MTACC's position is that the SAS management processes remain ELPEP compliant. Results of the programmatic risk review completed in May 2015, facilitated by Golder Associates, are expected to be available in late September/early October 2015.

The SAS Project Team has implemented the principles and requirements embodied in the ELPEP. The procedural changes triggered by the ELPEP have become an integral part of the management of the project and give the FTA/PMOC greater insight into the risk, cost and schedule elements of the project.

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

No significant changes noted.

Observation:

MTACC continues to make select changes to improve the organization's ability to respond to the evolving needs and challenges of the project.

Concerns and Recommendations:

Select enhancements to the SAS project team's technical capability appear to provide satisfactory capacity to manage and resolve technical challenges.

1.1.2 Grantee's Work Approach, Understanding, and Performance Ability

a) Adequacy of Project Management Plan and Project Controls

Status:

Refer to "ELPEP SUMMARY" for any updated information.

Observation:

Refer to "ELPEP SUMMARY" for any updated information.

Concerns and Recommendations:

Refer to "ELPEP SUMMARY" for any updated information.

b) Grantee's Approach to FFGA and other FTA/Federal Requirements

Status:

MTACC continues to utilize the ELPEP and its various sub-plans in management of the FFGA. A collaborative effort with FTA-RII and the MTACC to update the original ELPEP document, dated January 15, 2010, to reflect the current status of the SAS projects' scope, schedule and budget baselines is in progress.

Observation:

None.

None

c) Grantee's Approach to Force Account Plan

Status:

As of September 30, 2015, New York City Transit (NYCT) Engineering Force account expenditures are \$56,936,438 of the \$95,400,000 budget. NYCT labor expenditures are \$12,328,505 of the \$25,600,000 budget.

Observation:

The Force Account requirements are documented in the SAS Force Account Plan. The plan gives a description and a cost estimate of the NYCT services required for the design of the track and signal elements of the system and to support construction activities for each individual contract. NYCT labor expenditures are for general orders, work trains, and flagging support.

The Force Account budget appears to be adequate and has not changed in Revision 10 of the SAS Cost Estimate. In order to support the SAS project as it transitions into the testing and commissioning phase, additional NYCT force account personnel will be required.

Concerns and Recommendations:

The ability of NYCT to supply force account personnel for the SAS project is of concern and has been identified in the SAS Risk Register. There are three major capital projects currently vying for NYCT force account personnel. MTACC is currently developing a mitigation strategy. It is recommended that the strategy be expedited and presented to the FTA/PMOC.

d) Grantee's Approach to Safety and Security Plan

Status:

During the 3rd Quarter 2015 reporting period, the SAS Project Safety Team (CCM and OCIP representatives) continued its oversight of the construction contractors' Safety, Security and Health Programs by performing daily/weekly inspection of work areas, investigation of incidents, and performing quarterly safety audits. First aid, recordable and lost time incidents are reported, investigated and corrective action taken to address deficiencies and negative trends. The Recordable Injury Rate is 1.79 which is below the national average of 1.8. The Lost Time Injury Rate is 4.99 which is above the national average of 3.2.

The Monthly Project Wide Safety Meeting continues to be held the first Friday of each month. The safety performance of each construction contract is discussed and "Lessons Learned" from incidents/accidents are shared such that the total project can benefit. OCIP observations are being trended to focus uniform corrective action across the project.

Observation:

Section 4 of the PMP includes the required project Health and Safety Plan (HASP) that describes the responsibility and protocols to maintain a safe environment throughout the construction of the SAS Project. The Monthly Project Wide Safety Meeting is ongoing and is a good forum in providing "Lessons Learned" in order to promote safe practices across the entire project.

Section 4 of the PMP also outlines the Project Safety and Security Management Plan (SSMP) as required by 49 CFR Part 659, which includes the Safety and Security Certification Plan (SSCP) and the Systems Safety and Reliability Assurance Program Plan (SSRA).

Concerns and Recommendations: None

e) Grantee's Approach to Asset Management

Status:

The Station Contractors and the Systems Contractor continued population of the database which captures the identification, configuration, and installed location of the equipment.

Observation:

Identification and control of project assets is being coordinated among the Track, Power and Signals and Communications Systems Contractor (C6), Station Contractors (C2B, C4C and C5C) and NYCT's Department of Subways.

Concerns and Recommendations: None

f) Grantee's Approach to Community Relations

Status:

MTACC continues its efforts to provide up-to-date information and improve community access to SAS project staff and provide transparency to the project. Additional details are contained within Section 2.6 of this report.

Observation:

MTACC's approach to community relations as set forth in detail in Section 12 of its Project Management Plan for SAS Phase 1 is generally focused on the pre-construction activities involving dissemination of project-related information to the affected community and public hearings to support the NEPA process. The PMOC believes that the community relations effort during construction has been effective in pro-actively addressing community concerns, distributing relevant project information and supporting overall project goals.

Conclusions and Recommendations:

The PMOC recommends the overall approach involved in this effort be formally documented as a "lesson learned" so that subsequent MTACC projects may share the insights and benefits of this effort.

1.1.3 Grantee's Understanding of Federal Requirements and Local Funding Process

a) Federal Requirements

During the 3rd Quarter 2015, MTA continued its grant management process by issuing monthly financial reports and updating the Transportation Electronic Award Management (TEAM) System to reflect disbursements from the active grants and status of pending grants.

b) Uniform Property Acquisition and Relocation Act of 1970

Real estate acquisition and tenant relocation has been completed in accordance with the approved SAS Real Estate Acquisition Management Plan and Relocation Plan. These plans address Title 49 CFR Part 24, which implements the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and FTA real estate requirements 5010.1C.

c) Local Funding Agreements

All local funds required for the SAS Phase 1 Project have been allocated. Funds totaling \$2.964 billion were allocated in MTA's 2000-2004 and 2005-2009 Capital Plans. The balance of \$1.487 billion to complete SAS Phase 1 was budgeted in the 2010-2014 Capital Plan. On April 28, 2010, the MTA Board approved the 2010-2014 Capital Plan. The Capital Program Review Board (CPRB) approved the plan on June 1, 2010. The MTA Board and CPRB approved amendments (latest July 2013) to the 2010-2014 Capital Plan and retained the \$1.487 billion to complete SAS Phase 1.

The PMOC notes an apparent discrepancy with respect to local funding in the Amended FFGA. In the amended FFGA (ref. page 2) it states that the Grantee agreed to pay additional state and local funds in the amount of \$708,000,000 which combined with federal funds provided under the amendment as herein defined will be sufficient to complete the project.

An analysis of the local and federal funding participation suggests that the \$708,000,000 of additional local funds is overstated. The additional local funds required should be \$684,799,711. See below:

Original FFGA:

Federal Participation	\$1,350,693,000
Local Participation	\$3,515,922,468
Total	\$4,866,615,468

Amended FFGA:

Federal Participation	\$1,373,892,821
Local Participation	\$4,200,721,179
Total	\$5,574,614,000

Increase in Project: \$707,999,532 (\$5,574,614,000 - \$4,866,614,468)

Increase in Federal Participation: \$23,199,821 (\$1,373,892,821 - \$1,350,693,000)

Increase in Local Participation: \$684,799,711 (\$707,999,532 - \$23,199,821)

1.2 Project Controls

1.2.1 Scope Definition and Control

Status:

During the 3Q2015, there has been no material change in the scope of the SAS Project. The scope of the SAS Project – Phase 1 is formally defined by the FEIS, ROD and the FFGA. Using these documents as guides, the scope was further detailed in ten construction packages (contracts).

Observation:

The PMOC continues to monitor the scope of work to ensure compliance with the FEIS, ROD, FFGA and other reference documents and plans. Several design changes and construction operation scenarios have required formal review and approval by the FTA.

The SAS Project Team continues to effectively manage the project scope to maintain compliance with governing documentation and provide a cost-effective final product.

Concerns and Recommendations: None

1.2.2 Quality

Status:

During September 2015, the Second Avenue Subway Quality Management team continued to conduct Quality Meetings and Quarterly Quality Oversight of the Contractor with CCM, MTACC, and PMOC participation. The Quality Management Team participated in the job progress meetings, monitored quality matters in the field for each construction contract, reviewed and provided comments for Quality Work Plans, and participated in Preparatory Phase Meetings for numerous construction processes.

Observations:

Project Quality Manual (PQM): The SAS Quality Manager prepared a draft of Revision 3 to the PQM that reflects the new MTACC QO checklist requirements and other changes that have occurred since the last revision was issued. The PMOC received a draft of Revision 3 to review and returned comments to the SAS Project Quality Manager. A Final Draft of Revision 3 is presently being reviewed by the PMOC.

Daily Inspection Reports: The PMOC QA representative has constantly reminded the contractors of the importance of entering the Daily Inspection Reports into the Contractor Management System within one week. Overall, the contractors are performing well in this area. During this report period however, Contract C2B is two weeks behind.

C5C Contractor: At the suggestion of the PMOC, the contractor hired two assistants for their Quality Manager. Both started work in June 2015. Significant improvement has been noted since the PMOC's last Quarterly Report and includes:

- Submittal of Daily Inspection Reports has been reduced from three weeks to less than one week;
- NCRs that were identified as "not issued" have now been issued and entered into CMS;
- There is now a schedule for preparing Quality Work Plans (QWPs);
- Preparatory Phase Meetings are scheduled and are being held;
- Mechanical, Electrical, and Plumbing (MEP) sign-off is occurring prior to placement of concrete; and
- The contractor hired a new Project Manager who has supported resolving open issues.

Among the remaining issues are:

- The contractor's Quality Manager does not have an audit schedule and has only conducted one audit;
- Some electrical issues have still not been documented on nonconformance reports (NCRs);

- 35 of the open 41 non-concrete NCRs have been open for more than two months; and,
- NCRs that are generated each week for concrete failures are not being issued and entered into CMS in a timely manner.

Contract Package C2B	
Status:	Through September 30, 2015, a total of 120 NCRs have been issued. 81 have been closed and 39 NCRs are still open. In September 2015, 3 new NCRs were written and 2 were closed. 19 of the open NCRs are for concrete that was out-of-spec.
Observation:	Entry of Daily Inspection Reports into CMS is 2 weeks behind. NCRs are not always being written in a timely manner and many have been open for more than four months. Bi-weekly Quality Management Meetings, as suggested by the PMOC, are still being held.
Concerns and Recommendations:	13 of the open 20 non-concrete NCRs have been open more than four months. The contractor has established closure dates that are not realistic. The PMOC recommends that NCRs be written when the nonconformance occurs and that a realistic schedule for closure of the open NCRs be established. The contractor should make an effort to meet these dates.
Contract Package C3	
Status:	Through September 30, 2015, a total of 111 NCRs have been issued. 98 have been closed and 13 are still open. In September 2015, 3 new NCRs were written and none were closed.
Observation:	There are a total of 16 NCRs that remain open.
Concerns and Recommendations:	The PMOC has no concerns at this time.
Contract Package C4C	
Status:	Through September 30, 2015, a total of 184 NCRs have been issued. 107 have been closed and 77 NCRs are still open. In September 2015, 20 NCRs were written and one was closed.
Observation:	155 of the 184 NCRs are for concrete that was out of specification. 6 of the 11 NCRs generated in September were for concrete. Submittal of Daily Inspection Reports is current.
Concerns and Recommendations:	41 of the 56 open NCRs are for concrete that was out of specification. The PMOC recommends that a concrete statistical analysis be performed and submitted.

Contract Package C5C	
Status:	Through September 30, 2015, 125 NCRs have been issued. 52 have been closed and 73 NCRs are still open. In September 2015, 9 new NCRs were written and 39 were closed. 31 of the closed NCRs were for concrete that was out-of-spec. The remaining 8 were non-concrete NCRs.
Observation:	Submittal of Daily Inspection Reports is 1 week behind. 30 of the 73 NCRs that are open are for concrete that is out of spec. Bi-weekly Quality Management Meetings, as suggested by the PMOC, are still being held.
Concerns and Recommendations:	In February 2015, the PMOC recommended that all NCRs be issued and entered into CMS immediately and that the contractor establish a schedule to close the non-concrete NCRs. All NCRs are now issued and entered into CMS. The PMOC recommends that the contractor establish a schedule for closing the 43 non-concrete NCRs.
Contract Package C6	
Status:	Through September 30, 2015, a total of 38 NCRs have been issued. 34 NCRs have been closed and 4 are still open. In September 2015, no new NCRs were written and 3 were closed. Entry of Daily Inspection Reports into CMS is current.
Observation:	The contractor submitted Waiver #23 to extend the time of concrete placement from 90 minutes to 120 minutes. The Designer of Record did not approve this waiver and subsequently requested the contractor to prepare and submit an analysis of the concrete strength. Based on the results of the analysis, 13 concrete NCRs were closed in August and 2 in September.
Concerns and Recommendations:	The PMOC has no concerns.

1.2.3 Project Schedule

Status:

A summary of project schedule information is as follows:

	FFGA (Amended March 2015)	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	August, 2016	November 23, 2016	October 2017
Revenue Service	February 28, 2018	December 30, 2016	February 2018

MTACC established December 30, 2016 as its target Revenue Service Date (RSD) and bases its schedule and schedule contingency reporting on this target. Based on risk assessment, FTA/ELPEP identified February 28, 2018 as its target RSD with the condition that a minimum 240 CD of contingency be maintained against this target through September 30, 2016. To date, the MTACC criteria has been the more stringent and has therefore been the basis of routine schedule and schedule contingency reporting.

Observation/Concerns and Recommendations: None

1.2.4 Project Budget and Cost

Status:

Total project cost in the approved ammended FFGA (\$5,574,614,000) and Current Working Budget (CWB) which is based on Revision 9 to the Project Cost Estimate, are allocated into the Standard Cost Categories (SCC) as shown below in Table 1-1.


Table 1-1: Standard Cost Categories

Std. Cost Category (SCC)	Description	FFGA (January 2008)	FFGA Amended (March, 2015)	MTA's Current Working Budget (June, 2015)
10	Guideway & Track Elements	\$612,404,000	\$195,346,781	\$622,478,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,666,605,679	\$1,277,642,000
30	Support Facilities	\$0	\$0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$793,118,232	\$524,561,000
50	Systems	\$322,707,000	\$250,379,966	\$250,134,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$281,500,000	\$281,500,000
70	Vehicles	\$152,999,000	\$0	\$0
80	Professional Services	\$796,311,000	\$1,026,608,168	\$1,185,742,929
90	Unallocated Contingency	\$555,554,000	\$544,441,174	\$308,942,010
Subtotal		\$4,050,000,000	\$4,758,000,000	\$4,451,000,000
Financing Cost		\$816,614,000	\$816,614,000	\$816,614,000
Total Project		\$4,866,614,000	\$5,574,614,000	\$5,267,614,000

Table 1-2 lists the associated grants in the Transportation Electronic Award Management (TEAM) System with respective appropriated, obligated, and disbursed amounts as of June 30, 2015.

Table 1-2: Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) through September 30, 2015
NY-03-0397	\$4,980,026	\$4,980,026	\$4,980,026
NY-03-0408	\$1,967,165	\$1,967,165	\$1,967,165
NY-03-0408-01	\$1,968,358	\$1,968,358	\$1,968,358
NY-03-0408-02	\$24,502,500	\$24,502,500	\$24,502,500
NY-03-0408-03***	0	0	0
NY-03-0408-04****	0	0	0
NY-03-0408-05	\$167,810,300	\$167,810,300	\$167,810,300
NY-03-0408-06	\$274,920,030	\$274,920,030	\$274,920,030
NY-03-0408-07	\$237,849,000	\$237,849,000	\$237,849,000
NY-03-0408-08	\$197,182,000	\$197,182,000	\$197,182,000
NY-03-0408-09	\$186,566,000	\$186,566,000	\$55,627,380
NY-03-0408-10**	\$123,384,621	0	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$1,373,892,821.00	\$1,250,508,200.00	\$1,119,569,580.00

 * Denotes American Recovery and Reinvestment Act (ARRA) funds. **Appropriated pending FTA approval

*** Grant issued to outline components of the Early Systems Work Agreement. **** Grant issued to explain the "Total Eligible" cost for the project.

Observation:

Total project distribution is \$3,601,684,739 of which \$2,482,115,159 is local funds and \$1,119,569,580 is federal funds.

Concerns and Recommendations: None

1.2.5 Project Risk Monitoring and Mitigation

Status:

The SAS Project Team continued implementation of risk management techniques to identify, quantify and manage risks that may impact the project cost or schedule. Efforts are directed to those risk issues with potential to delay the project beyond its currently scheduled RSD. Publishing of monthly reports that document project risk management activities continues.

Observation:

The SAS risk management process has been instrumental in the development of strategies and techniques to manage a variety of retained risks including inter-contract interfaces, safety and security certification and submittal processing.

The SAS Project Management Team has focused its risk management effort on those risk issues with potential to delay the project beyond its currently scheduled RSD.

Concerns and Recommendations: None.

1.2.6 Project Safety and Security

Status:

Safety – The Lost Time Injury Rate and Recordable Injury Rate from the start of construction until August 31, 2015 are 1.79 and 4.99, respectively. The Bureau of Labor Statistics (BLS) national Lost Time Injury Rate is 1.8 and the Recordable Injury Rate is 3.2. The cumulative construction hours worked since the project inception is 11,364,866 hours. Total lost time injuries since project inception is 95 and other recordable injuries are 170. The total number of recordable injuries is 265 (sum of lost time injuries and recordable injuries).

Security – Implementation of the Contractor’s Site Security Plans is ongoing. No security concerns noted during this reporting period.

Observation:

Data published by MTACC’s Office of Quality, Safety, Site Security, and Certification shows both rates trending downward over the last five months. Contractors are being proactive in addressing incidents. Tool box meetings, and increased training and monitoring of construction activities are being performed in order to highlight safety awareness. Personnel with repeat safety violations are being removed from the project.

Concerns and Recommendations: None

1.3 FTA Compliance

Status:

MTACC remains compliant with all FTA requirements.

Observation: None.

Concerns and Recommendations: None.

1.3.1 FTA Milestones Achieved

The last key FTA milestone achieved was entry into the Full Funding Grant Agreement (FFGA) on November 19, 2007.

The ELPEP Hold Point “90% Project Bid/50% Construction Complete” was achieved in March 2013.

The Amended FFGA was executed in March 2015.

The ELPEP Hold Point “100% Project Bid/85% Construction Complete” has been achieved. All construction contracts have been awarded and construction is 85.5% complete.

1.3.2 Readiness for Revenue Operations

Status:

No change this period.

2.0 PROJECT SCOPE

2.1 Status & Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

The design phase of SAS Phase 1 was completed in late November 2010. Engineering activities are currently focused on supporting the construction activities.

Observation:

The primary role of the design team currently includes:

- Construction Administration, (generally including shop drawing review), response to RFIs, provide design clarifications as needed and technical support;
- Detail and document design changes as may be required; and
- Supporting AWO evaluation and resolution.

Concerns and Recommendations:

Incorporation of user-requested and third-party agency design changes during the construction phase continues as a significant risk to the overall project schedule. The SAS project staff should continue to minimize and prioritize the design changes to ensure that only necessary changes are incorporated and that their impact to construction cost and schedule is limited.

2.1.2 Procurement

Status:

Procurement of all design and construction services required for the execution of SAS, Phase 1 has been completed.

Observations: None

Concerns and Recommendations: None

2.1.3 Construction

Status:

All 10 construction contracts for SAS Phase 1 Project have been awarded. Two contracts have been completed and closed-out. An additional three contracts have achieved Substantial completion and the close-out process is ongoing. Accomplishments during this reporting period on the eight open contracts are summarized as follows:

Observations:

Contract C-26005 (C2A) 96th Street Station Heavy Civil, Structural and Utility Relocation

- Substantial Completion was achieved on November 5, 2013. Punchlist and contract closeout activities are ongoing; and
- Closeout of the contract is pending submittal of the final “As Built” documents.

Contract C-26010 (C2B) 96th Street Station Concrete, MEP/Finishes, Utilities, and Restoration

- **Station Area:** The Contractor continues installation of the platform and mezzanine service carriers. The platform wall panel steel framing is being installed along the west slurry walls of the station. Electrical distribution equipment is being tested by the manufacturer. Installation of lighting fixtures and pulling of wires for power and communication systems is ongoing by the electrical sub-contractor. MEP systems being installed by the contractor include dry fire standpipe, domestic water piping, 2" water mist and sprinkler piping on the mezzanine level;
- **Ancillary 1 (NE corner 2nd Ave. and 93rd St.):** Structural concrete was completed. The contractor installed sound attenuators and has started the preparatory phase planning for the installation of the tunnel ventilation fans. The electrical subcontractor continues to install feeders from the Electrical Distribution Rooms (EDR) to the Variable Frequency Devices (VFDs) at Ancillary #1. Layout for the façade reveals was completed;
- **Ancillary 2 (SW corner 2nd Ave. and 97th St.):** Structural concrete was completed. Installation of sound attenuators and other mechanical equipment is ongoing. The electrical sub-contractor installed conduits for communications, power and lighting at the platform level;
- **Entrance 1 (SW corner 2nd Ave. and 94th St.):** All concrete work completed. Escalator and associated mechanical equipment is being installed;
- **Entrance #2 (NE corner 2nd Ave. and 94th St.):** All concrete work completed. Escalator and associated mechanical equipment is being installed. A temporary wooden canopy was installed at street level to protect the escalator at Entrance #2 from inclement weather conditions; and
- **Roof Level (92nd and 93rd Streets, 96th and 97th Sts.):** The installation of all utilities and the backfill operation continue. The contractor continues with the utility installation along remaining streets between 91st and 99th Street on West side of 2nd Avenue. Auger grouted steel core displacement piles were installed and mud mats poured was completed for sewer chamber 95-2.

Contract C-26006 – (C3) 63rd Street Station Upgrade

- Area 5
 - In Area 5 inspections of completed rooms continued in Mezzanines 1 – 4;
 - At the 6th Mezzanine porcelain tile cladding of the beams and walls continued. Stainless Steel column cladding and installation of Arts-N-Transit mosaic tile feature walls is ongoing;
 - Elevator cab and travelling cable installation has begun, beginning with Cab #3; and
 - Installation of granite paving is beginning in the Lower 6th Mezzanine.

- Entrances (#1, #2, #3 & #4):
 - At Entrance #1 continuing with installation of escalators (2). Concrete & ceiling work is complete;
 - At Entrance #2 the contractor continued welding rails for the hydraulic elevator; and
 - At Entrances #3 & #4 the glass canopies over the street entrance staircases have been completed. Granite base installation up the stair inclines.
- G3 & G4 Platforms:
 - Completed installation of trackwall tiles on G3 & G4 the active track side;
 - Completed installation of the Elevator Lobby paving stones; and
 - Completed installation of frames for operable glass panels in the platform lobbies.
- Site:
 - Site street ventilators and sidewalk are being installed west of Lexington Ave; and
 - Plaza reconstruction will begin the week of October 11, 2015.
- Contract C6 Coordination:
 - System testing continues throughout the station.

Contract C-26007 (C4B) 72nd Street Station Mining and Lining

Substantial Completion was achieved on January 14, 2014. Punchlist and contract closeout activities are ongoing.

Contract 26011 (C4C) 72nd St Station Finishes, MEP Systems Ancillary Buildings & Entrances

- Ancillary #2/ Entrance #2
 - At Ancillary #2 floor topping in the EDR Room was completed;
 - At Ancillary #2 installation of fans and ductwork continues in the 2nd Floor Fan Room. Electrical work continues in the sub-basement & basement FPR Rooms; and
 - At Entrance #2 work continues to be on hold pending completion/approval of the corrective work to the architectural finish.
- Ancillary #1
 - Building erection work has reached the final 4th Floor and electrical work continues in the FPR Rooms at the sub-basement and basement levels.
- Mezzanine
 - Deformations have developed in the bullet resistant glass in the Station Service Center (SCC). This glass will likely have to be replaced;
 - The mockup for the Mezzanine finish porcelain wall tile is complete;
 - Construction in the Public Mezzanine continued with installation of W30 Wall framing;

- Traction power equipment has been installed in the TPSS. Busways and conduit installation is ongoing;
- At the North & South Mezzanines MEP installation in Fan/Chiller rooms is ongoing; and
- Service carrier framing in the Public Mezzanine is complete.
- Entrance #3
 - Completed placement of walls for the upper street level structure; and
 - Continued placement of structural steel for the framing of the multiple elevator shaft.
- Entrance #1
 - Installation of rebar cages, setting of formwork and placement of concrete lining continued in the street entrance area and the escalator incline; and
 - Continued waterproofing and formwork on the Machine Room Pit walls.
- Platform Level
 - Completed the installation of the 3 escalators from platform to mezzanine and outfitting the Machine Rooms;
 - Installation of the trackwall tile is 99% complete with the Station Identification Tiles remaining; and
 - Installation of Platform pavers is approximately 40% complete. Installation of the platform edge rubbing boards is approximately 50% complete.
- Schedule
 - The Substantial Completion date per the latest Update # 30 has been extended to February 17, 2017, from the previous January 23, 2017. The focus of this delay is the corrective work required to the concrete architectural finish in the escalator incline arch and walls in Entrance #2, and perhaps in the finish in Entrance #1.

Contract C-26008 (C5B): 86th Street Station Cavern & Heavy Civil

- Substantial Completion was achieved on December 16, 2014. Contract closeout is ongoing; and
- The contractor has completed the remedial work to correct the architectural finish on the incline in Entrance #2. The remedial work in Entrance #1 has not yet begun.

Contract C-26012 (5C) – 86th St. Station Finishes, MEP Systems, Ancillary Buildings & Entrance

- Ancillary #1
 - At the above grade portion of Ancillary #1 wall and slab placement has reached Elevation 181. The contractor continues working 6 days, 2 shifts in this area;
 - At the below grade portion of Ancillary #1 the roof deck was completed; the roadway restored; and the MPT has been switched to the west side of 2nd Ave; and

- MEP continues in Ancillary #1, all Mezzanine areas and levels.
- Ancillary #2
 - Continued with waterproofing, walls and slab construction in Ancillary #2 to Elevation #125. The contractor is utilizing 2 shifts.
- Mezzanine
 - In the North Mezzanine CMU wall erection is complete;
 - Mechanical and conduit work is ongoing in the Public Cavern and North Mezzanine;
 - MEP work continues on the 1st, 2nd and 3rd Upper Mezzanines; and
 - Facility Power Room (FPR) wiring to switchgear is ongoing in both the north and south FPRs.
- Entrance #1
 - Entrance #1 remains the primary ingress/egress to the cavern site. No significant work is taking place in this area; Preparations are underway, however to begin corrective sandblasting/coating application along the escalator incline.
- Entrance #2
 - The contractor continues to install escalators at the street level to the upper mezzanine in Entrance #2 and preparations are underway to begin installation of the long incline escalators to the mezzanine; and
 - CMU walls in the upper back-of-house area have been completed.
- Platform Level
 - Installation of the mezzanine to platform Escalators and machine room work continues. The contractor began installation of the sub-platform & platform for mezzanine to platform Elevator;
 - Installation of main and branch conduits, including LAN & WAN continued in the Platform ceiling and Mezzanine Levels;
 - Service carrier installation work is ongoing on the Platform level;
 - Installation of doors & hardware is approximately 50% complete on the north and south platform rooms;
 - Installation of platform edge rubbing boards continues on the northbound and southbound tracks;
 - Painting of platform CMU walls has begun; and
 - Installation of the porcelain tile trackwall cladding continues.
- Schedule
 - Permanent power is now forecast for February 2016 in lieu of the previous end of December 2015;
 - There is a walkthrough on Thursday, October 1, 2015, for the next group of rooms to be turned over ; and
 - MTA User Groups conducted a pre-inspection of the power rooms. A report was developed requesting notable changes. The Project Office and the contractor are reviewing the report.

Contract C-26009 (C6): Systems – Track, Power, Signals and Communications

Track:

- LVT track installation is ongoing per the re-sequencing plan; and
- Layout and concrete placement for the crossover south of the 96th Street Station is nearing completion.

Communications:

- Continued copper and fiber optic cable testing and certification;
- Continued installation of various copper and CAT6 cables at 63rd Street Station;
- Completion of the 63rd Street Station Benning Power Plant Field Installation Acceptance Testing (FIAT);
- Ongoing local antenna cable work has progressed up to but not including Level 6 at the 72nd Street Station;
- Network and Public Address/Customer Information Sign (CIS) cabinets for the 72nd Street Station were delivered;
- 86th Street Station Public Address/Customer Information Sign (PA/CIS) cabinets are ready for Factory Acceptance Testing (FAT); and
- Continued installation of Network and Public Address/Customer Information Sign (CIS) Cabinets at 96th Street Station.

Traction Power:

- Rectifiers, transformers and power equipment for 72nd St., 86th St., and 96th St., stations were built, and tested and will be delivered once the traction power rooms are turned over to the contractor;
- Installation of wayside brackets for 63rd Street CBH cables ongoing on Tracks G3 and G4;
- Continued installation of DC lighting and remote DC Circuit Breakers at 63rd Street CBH Room;
- Installation of SCADA Digital Input/output cabinet in the 63rd Street CBH Control Room ongoing;
- Continued installation of third rail and protection board in the tunnels north of 96th Street Station; and
- Started installation of the epoxy floor at 72nd St. CBH Room.

Signal Work:

- Locations for 8 repeater signals were identified;
- Installation of wayside signal conduits and equipment is ongoing;
- Rack to rack wiring and megger testing of plug couplers is ongoing in Signal Room 147 CIR at 63rd Street Station;
- Relay racks, signals and junction boxes were delivered for 72nd and 96th Street Stations; and
- Pulling of signal cable for 72nd St. tunnel to the Cable Termination Room was started.

Concerns and Recommendations:

Failure of the Station contractors to meet room turnover milestones has eroded the schedule contingency and impacted the Systems contractor. Ongoing action by MTACC to mitigate the delay needs to continue.

2.1.4 Force Account (FA) Contracts

Status:

As of September 30, 2015, New York City Transit (NYCT) Engineering Force account expenditures are \$56,936,438 of the \$95,400,000 budget. NYCT labor expenditures are \$12,328,505 of the \$25,600,000 budget.

The Force Account budget appears to be adequate and has not changed in Revision 10 of the SAS Cost Estimate. NYCT has committed to have the adequate force account personnel to support the testing and commissioning phase.

Observations:

Remaining budgets appear adequate for a testing and commissioning period of reasonable duration and staffing level.

Concerns and Recommendations: None.

2.1.5 Operational Readiness

Status:

NYCT has developed a Concept of Operations Plan for the SAS Project. NYCT will validate SAS Phase 1 readiness during Pre-Revenue Service Operations Training and Testing scheduled from October 25, 2016 to December 15, 2016.

Observation:

Customer Service Centers are being deleted at various stations. Completion of the Safety and Security Certification Program is a major activity prior to Revenue Service. Coordination of the Safety and Certification Program has greatly improved during this reporting period. The Technical Work Group is effectively working with the station contractors to capture the documentation needed for the certifiable items for each element. Additionally MTACC intends to implement Lessons Learned from the Testing and Commissioning of the Line 7 Extension Project for the SAS Project.

Concerns and Recommendation:

The SAS Project Team needs to expedite the update of the Concept of Operations Plan to reflect how the stations will function with the deletion of the Customer Service Centers.

2.2 Third-Party Agreements

Status:

During the 3Q2015, the SAS Project Team continued its Interagency Coordination as defined in Section 12 of the SAS PMP.

Through September 30, 2015, \$55,969,757 of the \$91,586,000 Third-Party reimbursement budget (Rev. 10 Current Working Budget) has been spent.

Observation:

MTACC/NYCT has entered into cooperative force account agreements as needed with other agencies and utility providers to perform construction work for the Project. The Third-Party Agreement budget appears to be adequate to support the remaining construction.

Concerns and Recommendation: None

2.3 Contract Packages and Delivery Methods

Phase 1 of the Second Avenue Subway is being delivered via ten separate construction packages. Each construction contract package utilizes the design-bid-build process based upon a fixed price construction contract. Competitive procurements are based on NYCT standard procedures. There was no change to the procurement or delivery method for any of the construction packages during the 3Q2015.

2.4 Vehicles

No change. No additional vehicles will be procured for the SAS Phase 1 Project.

2.5 Property Acquisition and Real Estate

Status:

Real estate acquisition and tenant relocation was performed in accordance with the approved SAS Real Estate Acquisition Management Plan and Relocation Plan. These plans address Title 49 CFR Part 24, which implements the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and FTA real estate requirements 5010.1C.

All real estate acquisitions required for the construction of SAS Phase 1 have been completed.

Observation: None

Conclusions and Recommendations: None

2.6 Community Relations

Status:

MTACC continues to expend a significant amount of effort in maintaining effective communication and good relations with the residential and business community affected by the Second Avenue Subway construction. These efforts have generally been effective in facilitating the resolution of adverse construction impacts and addressing the concerns of community stakeholder groups.

Observation:

During the 3Q2015, MTACC Community Outreach activities included:

- Continued production of monthly newsletters updating residents and business owners on construction progress, major milestones achieved, and providing a forward looking schedule so the community will know what to expect as the project progresses. These newsletters are delivered electronically and via hard copy;

- In anticipation of construction work between 93rd and 102nd Streets, coordinated with the Department of Sanitation and the Business Integrity Commission to ensure that sufficient refuse locations would be setup to meet their needs, and those of the residents/businesses in this station area;
- On July 23, 2015, an interagency walk was conducted with members of the NYPD, FDNY, DSNY, DOT, BIC, and DOH as well as representatives from each station area to answer questions and identify concerns along the alignment;
- Professional courtesy tours were conducted with representatives from Metro North, NYCT, Long Island Rail Road, New Jersey Transit, the Urban Land Institute and NYCT PD. Over 100 agency professionals were provided with an update on construction progress and a tour of the underground work area;
- The Community Information Center hosted 30 members of the Urban Land Institute's Young Professionals Group who discussed the Second Avenue Subway's role in the revitalization of the restaurant industry on the Upper East Side;
- In August 2015, the quarterly Construction Advisory Committee (CAC) meetings were held. Station area issues and project wide updates are discussed. Follow up reports were provided for stakeholders to share with their tenants/members;
- In August 2015, Assemblyman Robert Rodriguez and his staff were provided a guided tour of the site; and
- MTACC project executives provided a construction update and tour for 15 members of the Permanent Citizens Advisory Committee on August 27th.

Conclusions and Recommendations:

The MTACC's Community Outreach Program is very effective in providing project information to the community and responding to its concerns.

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

Refer to “ELPEP SUMMARY” for any updated information.

Observation: None.

Concerns and Recommendations: None.

3.2 PMP Sub Plans

Status:

Refer to “ELPEP SUMMARY” for any updated information.

Observations: None.

Concerns and Recommendations: None.

3.3 Project Procedures

Status:

The MTACC has issued all the procedures required to effectively manage the SAS Phase 1 project.

Observations:

SAS Project team members have been trained in the various procedures issued by the MTACC.

Concerns and Recommendations: None

4.0 PROJECT SCHEDULE STATUS

4.1 Integrated Project Schedule

Status:

The Integrated Project Schedule (IPS) is a management level schedule that integrates all ten construction packages along with design, procurement, startup and other support activities. IPS Update #110 is based on a Data Date of September 1, 2015. A narrative report and the “.XER” schedule file for construction schedules were included. The IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities by November 23, 2016. The available schedule contingency of 28 work days (WD) or 38 calendar days (CD) is then added, resulting in a forecast completion date of December 30, 2016. Table 4-1 presents a summary of schedule dates based on IPS Update #110.

Table 4-1: Summary of Schedule Dates

Begin Construction	January 1, 2007
Construction Complete	August, 2016
Revenue Service	February 28, 2018

Milestone Summary: A tabulation of current schedule performance against contractual milestones is presented in the following table.

Table 4-2: Schedule Milestone Performance

Pkg	MS	Description	Dates			Variance		Sch. Float 110	Float Δ
			Adjusted	UD #109	UD#110	Contract	Month		
C2B	6B	Full access to Comms Rooms & Closets	08/21/14	08/31/15	09/30/15	-405	30	26	-11
C2B	6C	Full access to Comms Rooms & Closets	08/21/14	08/31/15	09/30/15	-405	30	26	-11
C2B	7A	Full access to Signals Rooms	08/21/14	08/31/15	12/15/15	-481	106	59	49
C2B	7B	Full access to Signals Rooms	08/21/14	08/31/15	12/15/15	-481	106	59	47
C2B	7C	Full access to Signals Rooms	08/21/14	08/31/15	12/15/15	-481	106	59	-66
C2B	8A	Full access to Traction Power Rooms:	08/21/14	08/31/15	09/30/15	-405	30	73	41
C2B	8B	Full access to Traction Power Rooms:	08/21/14	08/31/15	09/30/15	-405	30	193	13
C2B	8C	Full access to Traction Power Rooms:	08/21/14	08/31/15	09/30/15	-405	30	193	13
C2B	9	Full access to Station Service Centers	11/21/14	10/22/15	10/22/15	-335	0	283	8
C2B	10	Complete all remaining Comms, Signal , & Traction Power work	09/21/14	08/14/15	11/04/15	-409	82	168	85
C2B	SS	Substantial Completion	12/21/15	11/11/16	11/11/16	-326	0	7	7
C3	SS	Substantial Completion	05/13/14	03/16/16	03/14/16	-671	-2	182	10
C4C	7A	Complete Work in all Comms. Rooms		03/18/16	04/05/16	-42465	18	161	-5
C4C	7B	Complete Work Ancillary #1		08/17/15	09/18/15	-42265	32	237	-17
C4C	12	Full access @ Station Service Center(s)	08/28/14	08/21/15	09/22/15	-390	32	48	-21
C4C	SS	Substantial Completion w/o Ent. #1	11/13/15	09/16/16	11/12/16	-365	57	11	-46
C4C	SS	Substantial Completion - Ent. #1	10/07/16	09/16/16	09/16/16	21	0	47	7
C5C	6	Turnover of Comm. Rooms	03/24/15	08/31/15	09/30/15	-190	30	20	-19
C5C	6A	Room-to-Room Conduit Ready	03/24/15	08/31/15	09/30/15	-190	30	64	24
C5C	7	Turnover of Signal Rooms	02/25/15	08/31/15	09/30/15	-217	30	20	-25
C5C	7A	Room-to-Room Conduit Ready		08/31/15	09/30/15	-42277	30	20	-26
C5C	8	Turnover of Signal Rooms	02/25/15	08/31/15	09/30/15	-217	30	20	-25
C5C	8A	Room-to-Room Conduit Ready	02/25/15	08/31/15	09/30/15	-217	30	20	-26
C5C	9	Turnover Traction Power Rooms	02/26/15	08/31/15	09/30/15	-216	30	40	24
C5C	9A	Room-to-Room Conduit Ready	02/26/15	08/31/15	09/30/15	-216	30	75	-14
C5C	10	Turnover Traction Power Rooms	02/25/15	08/31/15	8/31/2015A	-187	0		

Pkg	MS	Description	Dates			Variance		Sch. Float 110	Float Δ
			Adjusted	UD #109	UD#110	Contract	Month		
C5C	10A	Room-to-Room Conduit Ready	02/25/15	08/31/15	8/31/2015A	-187	0		
C5C	11	Full access @ Station Service Center(s)	03/24/15	11/03/15	11/04/15	-225	1	267	184
C5C	15	Comp. Permanent Power		02/02/16	02/26/16	-42426	24	86	-9
C5C	SS	Substantial Completion	05/31/16	09/06/16	09/20/16	-112	14	45	-3
C6	2A	Complete LAN - 96th St. Station	05/18/15	01/21/16	02/19/16	-277	29	109	-14
C6	2B	Complete WAN - 96th St. Station	05/18/15	01/21/16	02/19/16	-277	29	109	-14
C6	3A	Complete LAN - 86th St. Station	07/18/15	03/03/16	03/21/16	-247	18	97	-4
C6	3B	Complete WAN - 86th St. Station	07/18/15	03/03/16	03/21/16	-247	18	97	-4
C6	4A	Complete LAN - 72nd St. Station	02/18/15	02/04/16	02/04/16	-351	0	141	7
C6	4B	Complete WAN - 72nd St. Station	02/18/15	02/04/16	02/04/16	-351	0	141	7
C6	5A	Complete LAN - 63rd St. Station	04/18/14	09/23/15	10/22/15	-552	29	214	-1
C6	5B	Complete WAN - 63rd St. Station	04/18/14	09/23/15	10/22/15	-552	29	214	-1
C6	5C	Complete all 63rd St. Station work	04/18/14	06/27/16	07/07/16	-811	10	98	0
C6	SS	Substantial Completion	08/18/16	11/07/16	11/22/16	-96	15	0	-3

Milestone Summary: For contracts actively under construction, periodic progress of construction and schedule-related issues based on changes to contractual milestones includes the following.

1. Status of Milestones completed this update period (08/01/15 to 08/31/15):

Pkg	MS	Description	UD #109 Date	UD #110 Date
C5C	10	Turnover Traction Power Rooms	08/31/15	8/31/2015A
C5C	10A	Room-to-Room Conduit Ready	08/31/15	8/31/2015A

2. Milestones scheduled for completion during the next update period (09/01/15 to 09/30/15).

Pkg	MS	Description	UD #110 Date	UD #110 Float
C4C	7B	Complete Work Ancillary #1	09/18/15	237
C4C	12	Full access @ Station Service Center(s)	09/22/15	48
C2B	6B	Full access to Comms Rooms & Closets	09/30/15	26
C2B	6C	Full access to Comms Rooms & Closets	09/30/15	26
C2B	8A	Full access to Traction Power Rooms:	09/30/15	73
C2B	8B	Full access to Traction Power Rooms:	09/30/15	193
C2B	8C	Full access to Traction Power Rooms:	09/30/15	193
C5C	6	Turnover of Comm. Rooms	09/30/15	20
C5C	6A	Room-to-Room Conduit Ready	09/30/15	64
C5C	7	Turnover of Signal Rooms	09/30/15	20
C5C	7A	Room-to-Room Conduit Ready	09/30/15	20
C5C	8	Turnover of Signal Rooms	09/30/15	20
C5C	8A	Room-to-Room Conduit Ready	09/30/15	20
C5C	9	Turnover Traction Power Rooms	09/30/15	40
C5C	9A	Room-to-Room Conduit Ready	09/30/15	75

3. Milestones with unusual schedule variances, generally defined as a forecast date change approximately equal to or exceeding the duration of the reporting period (~30 CD) are listed in the following table.

Pkg	MS	Description	UD #109	UD #110	Variance
C2B	7A	Full access to Signals Rooms	08/31/15	12/15/15	106
C2B	7B	Full access to Signals Rooms	08/31/15	12/15/15	106
C2B	7C	Full access to Signals Rooms	08/31/15	12/15/15	106
C2B	10	Complete all remaining Comms, Signal , & Traction Power work	08/14/15	11/04/15	82
<i>C4C</i>	<i>SS</i>	<i>Substantial Completion w/o Ent. #1</i>	<i>09/16/16</i>	<i>11/12/16</i>	57
C4C	7B	Complete Work Ancillary #1	08/17/15	09/18/15	32
C4C	12	Full access @ Station Service Center(s)	08/21/15	09/22/15	32

4. Milestones with unusual float variances, generally defined as a forecast date change approximately equal to or exceeding the duration of the reporting period are listed in the following table.

Pkg	MS	Description	UD #109	UD #110	Variance
C5C	11	Full access @ Station Service Center(s)	83	267	184
C2B	10	Complete all remaining Comms, Signal , & Traction Power work	83	168	85
C2B	7A	Full access to Signals Rooms	10	59	49
C2B	7B	Full access to Signals Rooms	12	59	47
C2B	8A	Full access to Traction Power Rooms:	32	73	41
<i>C4C</i>	<i>SS</i>	<i>Substantial Completion w/o Ent. #1</i>	57	11	-46
C2B	7C	Full access to Signals Rooms	125	59	-66

Source Schedule Comparison:

The following compares substantial completion dates in IPS #110 and the most recent contractor schedule updates furnished by MTACC.

	Contractor		IPS #110	
	Update	Substantial Completion	Substantial Completion	PMOC Comments
C2B	32FVI (9/1/15)	01/05/17	11/11/16	Not approved by MTACC to date. Contractor Substantial Completion date may be as early as 01/05/17 if “go back” work and other miscellaneous street-level restoration work does not obstruct station operation.
C4C	30 (9/1/15)	02/16/17	11/12/16	Contractor’s forecast completion date based on its estimate of the impact of AWO #86 – Entrance 1 Redesign.
C5C	18R (9/1/15)	10/11/16	9/20/16	Noted as preliminary. Most critical path items involve installation and startup of tunnel ventilation (fans) system.
C6	37 (9/1/15)	01/06/17	11/22/16	Noted as including TP, SIG and COM acceleration. Most critical path items are driven by communication equipment at 86 th Street Station.

Observations and Analysis:

- Program Contingency increased to 33 WD (45 CD) this period, due to removal of the placeholder activity for Post SC Contractor support for Operational and Train Testing (C6MS-1004) and letting schedule logic drive completion through Proof of Route Familiarization Training (OPSRT2600);
- Two of fourteen milestones forecast for completion during this update period were achieved;
- Fifteen milestones are forecast for completion during the upcoming reporting period (09/01/15 to 09/30/15);
- While only seven (7) activities experienced excessive schedule variance this period, the PMOC notes that an additional thirteen (13) milestones experienced a schedule variance of exactly 30 CD. In summary, 20 of 38 active milestones experienced a schedule variance (delay) of 30 CD or more and 31 of 38 active milestones experienced a delay;
- There are seven milestones which experienced excessive float variances during this update period. Nine milestones experienced schedule delays greater than 30 CD and still gained more than 13 CD of schedule float; and

- MTACC consistently discounts delays indicated on contractor schedules and modifies the results for the IPS. In some cases, this is appropriate, but in others, the PMOC considers these modifications over-optimistic.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update #110 (DD=09/01/15), major activities that can be anticipated to either start or complete over the upcoming 90 days include the following:

Table 4-3: 90-Day Look-Ahead Schedule

Activity ID	Start	Finish
C2B – 96th Street Station Concrete, Finishes & Utilities		
Install 4 Axial Fans for Tunnel Ventilation at Platform Level - Ancillary 1		10/1/15
Install Over Track Dampers (OTD) at Platform Level - Ancillary 2		10/15/15
Comms. Room MR475A @ 96th - Install Equipment, Conduit, Tray, Grounding, Remote Monitoring & Cable/Wire		11/12/15
Permanent Power Available		11/4/15
C3 – 63rd Street Station Rehab		
MEP Work Entrance 3		11/17/15
Conduct FA Testing for Traction Elevators		11/3/15
MEP Work Entrance 4		11/16/15
Conduct Observational Inspection (E&E) for Escalators		11/9/15
C4C—72nd Street Station Finishes		
Ent #2 Street Level HVAC, Drainage, Conduit, Electrical		12/16/15
Ent #3 Elevator Shaft - Elevator Mechanical/Electrical		10/22/15
Street Utilities - Sidewalk Reconstruction		11/28/16
Anc. #2 Sub-Basement Doors, Floors, Gratings		12/31/15
C5C – 86th St. Station Finishes & MEP		
Escalator 11 & 12 Installation Entrance 2 street level		10/6/15
Perform FIAT Test - Station Service Center		11/2/15
Ancillary 2 Mechanical work - HVAC/AF/DC		12/4/15
Construct Ancillary 2 elevation 125 to 160		12/11/15
C6 – Systems		
Comms. Room MR477C @ 72nd - Install Equipment, Conduit, Tray, Ground, Remote Monitoring Devices, Cable and Wire		10/22/15
Train Dispatch Equipment @86th St. Install Equipment Pull Wire, Terminate		11/4/15
Train Dispatch Equip. @96th St. Install TDS & Computer based Dispatch Sys Equip.		11/25/15
Comms. Room MR475C & MR475D @ 96th - Install Equipment, Conduit, Tray, Grounding, Remote Monitoring & Cable/Wire		10/2/15

Observations and Analysis:

Significant work forecast for the upcoming period involves installation of vertical transportation and electrical distribution equipment.

Concerns and Recommendations:

Refer to See Section 4.3 of this report for additional comments and recommendations.

4.3 Critical Path Activities

Status:

IPS Update #110 forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities on November 23, 2016, with approximately 38 calendar days (CD) or 28 work days (WD) of contingency, resulting in a forecast Revenue Service Date (RSD) of December 30, 2016. Schedule contingency is summarized as follows:

	Dates	Contingency (CD)	
MTACC Completion	11/23/2016	38	MTACC Contingency
MTACC RSD	12/31/2016	184	Additional Contingency
ELPEP Threshold	7/3/2017	240	Minimum ELPEP Contingency
FTA RSD	2/28/2018	462	TOTAL

Observations and Analysis:

IPS Update #110 identifies six (6) independent schedule paths with total float less than or equal to ten (10) working days. When compared to the previous update, it appears that significant time was lost in many areas of the project over this update period.

1st Critical Path (TF=0): The first of the TF=0 schedule paths begin with construction of system wide track work in Zones 4, 7, 8, 10 and 11, followed by signal system testing and final acceptance throughout the project on September 1, 2016. This is followed by NYCT Pre-Revenue Service Testing and the Operational Revenue Service Date of November 23, 2016. Adding the remaining construction contingency of 28 WD results in the MTACC's RSD of December 30, 2016.

2nd Critical Path (TF=0): The second of the TF=0 schedule paths begin with the design, manufacture, FAT and delivery of the police radio system equipment located at the 86th Street Station. Installation of this equipment is currently forecast for completion on March 23, 2016. Component and system activities should be completed by September 19, 2016, at which time this path merges with the other TF=0 path and allows the start of NYCT pre-revenue testing.

3rd Critical Path (TF=5): This path begins with the ongoing Entrance #2 cavern construction at the 72nd Street Station. Cavern work is followed by escalator #9, 10 and 11 truss installation, escalator installation and contractor preliminary testing, all of which are forecast to be complete on August 31, 2016. Subsequent testing and acceptance activities for these three escalators

extend this path to November 16, 2016, which also represents the C4C Substantial Completion. Accounting for the 5 WD of schedule float, this path then rejoins the TF=0 path at Phase 1 Construction Complete on November 23, 2016.

4th Critical Path (TF=7): This path is initiated by construction of the elevator superstructure, enclosure, access trim and machine room equipment and extends the path through July 27, 2016. The path then follows Elevator Field Installation Acceptance Test (FIAT), Simulated Integrated Systems Test (SIST) and Final Systems Integrated Test (FSIT) at 96th Street Station through November 11, 2016. The path ends with 96th Street Station Substantial Completion on November 11, 2016, and ties to the primary critical path at Phase 1 Construction Complete on November 11, 2016. The schedule then completes with 27 WD of Schedule Contingency leading to a RSD date of December 30, 2016.

5th Critical Path (TF=9): The 5th Critical Path involves installation of access control systems throughout the 72nd Street Station. Installation is forecast for completion on March 25, 2016, at which time individual and integrated system testing at 72nd Street Station starts and continues through September 7, 2016. At this time, this path joins the TF=0 float path for Pre-Revenue Operational Testing by NYCT.

6th Critical Path (TF=8): This path involves construction, installation and testing of ventilation systems at the 72nd Street Station. The path(s) start with construction of MEP work and Tunnel Vent Fan Room C301 within Ancillary #2. Completion of construction work is forecast for June 14, 2016, at which time testing and verification inspection of the North TSSM begins. This work is forecast for completion on November 9, 2016, at which time this path merges with Phase 1 Construction Complete via the Substantial Completion of C4C.

Secondary Paths: Other secondary float paths of significance to the overall status of the project include:

+13 WD: This work is the result of C6 AWO #35, which impacts the fire alarm system at all stations. Manufacture and delivery of this equipment to the project site should be complete by October 9, 2015. The path then continues through panel installation, wiring and device installation throughout the 86th Street Station through March 17, 2016. Installation is followed by submission of O & M manuals, station and combined system testing and concludes with the completion of all communication system testing on September 19, 2016. At this time, this path merges with the TF=0 float path for Pre-Revenue Operational Testing by NYCT.

+13 WD: This path represents the delivery and installation of access CCTV equipment at the 63rd Street Station. Changes resulting from C6 AWO #17, have delayed equipment delivery until November 25, 2015. Installation is forecast for completion on February 24, 2016. Testing concludes with the completion of all communication system testing at 63rd Street on September 1, 2016, at which time this path merges with the other TF=0 path and allows the start of NYCT pre-revenue testing.

+23 WD: This path represents procurement, installation and testing of permanent power equipment at the 86th Street Station. Following the forecast "Permanent Power Available" date of February 26, 2016, the path follows component and system testing of mechanical and electrical equipment throughout the station.

- +45 WD:** This path represents installation of equipment, third party testing and Con-Ed final inspection and acceptance of facilities required for permanent power at the 72nd Street Station. Following the “Permanent Power Available” date of December 30, 2015, this path merges with numerous other paths involving the testing and acceptance of equipment throughout the station.
- +54 WD:** This path represents the construction of Entrance #1 at the 72nd St. station. Structural underpinning is forecast to be complete on February 1, 2016. The path then follows finish construction, which is concurrent with escalator installation through testing and commissioning. All work at Entrance #1 is forecast to be complete by September 16, 2016.
- +65 WD:** This path represents procurement, installation and testing of permanent power equipment at the 96th Street Station. Following the forecast “Permanent Power Available” date of November 4, 2015, the path follows component and system testing of mechanical and electrical equipment throughout the station.

Concerns and Recommendations:

Based on the PMOC review of IPS Update #110:

- Track installation is once again a project level critical path, negating the effort and resources applied to this work via previous acceleration initiatives;
- Completion of base contract work for C4C now exceeds the scheduled completion work for the additional work at Entrance #1; and
- Of the six (6) most critical paths, five are driven by station construction and only one is driven by the systems contract.

4.4 Compliance with Schedule Management Plan

Status:

Based on the current status of the IPS, SAS Phase 1 can be considered conditionally compliant with the metrics, deliverables and intangible goals enumerated in the Enterprise Level Project Execution Plan (ELPEP), dated January 15, 2010 (Section IV. b, page 8), and as further described by the Schedule Management Plan (SMP).

Observations and Analysis:

- Forecast Revenue Service Date (RSD) and minimum schedule contingency:
 - ELPEP Requirement: February 28, 2018 (RSD); and
 - ELPEP Requirement: 240 CD (measured against February 28, 2018)
- Minimum Allowable Float; Real Estate Acquisition
 - ELPEP Requirement: 60 CD;
 - Current Forecast: All Real Estate takings are complete as of November 1, 2011, with the last “Title Vesting” occurring on October 25, 2011.

- Minimum Allowable Secondary Float Path
 - ELPEP Requirement: 25 Calendar Days (approximately 18 WD); and
 - There are multiple “critical paths” with TF less than or equal to 18 WD. It is not feasible to mitigate all the delays contributing to this condition within the restrictions of the project budget.
- Secondary Schedule Mitigation (critical path compression)
 - ELPEP Requirement: 125 CD; and
 - MTACC has complied with the intent of this requirement through numerous acceleration initiatives documented in previous reports.

Observation: None

Concerns and Recommendations:

MTACC considers the IPS and the associated schedule management procedures to be in compliance with the ELPEP and Schedule Management Plan. The PMOC has identified those areas where it believes current SAS schedule practices compromise the accuracy and usefulness of the IPS.

Schedule Performance Indicators:

In an effort to corroborate the IPS forecast the PMOC has reviewed schedule performance to date in an effort to develop performance metrics that can assist in evaluating CPM schedule forecasts. In its periodic reports to the FTA, MTACC details the Budgeted Cost of Work Scheduled (BCWS) versus the Budgeted Cost of Work Performed (BCWP) for each active construction contract. At a summary level, the resulting “S-curves” compare planned versus actual performance and can identify and provide insight into performance trends and schedule forecasts. For each active construction contract, the following table compares the planned vs. actual monthly level of achievement in terms of value earned by completed construction work. This “earned value” can be used to estimate a variance in planned vs actual schedule performance. August 2015 is the latest month for which this information is available.

Value Earned		August-15				Contract Comp Date	Testing by NYCT (CD)	Est. Comp Date
Contract \$ (x100,000)	Plan	Actual	Plan Month for ES \$	Ahead (+) or Behind (-)				
C2B	\$324	\$314	\$239	Oct-14	-9.6	12/22/15	34.00	11/8/16
C3	\$176	\$176	\$161	May-13	-26.9	5/13/14	34.00	8/31/16
C4C	\$258	\$247	\$166	Dec-14	-7.6	9/16/16	34.00	6/5/17
C5C	\$208	\$171	\$111	Jan-15	-6.5	5/31/16	34.00	1/16/17
C6	\$261	\$225	\$166	Mar-15	-4.7	8/18/16	34.00	2/8/17
TOTAL	\$1,227	\$1,133	\$842	Dec-14	-7.6	12/30/16	34.00	9/18/17

The PMOC notes the following:

- This evaluation uses base contract values only. AWOs can be considered a partial cause of the variances indicated;
- Schedule float is also not considered. The significant schedule delay to contract C3 does not pose a risk to achieving the RSD;
- Logical relationships between contracts are also not considered. It is possible that several of these individual contract delays could interact, forming a longer project-level delay;
- Current schedule analysis suggests the possibility that the three station contracts could independently delay the RSD. Successful completion of the C6 contract is necessary to achieve RSD. Consequently, this analysis suggests the possibility of a 6 to 9 month delay to the RSD unless schedule performance is significantly improved; and
- Between June 2014 and August 2015, this methodology identifies a generally increasing negative variance. This trend is consistent with “stacking” activities

later in the schedule and the observed increase in “near-critical” paths and reduction in overall schedule float.

Conclusions and Recommendations:

Each of the five remaining construction contracts has experienced significant delays. The PMOC has documented numerous instances in this report where schedule milestones have been significantly delayed. With respect to actual schedule performance, there is diminishing evidence to support MTACC’s position that it can achieve the RSD by December 30, 2016.

5.0 BUDGET/COST

Status:

The FFGA baseline budget (Jan 2008) and MTACC's current working budget (Aug 2013) are broken down into Standard Cost Categories in year of expenditure dollars as follows:

Table 5-1: Allocation of FFGA and Current Working Budget to Standard Cost Categories

Std. Cost Category (SCC)	Description	
10	Guideway & Track Elements	
20	Stations, Stops, Terminals, Intermodal	
30	Support Facilities	
40	Site Work & Special Conditions	
50	Systems	
60	ROW, Land, Existing Improvements	
70	Vehicles	
80	Professional Services	
90	Unallocated Contingency	
Subtotal		
Financing Cost		
Total Project		

Observation and Analysis:

Table 5-1 represents MTACC's most recent update June, 2015 of its CWB into the FTA Standard Cost Categories. Revisions to the SCC allocations incorporate the Revision 10 modifications to the MTACC's CWB. MTACC converts the CWB to the SCC format quarterly.

Conclusions and Recommendations:

MTACC continues to execute Phase 1 of the SAS within the constraints of its CWB. The PMOC will continue to monitor MTACC's conformance to its budget.

5.1 Project Cost Management and Control

Status:

The SAS Project Team accumulates and reports actual cost expenditures against MTACC's established cost categories on a monthly basis. The aggregate budget value of the cost categories equals the CWB of \$4.451B. In general, MTACC cost categories correspond to individual contracts or groups of contracts for products or services supplied by a 3rd party vendor. Values within the MTACC Cost Categories are mapped to the FTA Standardized Cost Categories on a Quarterly basis.

Observation:

MTACC continues to demonstrate that its cost reporting and management processes and procedures are adequate for and responsive to the needs of the project. No new observations this period.

Concerns and Recommendations: None.

5.2 Project Expenditures and Commitments:

Status:

As of September 30, 2015, a summary comparison of the SAS Current Working Budget (Estimate Revision #10) and expenditures is as follows:

Description	CWB	Expended	%
Base Construction	\$2,674,814,299	\$2,286,092,856	85.5%
Total Soft Cost	\$1,308,108,085	\$1,132,098,890	86.5%
Contingency	\$468,077,616	\$183,492,994	39.2%
Subtotal	\$4,451,000,000	\$3,601,684,740	80.9%

Observations:

Based upon financial expenditures reported by the MTACC during September 2015, SAS Phase 1 is approximately 80.9% complete. The completion status of the active construction contracts through September 30, 2015, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100%;
- C26005 (96th Street Station) – 100%;
- C26010 (96th Street Station) – 75.6%;
- C26013 (86th Street Station) – 100%;
- C26008 (86th Street Station) – 99.6%;
- C26012 (86th Street Station) – 54.2%;
- C26006 (63rd Street Station) – 92.1%;
- C26007 (72nd Street Station) – 99.9%;
- C26011 (72nd Street Station) – 66.8%; and
- C26009 (Systems) – 63.9%.

Aggregate Construction % Completion:

- 100% of all construction work is under contract;

- 85.5% of all base construction (not including AWOs) is complete; and
- 86% of all construction is complete. Using progress payments to estimate project completion introduces a lag of approximately one month.

Based upon cost data received from MTACC for September 2015:

- Value of construction in place this period = \$40,021,816;
- Estimated value of construction remaining = \$205,228,449;
- Target construction completion = November 23, 2016; and
- # of Months remaining = 13.8.

The PMOC notes that expenditures are generally representative of the level of completion of each project element.

Professional Service expenditures (as generally defined by SCC Category 80) during September 2015 totaled approximately \$5.2M. This rate of expenditure is generally within the range of cost anticipated by the current budget. At the current rate of expenditure, the existing budget should be sufficient to fund professional services into the 2Q2017.

Conclusions and Recommendations:

Refer to Section 5.5 and 5.6

5.3 Change Orders

Status:

As of September 30, 2015, the status of Additional Work Orders (AWOs) on Phase 1 of the Second Avenue Subway Project is summarized as follows:

Table 5-2: AWO Summary

Contract/ (Package)	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26002 (1)	100.00%	\$337,025,000	\$41,086,647	12.19%	\$41,086,647	12.19%
C26005 (2A)	100.00%	\$325,000,000	\$47,615,409	14.65%	\$47,615,409	14.65%
C26010 (2B)	75.60%	\$324,600,000	\$38,808,942	11.96%	\$27,600,388	8.50%
C26006 (3)	92.14%	\$176,450,000	\$34,519,474	19.56%	\$23,717,619	13.44%
C26007 (4B)	99.93%	\$447,180,260	\$1,325,639	0.30%	\$135,639	0.03%
C26011 (4C)	66.82%	\$258,353,000	\$33,217,345	12.86%	\$25,475,861	9.86%
C26013 (5A)	100.00%	\$34,070,039	\$6,525,471	19.15%	\$6,525,471	19.15%
C26008 (5B)	99.63%	\$301,860,000	\$26,535,862	8.79%	\$19,181,413	6.35%
C26012 (5C)	54.17%	\$208,376,000	\$9,153,298	4.39%	\$3,224,339	1.55%
C26009(6)	63.99%	\$261,900,000	\$9,206,436	3.52%	\$8,138,712	3.11%
TOTAL TO DATE		\$2,674,814,299	\$247,994,523	9.27%	\$202,701,498	7.58%

Bold type indicates completed contracts

To date, approximately \$2,286,092,856 (85.5%) of all base contract construction work has been completed. As a percentage of work completed, the AWO exposure for these contracts = 10.85% and the executed AWO % = 8.87%. Based on performance to date, a forecast of total AWO expenditure for all base contract work in the range of \$240M to \$290M appears reasonable.

Observation and Analysis:

The value of AWOs reported by MTACC/NYCT in September 2015 is summarized as follows:

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
Sep-15	\$202,701,498	\$247,994,523
Aug-15	\$202,214,236	\$240,321,139
Δ	\$487,262	\$7,673,384
Δ	0.24%	3.19%

The changes in AWO Exposure for each construction contract reported through September 2015 are summarized as follows:

Const. Pkg.	AWO Exposure			
	Sep-15	Aug-15	Period Δ	Changes this Period
Completed Packages	\$47,612,118	\$47,612,118	\$0	Final values for Packages C1 and C5A as reported by MTACC.
C2A	\$47,615,409	\$47,615,409	\$0	No change reported this period.
C2B	\$38,808,942	\$33,710,298	\$5,098,644	Net increase is based on revised estimates for AWO #s 126 and initial estimates for AWO #s 133, 151, 168, 171 and 174.
C3	\$34,519,474	\$34,451,761	\$67,713	Net increase is based on revised estimates for AWO #s 164, 165, 211, 221, 225, 227, 229, 230, 236, 237, 243 and initial estimates for AWO #s 246, 247, 248 and 249.
C4B	\$1,325,639	\$1,325,639	\$0	No change reported this period.
C4C	\$33,217,345	\$31,686,971	\$1,530,374	Net increase is based on revised estimates for AWO #s 54, 87, 114, 136, 151, 155 and initial estimates for AWO #s 158, 161, 167, 168, 169, 170, 171, 172, 175, 175 and 180.
C5B	\$26,535,862	\$26,463,649	\$72,213	Net increase is based on the initial estimate for AWO # 64.
C5C	\$9,153,298	\$8,198,012	\$955,286	Net increase is based on revised estimate for AWO #s 62 and initial estimates for AWO #s 73, 79, 94, 111, 119, 122 and 125.
C6	\$9,206,436	\$9,257,282	-\$50,846	Net decrease is based on revised estimates for AWO #s 58, 82, 90, 91, 95, 99, 103, 111, 114, 115, 116, 118, 119, 120 and initial estimates for AWO #s 105, 112, 125 and 129.
TOTAL	\$247,994,523	\$240,321,139	\$7,673,384	

The changes in Executed AWO Value for each construction contract reported through September 2015 are summarized as follows:

Const. Pkg.	Executed AWOs			
	Sep-15	Aug-15	Period Δ	Changes this Period
Completed Packages	\$47,612,118	\$47,612,118	\$0	Final values for Packages C1 and C5A as reported by MTACC.
C2A	\$47,615,409	\$47,615,409	\$0	No change reported this period.
C2B	\$27,600,388	\$27,486,388	\$114,000	Increase is based on execution of AWO #s 96, 99 and 175.
C3	\$23,717,619	\$23,291,919	\$425,700	Increase is based on execution of AWO #s 164, 188, 187, 224, 238 and 241.
C4B	\$135,639	\$1,325,639	-1,190,000	No change reported this period.
C4C	\$25,475,861	\$25,112,529	\$363,332	Increase is based on execution of AWO #s 54, 158, 163, 175 and 176.
C5B	\$19,181,413	\$19,181,413	\$0	No change reported this period.
C5C	\$3,224,339	\$3,224,339	\$0	No change reported this period.
C6	\$8,138,712	\$7,364,482	\$774,230	Increase is based on execution of AWO #s 58, 72, 82, 90, 95, 99, 103, 105, 111, 112, 114, 115, 116, 118, 119, 120 and 125.
TOTAL	\$202,701,498	\$202,214,236	\$487,262	

MTACC, with support from NYCT, has generally demonstrated a disciplined and diligent approach to effectively negotiating additional work orders for a fair and reasonable price. Credits for deleted or reduced work scope are pursued aggressively.

Concerns and Recommendations:

None at this time.

5.4 Project Funding

Status:

Total Federal participation is currently \$1,373,892,821. Appropriated, obligated and disbursed totals are shown in Table 5-3 below.

Table 5-3: Appropriated and Obligated Funds (Federal)

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) through September 30, 2015
NY-03-0397	\$4,980,026	\$4,980,026	\$4,980,026
NY-03-0408	\$1,967,165	\$1,967,165	\$1,967,165
NY-03-0408-01	\$1,968,358	\$1,968,358	\$1,968,358
NY-03-0408-02	\$24,502,500	\$24,502,500	\$24,502,500
NY-03-0408-03***	0	0	0
NY-03-0408-04****	0	0	0
NY-03-0408-05	\$167,810,300	\$167,810,300	\$167,810,300
NY-03-0408-06	\$274,920,030	\$274,920,030	\$274,920,030
NY-03-0408-07	\$237,849,000	\$237,849,000	\$237,849,000
NY-03-0408-08	\$197,182,000	\$197,182,000	\$197,182,000
NY-03-0408-09	\$186,566,000	\$186,566,000	\$55,627,380
NY-03-0408-10**	\$123,384,621	0	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$1,373,892,821.00	\$1,250,508,200.00	\$1,119,569,580.00



* Denotes American Recovery and Reinvestment Act (ARRA) funds. **Appropriated.

*** Grant issued to outline components of the Early Systems Work Agreement. **** Grant issued to explain the "Total Eligible" cost for the project

Total project distribution is \$3,601,684,739 of which \$2,482,115,159 is local funds and \$1,119,569,580 is federal funds.

Observation and Analysis:

The New York State Legislature has agreed to fund the remaining three years of MTA's 2010 – 2014 Capital Program which will provide adequate funds to support the SAS Phase 1 Project's current working budget.

Concerns and Recommendations: None

5.4.1 Overall Project Funding

Refer to Section 5.2 of this Report.

5.4.2 Local Funding

Refer to Section 5.2 of this Report.

5.5 Cost Variance Analysis

Events that represent major project milestones for measuring cost variances include:

- Full Funding Grant Agreement (FFGA) – 11/19/07;
- Enterprise Level Project Execution Plan – 01/15/10;
- MTACC Current Working Budget – 6/11;
- MTACC Current Working Budget – 8/13 (Revision 10);
- FFGA Amendment – 03/17/15; and
- Contemporaneous EAC forecasts (9/20/15).

Budget variances identified at these milestones provide insight to the internal and external forces shaping the project and their impact on the final cost of the project. The PMOC has analyzed and presented its analysis of cost variances through CWB Revision 10. This analysis has documented a 12.13% cost growth between FFGA and CWB Revision 10.

Observation and Analysis:

A summary comparison of CWB Revision 10 and a current EAC forecast is shown in Table 5-4.

Table 5-4: CWB vs. EAC

Category	Current Working Budget	EAC Forecast
Total Construction	\$2,674,814,299	\$3,023,163,754
Engineering Services Subtotal	\$622,862,000	\$684,157,000
Third Party Expenses	\$554,086,273	\$562,086,000
TA Expenses	\$131,160,085	\$132,890,202
Contingency	\$468,077,343	
Total	\$4,451,000,000	\$4,402,296,956

Based on the information available, the PMOC's EAC validates the reasonableness of the MTACC's Current Working Budget of \$4.451B.

Conclusions and Recommendations:

Based upon current information, this effort suggests the project can be built within the limits of the Current Working Budget, absent any major delays to the currently forecast RSD. This effort will be revisited periodically, to incorporate updated information and evaluate its effect on the overall EAC.

5.6 Project Contingency

Status:

The ELPEP requires the MTACC to maintain specific contingency funds in accordance with the following “achievement driven” schedule:

- \$220M through 90% Bid and 50% Construction;
- A linear reduction in contingency from \$220M to \$140M through 100% Bid and 85% Construction; and
- \$45M from 100% Bid and 85% Construction through Start Up and Pre-Revenue Operations.

The independent analysis of contingency drawdown maintained by the PMO is generally consistent with that maintained by the SAS Project team and confirms it to be in compliance with the estimated minimum contingency balance of \$140,000,000.

Observations and Analysis:

During 3rd Quarter 2015, contingency changes included routine incorporation of AWOs into the individual project and overall program reporting systems. Cost models maintained by both the PMOC and the SAS Project Team verify that the current contingency balance is greater than the Planned Balance and exceeds the ELPEP Required Balance.

Contingency Analysis

	<u>Current</u>	<u>@ Completion</u>
Phase 1 Budget	\$4,451,000,000	\$4,451,000,000
Construction Awards	\$2,674,814,299	\$2,674,814,299
Soft Cost Expended	\$1,132,098,890	\$1,132,098,890
Soft Cost Forecast to Complete	\$228,877,312	\$247,034,312
AWO Exposure	\$240,321,139	\$348,349,455
Total Contingency	\$174,888,360	\$48,703,044
Reserved Contingency	\$160,000,000	\$48,703,044
Available Contingency	\$14,888,360	

Transfer from Reserved Contingency = \$111,296,956

Total Contingency = budget balance after forecast expenditures.

Conclusions based upon this analysis include:

- The project can be completed within the current MTACC CWB of \$4.451B;
- It will be necessary to transfer funds from the “Executive” or “Reserved” Contingency in order to cover forecast project costs; and
- Estimated contingency available at completion is approaching the ELPEP minimum threshold of \$45M.

Concerns and Recommendations:

This evaluation is based on a thorough review of construction contingency. Soft cost contingency is evaluated periodically and the analysis adjusted accordingly. At this time, it appears the total contingency is adequate to support completion of the Project.

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period.

6.2 Risk Updates

Status:

The August 2015 Risk Report was consolidated with the IPS #110 Narrative Report. No Risk mitigation meeting was held this period.

Observation and Analysis:

For several months, MTACC has reported that the SAS Contract Risk Registers were updated and a Risk Analysis performed in late December 2014. The results of this analysis were reviewed with MTACC Executive Management in March 2015. At the ELPEP Quarterly Meeting held on September 17, 2015, MTACC stated these results were expected to be available in late September/early October 2015. As of the writing of this report, the results have not been released.

Conclusions and Recommendations:

It is recommended that the updated risk registers and risk analysis results be released for review by the FTA and the PMOC.

6.3 Risk Management Status

Status:

MTACC has utilized the risk management process to identify major risks to project performance and develop mitigation plans to address those risks.

Observation and Analysis: None.

Conclusions and Recommendations: None.

6.4 Risk Mitigation

Status:

Risk Mitigation efforts have been concentrated on major risks with the potential to impact the overall project RSD. This process has proven to be valuable in managing risks such as contract interface management, availability of permanent power, and others.

Observation and Analysis:

The most significant risks are discussed below. Also included are descriptions of the current mitigation strategies and an update of the status of the mitigation actions.

Track Installation Delay: Installation of track and related work was on the project's primary critical path. Previous delays were mitigated through a resequenced work plan which significantly increased schedule float associated with this work.

IPS Updates #108 and #109 confirm that new delays have occurred and schedule float has been reduced to 3 WD (IPS #109). Several issues are reportedly contributing to the new delay scenario:

- Lack of adequate tunnel ventilation and tunnel ventilation plans, largely due to lack of electric power to run the fans;
- Reduced physical access for material delivery due to the progression of station construction work that was not anticipated; and
- A new round of submittal review delays.

New schedule acceleration initiatives are under consideration by MTACC; however, concern has been expressed over the availability of additional options to materially improve the schedule. MTACC and the Systems Contractor continue to hold bi-weekly meetings in an effort to resolve track work issues and expedite the submittal development and review process.

72nd Street Station Entrance #1: In December 2014, the MTACC and the 72nd Street Station Contractor executed a change order to accelerate construction at 72nd Street Station Entrance #1 from January 27, 2017 to September 16, 2016. Work is currently on schedule. Concern remains, however due to limited availability of mitigation options should additional delay be encountered.

Facility Power: Timely availability of permanent facility power at the new stations is necessary to ensure the timely completion of system installation, testing, and commissioning activities. The current plan is to energize 96th and 72nd Street Stations by December 2015, although 72nd Street is running about 2 weeks behind schedule. 86th Street Station should be energized by February 2016. Achieving these schedule goals should support testing and commissioning activities.

Delays to Achievement of Access Milestones:

MTACC has encountered significant delays in achieving the turnover of system equipment rooms from station contractors to the system contractor, specifically those associated with IPS schedule milestones. In the Schedule Risk section of the IPS #110 Narrative Report, MTACC tabulates rooms turned over to the systems contractor with no additional discussion. The PMOC notes that:

- Rooms remain to be turned over at each of the new station sites. At 86th Street Station, barely 50% of the required rooms have been turned over;
- Failure to turn over any of the required rooms results in a significant risk of delay to the RSD; and
- Over recent months, MTACC's management of the room acceptance and turnover process has regressed significantly, with no apparent strategy available to mitigate or improve upon existing risks.

Architectural Finishes:

This risk involves sandblasting and painting of exposed architectural concrete at both 72nd and 86th Street Stations entrances in order to obtain a finish acceptable to NYCT. No discussion of this risk is contained within the current update.

- Architectural concrete finish is an issue at both 72nd and 86th Street Stations. The issue is currently a critical delay on the C4C schedule update;

- Remedial work is set to start at 86th Street Station, Entrance #1 in the near future. This is the primary ingress/egress to the work area; and
- The risk of delay to follow-up escalator installation at each entrance is significant.

No mitigation strategy is offered by MTACC for this risk.

Water Infiltration at 96th Street Station:

This issue remains a risk to construction progress at 96th Street Station. Grouting operations have reportedly reduced water infiltration significantly. This work is not forecast to be completed until late 2015. This issue has had a significant impact on construction progress throughout the station.

Concerns and Recommendations:

MTACC generally continues a proactive approach to management of risks.

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status: Refer to Section 5.4 of this report.

6.5.2 Schedule Contingency

Status:

Via IPS Update #110, MTACC forecasts all Phase 1 construction and pre-revenue testing to be complete on November 23, 2016. This results in 38 CD (28 WD) of contingency when measured against the MTACC's target RSD of December 30, 2016, and a 469 CD contingency when measured against the FTA Risk-Informed RSD of February 28, 2018.

Observations:

Major risks previously identified in the construction contractor's schedules and not represented in the IPS have been reconciled. As such, the current risk-mitigated forecast and a risk-realized forecast are equivalent. The RSD forecast by IPS #110 results in the following contingencies:

Table 6-1: Schedule Contingency

IPS Update #	104	105	106	107	108	109	110	
Data Date	3/1/15	4/1/15	5/1/15	6/1/15	7/1/15	8/1/15	9/1/15	
	Contingency (CD)							
RSD=12/30/2016								
Risk Mitigated	38	49	43	45	50	50	38	
Risk Realized	38	49	43	45	50	50	38	
RSD=02/28/2018								
Risk Mitigated	461	473	467	469	474	474	462	
Risk Realized	461	473	467	469	474	474	462	

Concerns and Recommendations:

The PMOC concerns regarding schedule are enumerated in Section 4.0 of this report.

7.0 LIST OF ISSUES AND RECOMMENDATIONS

Priority in Criticality column 1 – Critical 2– Near Critical

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-1- Oct-15	2.1.3	<p><u>Issue:</u> Failure of the Station contractors to meet room turnover milestones has eroded the schedule contingency and impacted the Systems contractor.</p> <p>Status: Station Contractors are working as quickly as possible to meet room turnover milestones.</p> <p><u>Recommendations:</u> The PMOC recommends that MTACC continue with its present mitigation efforts.</p>	1

8.0 GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS

Priority in Criticality column

1 – Critical

2 – Near Critical

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
		No specific Grantee Actions are noted at this time.		

APPENDIX A — LIST OF ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
AWO	Additional Work Order
BCE	Baseline Cost Estimate
BFMP	Bus Fleet Management Plan
CCM	Consultant Construction Manager
CD	Calendar Day
CMAQ	Congestion Mitigation and Air Quality
CPM	Critical Path Method
CPRB	Capital Program Review Board
CR	Candidate Revision
CSJV	Comstock Skanska Joint Venture
CWB	Current Working budget
DC	Design Consultant
DOB	New York City Department of Buildings
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
FAT	Factory Acceptance Testing
FD	Final Design
FEIS	Final Environmental Impact Statement
FIAT	Field Installation Acceptance Test
FIST	Facilities Integrated Systems Test
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GC	General Contractor
HASP	Health and Safety Plan
HLRP	Housing of Last Resort Plan
IFP	Invitation for Proposal
IFB	Invitation to Bid
IPS	Integrated Project Schedule
LF	Linear Feet
MEP	Mechanical, Electrical, Plumbing
MTACC	Metropolitan Transportation Authority – Capital Construction
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
NYCDEP	New York City Department of Environmental Protection
NYCT	New York City Transit
NYSPTSB	New York State Public Transportation Safety Board
OCIP	Owner Controlled Insurance Program
PE	Preliminary Engineering
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PQM	Project Quality Manual

RAMP	Real Estate Acquisition Management Plan
RFMP	Rail Fleet Management Plan
RFP	Request for Proposal
RMCP	Risk Mitigation Capacity Plan
RMP	Risk Management Plan
ROD	Record of Decision
ROD	Revenue Operations Date
RSD	Revenue Service Date
SAS	Second Avenue Subway
SCC	Standard Cost Category
SCIT	Systems Commissioning and Integration Testing
SES	Systems Engineering Specialists
SIM	Systems Integration Manager
SIST	Simulated Integrated System Testing
SIT	Systems Integrated Testing
SOE	Support of Excavation
SSCP	Safety and Security Certification Plan
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSRA	Systems Safety and Reliability Assurance Program Plan
SOE	Support of Excavation
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSPP	System Safety Program Plan
TEAM	Transportation Electronic Award Management System
TF	Total Float (schedule)
TBD	To Be Determined
TBM	Tunnel Boring Machine
TCC	Technical Capacity and Capability Plan
TIA	Time Impact Analyses
UNO	Unless Noted Otherwise
WBS	Work Breakdown Structure
WD	Work Day
YOE	Year of Expenditure

APPENDIX B—PROJECT OVERVIEW AND MAP

Project Overview and Map – Second Avenue Subway



Scope

Description: The project will connect Manhattan’s Central Harlem area with the downtown financial district, relieving congested conditions on the Lexington Avenue line. The current project scope includes: tunneling; station/ancillary facilities; track, signal, and electrical work; vehicle procurement; and all other subway systems necessary for operation. The current phase, Phase 1 of 4, will provide an Initial Operating Segment (IOS) from 96th Street to 63rd Street, and will connect with the existing Broadway Line that extends to Lower Manhattan and Brooklyn. Subsequent phases will extend the line northward to 125th Street and to the southern terminus at Hanover Square in Lower Manhattan.

Guideway: Phase 1 is 2.3 miles long, from 63rd Street to 105th Street. It is a two-track project that is below grade in tunnels, and does not include any shared use track.

Stations: In Phase 1 there are: two new mined stations located at 72nd and 86th Streets, one new cut and cover station at 96th Street, and major modifications of the existing 63rd Street Station on the Broadway Line.

Support Facilities: There are no additional support facilities planned for Phase 1 of the project.

Vehicles: MTA envisions the need for eight-and-one-half train sets to satisfy the Phase 1 operating requirements (7) and to provide sufficient spares (1½).

Ridership Forecast: Upon completion of Phase 1, ridership is expected to be 191,000 per average weekday (MTA’s Regional Travel Forecast Model).

Schedule

12/20/01	Approval Entry to PE	06/12	Estimated Rev Ops at Entry to PE
04/18/06	Approval Entry to FD	03/14	Estimated Rev Ops at Entry to FD
11/19/07	FFGA Signed	06/30/14	Estimated Rev Ops at FFGA
03//17/15	Amended FFGA Signed		
12/30/16	Revenue Operations Date at date of this report (MTACC schedule)		
85.4	Percent Complete Construction at Sept. 30, 2015		
86.2%	Percent Complete Time based on Rev Ops Date of December 30, 2016		

Cost (\$)

3,839 M	Total Project Cost (\$YOE) at Approval Entry to PE (w/o Financing Costs)
3,880 M	Total Project Cost (\$YOE) at Approval Entry to FD (w/o Financing Costs)
4,866 M	Total Project Cost (\$YOE) at FFGA signed (w/ \$816 M Financing Costs)
4,451 M	Total Project Cost (\$YOE) at Revenue Operations (w/o Financing Costs)
5,267 M	Total Project Cost (\$YOE) at date of this report including \$816 M in Finance Charges
3,602 M	Amount of Expenditures at date of this report from Total Project Budget of \$4,451 M
81%	Percent Complete based on Expenditures at date of this report
175 M	Total Project Contingency remaining (allocated and unallocated contingency)

APPENDIX C – LESSONS LEARNED

There were no new Lessons Learned to report for 3rd Quarter for 2015

#	Date	Phase	Category	Subject	Lessons Learned
1	Oct-09	Construction	Schedule	Delays to excavation caused by adjacent fragile buildings	The PMOC recommended and MTACC adopted a plan to review the stability of all of the buildings affected by the Second Avenue Subway project. MTACC instructed the DC to review all the buildings along the project. Furthermore, they have the designer developing shoring plans for the fragile buildings and including this work in the future contracts. In this way the stabilization work cannot delay the contracts as it is part of the contract.
2	Nov-09	Construction	Schedule	3 rd Party Utilities changed the size of an electric vault after construction began.	The PMOC recommended that MTACC get the utility companies to agree that once they have approved the plans, they cannot make major changes after award. MTACC's SAS Project Executive is meeting with the utilities to work out this problem.

APPENDIX D – SAFETY AND SECURITY CHECKLIST

Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Rail		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Design and Construction		
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGC, etc.)	Design/Bid/Build		
Project Plans	Version	Review by FTA	Status
Safety and Security Management Plan	7041.01.007308-0	11/15/07	Approved by FTA
Safety and Security Certification Plan	7041.01.007308-0 Appendix D		Certification by New York State Public Transportation Safety Board (NYSPTSB)
System Safety Program Plan			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan		N	Each active construction contractor's Construction Safety and Security Program Plan has been approved by MTACC.
Safety and Security Authority			
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		NYSPTSB
Has the oversight agency reviewed and approved the Grantee's SSPP as	Y		The NYSTB issued a letter of recertification

Project Overview		
per Part 659.17?		on September 2, 2010.
Has the oversight agency reviewed and approved the Grantee's Security Plan or SEPP as per Part 659.21?		
Did the oversight agency participate in the last Quarterly Program Review Meeting?	N	
Has the Grantee submitted its safety certification plan to the oversight agency?	N	Certification is within the scope of the C6 Systems Contract.
Has the Grantee implemented security directives issues by the Department Homeland Security, Transportation Security Administration?	Y	
SSMP Monitoring	Y/N	Notes/Status
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	
Grantee reviews the SSMP and related project plans to determine if updates are necessary?	Y	
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	
Does the Grantee maintain a regularly scheduled report on the status of safety and security activities?	Y	Activity included in the monthly and quarterly reports from the Grantee and is reported at each contractor's Job Progress Meeting.
Has the Grantee established staffing requirements, procedures and authority for safety and security	Y	Responsibilities during the design and construction phases

Project Overview		
activities throughout all project phases?		identified
Does the Grantee update the safety and security responsibility matrix/organizational chart as necessary?	Y	
Has the Grantee allocated sufficient resources to oversee or carry out safety and security activities?	Y	
Has the Grantee developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	Y	Included in Appendix F of the SSMP
Does the Grantee implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?	Y	Frequency to be increased
Does the Grantee monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	Nine active construction contracts are being monitored daily by the CCM with oversight being performed by the grantee.
Does the Grantee ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	Y	Hazard and Vulnerability Analysis
Has the Grantee ensured the development of safety design criteria?	Y	Included in SAS project Design Criteria Manual
Has the Grantee ensured the development of security design criteria?	Y	Included in SAS project Design Criteria Manual
Has the Grantee ensured conformance	Y	Ongoing part of design

Project Overview		
with safety and security requirements in design?		review process
Has the Grantee verified conformance with safety and security requirements in equipment and materials procurement?	Y	Verification is ongoing with the procurement of equipment by the Station Contractors (C3, C2B, C4C, and C5C) and the Systems Contractor (C6).
Has the Grantee verified construction specification conformance?	Y	Reference Section D3.4 Construction Criteria Conformance of the SSMP
Has the Grantee identified safety and security critical tests to be performed prior to passenger operations?	Y	Reference Section D3.2 Certification Items List of SSMP
Has the Grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	Y	Certifiable elements have been identified. Verification of requirement will be performed as part of the certification process which includes factory acceptance testing, installation testing and integration testing. Efforts are ongoing.
Has the Grantee evaluated change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	Y	Part of formal configuration control process. Efforts are ongoing.
Has the Grantee ensured the performance of safety and security analyses for proposed work-arounds?	NA	

Project Overview		
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	Referenced plans are being developed as part of the Systems Contract (C6).
Has the Grantee issued final safety and security certification?	N	To be covered as part of the testing in Systems Contract (C6)
Has the Grantee issued the final safety and security verification report?	N	To be covered as part of the testing in Contract 6
Construction Safety		
Does the Grantee have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	
Does the Grantee's contractor(s) have a documented companywide safety and security program plan?	Y	
Does the Grantee's contractor(s) have a site-specific safety and security program plan?	Y	Reference sections 011150 Safety Requirements and 011160 Security Requirements of the Contract Terms and Conditions
Provide the Grantee's OSHA statistics compared to the national average for the same type of work?	The Lost Time Injury Rate and Recordable Injury Rate from the start of construction until August 31, 2015 are 1.79 and 4.99, respectively. The cumulative construction hours worked since the project inception is 11,364,865 hours. Total lost time injuries since project inception is 95 and	The Bureau of Labor Statistics (BLS) national Lost Time Injury Rate is 1.8 and the Recordable Injury Rate is 3.2.

Project Overview		
	other recordable injuries are 170. The total number of recordable injuries is 265 (sum of the lost time injuries and the other recordable injuries).	
If the comparison is not favorable, what actions are being taken by the Grantee to improve its safety record?	Both rates increased slightly from the last reporting period. Tool box meetings, stand-downs, increased training and monitoring of construction actives are being performed in order to highlight safety awareness.	
Does the Grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y	
Federal Railroad Administration		
If shared track: has Grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	NA	
If shared corridor: has Grantee specified specific measures to address shared corridor safety concerns?	NA	
Is the Collision Hazard Analysis underway?	NA	
Other FRA required Hazard Analysis – Fencing, etc.?	NA	
Does the project have Quiet Zones?	NA	
Does FRA attend the Quarterly Review Meetings?	NA	

APPENDIX E – ON-SITE PICTURES
(To be transmitted in a separate file)

Appendix F -- Core Accountability Items				
Project Status:		Original at FFGA	Current*	ELPEP**
Cost	Cost Estimate	\$4,050M	\$4,451M	\$4,980M
Contingency	Unallocated Contingency	\$555.554M	\$175M	\$45M
	Total Contingency (Allocated plus Unallocated)	\$555.554M	\$175M (Sept. 2015)	\$45M
Schedule	Revenue Service Date	September 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	81%		
	Based on Earned Value	N/A		
Major Issue		Status	Comments	
Project Testing and Commissioning		Open	MTACC's ability to test and commission a system the size of the SAS Phase 1 Project in a reasonable time frame is a major concern. Lessons Learned from testing and commissioning of the 7 Line Extension Project will be implemented on the SAS project.	
Date of Next Quarterly Meeting:		TBD		

* MTACC's Current Working Budget

** 2010 Enterprise Level Project Execution Plan (ELPEP), reflecting medium level of risk mitigation, excluding finance cost.

All data based on September 30, 2015 reporting.