

PMOC MONTHLY REPORT

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

March 1 to March 31, 2015



PMOC Contract No. DTFT60-09-D-00007

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

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Length of time on project: 4 years

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THIRD PARTY DISCLAIMER

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

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

Therefore, the information in the monthly reports 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. DTFT60-09-D-00007, Task Order No. 004. 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 managed by MTACC and 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 the 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 1st 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 76.3% complete (overall project completion is approximately (75.3%) as of March 31, 2015. Summary progress for each contract is as follows:

- The 96th Street Station Heavy Civil/Structural Contractor (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). Construction activity is ongoing in the Station Area, Ancillary #1 and #2, and Entrance #1, #2 and #3. Permanent utility installation and backfilling is ongoing at the Street Level.
- At the 86th Street Station (Contract C5B). ”. Substantial Completion of all contract work was achieved on December 16, 2014. Contract closeout is ongoing.
- 86th Street Station Architectural and MEP (Contract C5C). Mobilization is underway for installation of escalators in Entrance #2. Mechanical work is ongoing in the Public Cavern. CMU walls in the North and South Mezzanines continued. Facility Power equipment delivery will begin the end of April 2015.
- The 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). Construction of walls and columns continued on the first floor at Ancillary #2. Substations and transformers have been delivered and set in place in Ancillary #2. Excavation in the Entrance #1 garage has reached the final grade elevation.
- Rehabilitation of the 63rd Street Station (Contract C3). Began construction of new street Entrance #4. The switchover to permanent power was completed March 2, 2015. This allows all of the integrated testing to proceed, including LAN & WAN systems. Work at

Entrance #1 was stopped for 1 week due to a March 31, 2015 work related fire that damaged upper residences.

- The Track, Signal, Traction Power, and Communication Systems Contract (C6). Procurement of major equipment has been completed. Installation of track, communications, traction power and signal systems throughout the whole alignment is ongoing. Approximately 7,100 feet of track has been installed.

d. Continuing and Unresolved Issues

- Availability of NYCT resources to support testing, commissioning and acceptance activities was pointed out as a PMOC concern. The SAS Project Team recognized that testing and commissioning resource requirements, if not properly planned for, represents a major risk to the schedule. As a result, the Team has focused over the last several months in developing and implementing a risk mitigation strategy to reduce the level of this risk. See Section 2.1.4 for additional discussion of the mitigation strategy.
- Concerns over the 96th Street Station (C2B) Contractor's capability to perform in compliance with the construction schedule have resulted in additional concerns over achievement of the SAS RSD.
- Location-specific issues continue to pose risks to the timely installation of equipment and establishment of permanent station power at 72nd, 86th and 96th Street Stations.

e. New Cost and Schedule Issues

- Mitigation of delays to "critical" track construction and work within the 96th Street Station (Ancillary #2) should recover some schedule contingency.

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 establishes the Total Project Cost as \$5,574,614,000.
- The Amended FFGA defines 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 80%, 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 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 engineer has involved the usual submittal review and approval and technical assistance activities. Several significant redesign efforts were also required in response to unforeseen conditions.

While some delays in technical submittal processing have been noted, the design engineer has generally provided adequate support to the project during the construction phase in a timely fashion.

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 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 (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, systems 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, including, but not limited to Factory Acceptance Tests (FAT), Field Installation Acceptance Test (FIAT), Facilities Integrated Systems Testing (FIST), and Systems Integrated Testing (SIT).

h. Project Schedule

During the 1st Quarter 2015, 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, this remains an achievable goal; however this will require reversal of several current trends:

- Significant erosion in schedule contingency has occurred. Multiple “near-critical” schedule paths significantly, increase the risk of project-level delay.
- A general inability to complete construction work in accordance with schedule goals and milestones generally increases the risk of project-level delay.
- Schedule risks associated with station and system testing, commissioning and acceptance by NYCT have been identified; mitigation efforts started.
- 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	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 \$4,451.000M (exclusive of \$816.614M financing cost). The MTA Board has approved Local Funds totaling \$3,509.000M. Total Federal participation in the SAS Phase 1 Project is \$1,350.693M of which \$1,250.508 has been obligated. Drawdowns on 2012 obligated funds (\$186.566 M) have been restricted until NYMTA and FTA execute an amended FFGA for Phase 1 of the SAS Project (Reference Grant NY-03-0408-9). See Table 2 below for additional details.

MTA’s Estimate at Completion (EAC) and the PMOC’s analysis currently indicate the project can be built 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 IPS.



	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of March 31, 2015	
	\$ Millions	% of Total	Obligated (\$ Millions)	TBD	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost:	4,866.614	100	4,572.942		5,267.614	100	3,351.167	63.62
Financing Cost	816.614	16.78			816.614	15.50		
Total Project Cost:	4,050.000	83.22	4,572.942		4,451.00	84.50	3,351.167	63.62
Total Federal:	1,350.693	27.75	1,250.508*		1,350.693	24.60	969.258	18.40
Total FTA share:	1,300.000	96.25	1,176.615*		1,300.000	23.68	895.365	17.00
5309 New Starts share	1,300.000	100	1,176.615		1,300.000	23.68	895.365	17.00
Total FHWA share:	50.693	3.75	73.893*		50.693	0.96	73.893	1.40
CMAQ	48.233	95.15	71.433		48.233	0.88	71.433	1.35
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	.05
Total Local share:	2,699.307	55.47	3,509.000**		**3,509.000	63.92	2,381.909	45.22
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 amounts obtained from the Transportation Electronic Award Management (TEAM) system and MTACC's Grant Management Department.

** Current MTA Board approved budget is \$3,509,000,000.

j. Project Risk

Major issues that have either increased or decreased the risk of project schedule and cost increases during the 1st Quarter 2015 have been summarized as follows:

Decrease	Increase
<ul style="list-style-type: none">• Availability of NYCT personnel to support testing and commissioning currently being addressed by a risk mitigation strategy.• Selected acceleration of work in 96th Street Station, Ancillary #2 has added schedule float to a previous critical path.• Resequencing of work activities will reportedly remove track installation from the upcoming IPS Update #105.	<ul style="list-style-type: none">• Water leakage at 96th Street Station has impacted construction progress. The complete impact of this issue has not been fully realized. MTACC reports mitigation of leaks and return to work of the electrical trades.• Additional delays at 96th Street Station, not related to water leakage issues, continue to increase the risk that delays to this station construction will impact the overall project RSD.

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 December 11, 2014, the meeting scheduled for March 12, 2015 was cancelled and rescheduled for April 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 submitted its response to PMOC comments to MTACC's PMP Rev. 10.
- **Schedule Management Plan (SMP):** Based on its 4th Quarter 2014 checklists, it is MTACC's position that SAS is ELPEP compliant.
- **Cost Management Plan (CMP):** Based on its 4th Quarter 2014 checklists, it is MTACC's position that SAS is ELPEP compliant. MTACC has started revising the ESA/SAS Cost Management Plan (CMP) and that the proposed draft is nearing completion. MTACC is targeting a Q1-2015 release for review.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** Based on its 4th Quarter 2014 checklists, it is MTACC's position that SAS is ELPEP compliant.

It is the PMOC's opinion that MTACC is substantially compliant with those elements of ELPEP which materially impact the overall management of the project.

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 gives 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:

On March 26, 2015, MTACC formally responded to PMOC/FTA comments regarding MTACC's PMP Update #10.

Observation:

PMOC and FTA will review MTACC responses and advise MTACC accordingly.

PMOC review comments do not impact critical cost, schedule or quality processes and procedures for the project. At this stage of the project, MTACC is in general compliance with its PMP for SAS. Updates to the PMP primarily reflect adjustments and enhancements based on the evolving nature of the project and lessons learned to-date.

Concerns and Recommendations:

None.

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.

Concerns and Recommendations:

None

c) Grantee's Approach to Force Account Plan

Status:

As of March 31, 2015, New York City Transit (NYCT) Engineering Force account expenditures are \$47,297,782 of the \$95,400,000 budget. NYCT labor expenditures are \$10,781,989 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:

Each construction contractor continued implementation of its Safety, Security and Health Programs during the 1st Quarter 2015.

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 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 have developed a database which captures the identification, configuration, and installed location of the equipment. Update of the database is ongoing as equipment is being installed in the various stations.

Observation:

Identification and control of project assets is being coordinated among the Track, Power, 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:

The Community Outreach team kicked off 2015 with a round of Construction Coordination meetings with area buildings directly impacted by entrance and ancillary structures located adjacent to these buildings. The Outreach team, Construction Management Team, and Contractor representative meet with the Boards of impacted buildings to provide a construction update and three-month look-ahead. The Community Outreach team also coordinated and staffed community tours of the underground work area, and conducted a Quarterly Public Workshop to provide project update and to address concerns.

Observation:

The MTACC's approach to community relations is set forth in detail in Section 12 of its Project Management Plan for SAS Phase 1. This plan is focused on the pre-construction activities generally involving dissemination of project-related information to the affected community and public hearings to support the NEPA process. Construction phase activities are described in Section 12.3.3 of the PMP as "appropriate outreach activities."

Conclusions and Recommendations:

MTACC's approach to Community Relations has been successful in addressing and mitigating the adverse impacts of the construction process on the adjacent community. The PMOC notes that the overall goals and approach involved in this effort have not been formally documented. The PMOC has recommended MTACC update its Project Management Plan with a more comprehensive plan for construction phase community relations. MTACC has not acted on this recommendation.

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

a) Federal Requirements

During the 1st 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

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.

1.2 Project Controls

1.2.1 Scope Definition and Control

Status:

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). During the 1st Quarter 2015, there has been no material change in the scope of the SAS Project.

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 March 2015, the Second Avenue Subway Quality Management team continued holding Quality Meetings and Quarterly Quality Oversight of the Contractor with CCM, MTACC, and PMOC participation. They 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 Sessions 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 QOO 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 was sent to the PMOC in March 2015 for review.

Inspection Daily Reports: At the end of March 2015, the C5C contractor was 3 weeks behind entering their Daily Inspection Reports into the Contractor Management System (CMS).

Nonconformance Reports (NCRs): The C2B and C5C contractors are not following their approved nonconformance reporting systems. Details are provided in the table below.

C4C Contractor: The C4C contractor hired a new Quality Manager in November 2014. C4C Contractor Management stated that entry of Daily Inspection Reports and generation of NCRs in the required time frame would improve. Entry of Daily Inspection Reports and generation of NCRs have been current for the past three months.

Contract Package C2B	
Status:	Through March 31, 2015, a total of 92 NCRs have been issued. 35 have been closed and 57 NCRs are still open. In March 2015, 10 new NCRs were written and none were closed.
Observation:	Of the 57 open NCRs, 39 are for concrete that was out of specification. A concrete analysis is expected to be prepared by the end of April 2015. Entry of Inspection Daily Reports into CMS is current.
Concerns and Recommendations:	<p>The PMOC is concerned that in the area of nonconformance reporting and in process inspection, the C2B Quality Manager is not following the approved Contractor's Quality Plan. The contractor's Quality Manager does not have enough help or is unable to do the required job. Based on significant issues identified at the February 11, 2015 Monthly Quality Management Meeting, the PMOC recommended that a special meeting be held on February 25, 2015 and that the C2B contractor's Project Manager attend. At the February 25th meeting, the C2B contractor's Project Manager agreed that NCRs had to be documented in a timely manner and that Inspection daily Reports had to be entered into CMS promptly. He committed to provide their Quality Manager with additional help. The PMOC recommended that meetings to assess progress on closing action items be held every two weeks rather than monthly and this is now occurring. Everyone agreed.</p> <p>Nonconformance Reports (NCRs) are not being generated in a timely manner. Many of the ones that are generated are being identified by the SAS C2B inspector. They should be identified by the contractor or one</p>

	of their subcontractors. The contractor has some issues that require a nonconformance report yet they have not been written even though the SAS C2B Manager has been requesting them. Many NCRs that have been written have been open for many months.
Contract Package C3	
Status:	Through March 31, 2015, a total of 101 NCRs have been issued. 89 have been closed and 12 NCRs are still open. In March 2015, four new NCRs were written and 2 were closed.
Observation:	At the end of March 2015, there were three open NCRs that were written by the contractor on one of their subcontractors. All of these NCRs were open 5 to 14 months. Entry of Inspection Daily Reports into CMS is current.
Concerns and Recommendations:	Although two other NCRs written against the above mentioned subcontractor were closed in March 2015, the PMOC is concerned that there are still three NCRs that have been open for many months. The PMOC recommends that effort be expended in closing these three NCRs as soon as possible.
Contract Package C4C	
Status:	Through March 31, 2015, a total of 106 NCRs have been issued. Nineteen have been closed and 87 NCRs are still open. In March 2015, three NCRs were written and three were closed.
Observation:	81 of the 87 open NCRs are for concrete that was out of specification. Two of the three NCRs generated in March were for concrete that failed. The contractor has performed two concrete analyses, one for each of its suppliers. The concrete analyses are awaiting approval from the Designer of Record and the next concrete analysis is expected to be submitted by May 1, 2015. Submittal of Inspection Daily Reports is current.
Concerns and Recommendations:	The contractor's new Quality Manager has made a concerted effort to generate NCR's as the nonconformance occurs and to submit Inspection Daily Reports on time.
Contract Package C5B	
Status:	Through March 31, 2015, a total of 93 NCRs have been issued. Of the 93 that have been issued, 92 have been closed and 1 NCRs is still open. In March 2015, no new NCRs were written and four were closed.
Observation:	Entry of Inspection Daily Reports into CMS is current. Only punch list work is now being done.
Concerns and Recommendations:	This contract has reached substantial completion. Only one NCR remains open and this is the last month that the C5B contract will be included in this report.

Contract Package C5C	
Status:	Through March 31, 2015, 55 NCRs have been written. Five of these have not been issued pending the signature of the contractor's Project Manager. There are another 13 NCRs that have been assigned a number but in the NCR Log is the phrase "not identified". Of the 50 that have been issued, 10 have been closed and 40 NCRs are still open. In March 2015, no new NCRs were written and none were closed.
Observation:	Submittal of Inspection Daily is 3 weeks behind, an improvement from last month when they were 6 weeks behind. Only one NCR has been issued since mid-December 2014.
Concerns and Recommendations:	Last month, the PMOC recommended that all NCRs be issued and entered into CMS immediately and that the contractor establish a schedule to close the other 16 non-concrete NCRs. This has not occurred. The contractor's Quality Manager has stated that he cannot keep up with the workload. The PMOC recommended that MTACC Quality Management try to resolve this issue. A meeting with the CM's Office and the contractor's Management is scheduled for April 13, 2015.
Contract Package C6	
Status:	Through March 31, 2015, a total of 31 NCRs have been issued. Sixteen have been closed and 15 NCRs are still open. In March 2015, three new NCRs were written and one was closed. Entry of Inspection Daily Reports into CMS is current.
Observation:	Eleven of the open NCRs are for concrete placement that is out of specification. The contractor submitted Waiver #23 to extend the time of concrete placement from 90 minutes to 120 minutes. The Designer of Record will not approve this waiver. The contractor is preparing an analysis of concrete strength and has indicated that these NCRs are closed.
Concerns and Recommendations:	The PMOC has no concerns.

Concerns and Recommendations:

Refer to previous section.

1.2.3 Project Schedule

Status:

A summary of project schedule information is as follows:

	FFGA	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 FFGA (\$4,866,614,000) 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	MTA's Current Working Budget (Dec. 31,, 2014)
10	Guideway & Track Elements	\$612,404,000	\$622,478,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,277,642,000
30	Support Facilities	0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$524,561,000
50	Systems	\$322,707,000	\$250,134,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$281,500,000
70	Vehicles	\$152,999,000	0
80	Professional Services	\$796,311,000	\$1,185,742,929

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (Dec. 31,, 2014)
90	Unallocated Contingency	\$555,554,000	\$308,942,010
Subtotal		\$4,050,000,000	\$4,451,000,000
Financing Cost		\$816,614,000	\$816,614,000
Total Project		\$4,866,614,000	\$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, 2014. During the 1st Quarter 2015, grant amendment NY-03-0408-09 in the amount of \$186,566,000 was awarded by the FTA and executed by the MTA. Total Federal Funds obligated as of March 31, 2015 is \$1,250,508,200.

Table 1-2: Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru March 31, 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	\$102,497,334
NY-03-0408-09***	\$186,566,000	\$186,566,000	0
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	\$969,257,534



* Denotes American Recovery and Reinvestment Act (ARRA) funds. **Appropriated. ***Disbursement from this grant is restricted until NYMTA and FTA issue an amendment to the FFGA for Phase 1 of the SAS Project.

A total of \$3,351,167,207 has been expended on the project through March 31, 2015, of which \$487,962,968 has been spent on design and \$2,116,696,648 on construction (MTACC's March 2015 Cost and Schedule Summary Input).

Observation:

Local funds totaling \$2,381,909,673 have been spent as of March 31, 2015.

Concerns and Recommendations:

None

1.2.5 Project Risk Monitoring and Mitigation

Status:

The SAS Project Team employs a variety of risk management techniques to identify, quantify and manage risks that may impact the project cost or schedule. A full-time Risk Manager supervises implementation of specific risk monitoring and mitigation techniques as prescribed by Section 6.0 of the PMP and the SAS Risk Management Plan. Monthly reports documenting project risk management activities are published.

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, among others.

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 OSHA Lost Time Injury Rate and Recordable Injury Rate from the start of construction until February 28, 2015 are 1.75 and 4.99, respectively. Both rates are above the Bureau of Labor Statistics (BLS) national Lost Time Injury Rate of 1.7 and the Recordable Injury Rate of 3.2. The cumulative construction time worked since the project inception is 10,260,766 hours. Total lost time injuries since project inception is 90 and other recordable injuries are 166. The total number of recordable injuries is 256 (sum of the lost time injuries and the other recordable injuries).

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

Observation:

Contractors are being proactive in addressing incidents. Tool box meetings, increased training and increased 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:

On March 26, 2015, MTACC formally responded to PMOC/FTA comments regarding MTACC's PMP Update #10.

Based on its internal compliance reviews, MTACC has generally complied with ELPEP and its associated sub-plans throughout the 1st Quarter 2015. Any PMOC issues are specifically discussed in Section 4.4 (Compliance With Schedule Management Plan), Section 5.4 (Project Cost and Contingency) and Section 6.3 (Risk Management Status) of this report.

Observation:

MTACC has previously discussed updating major sub-plans to the PMP, specifically the Schedule Management Plan, Project Cost and Contingency Management Plan and Risk Management Plan, based upon the results of its internal audit. MTACC plans to release the draft of its updated Cost and Contingency Management Plan in April 2015.

Concerns and Recommendations:

The PMOC recommends that MTACC develop a schedule for updating the remaining sub-plans.

1.3.1 FTA Milestones Achieved

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

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

The next ELPEP Hold Point "100% Project Bid/85% Construction Complete" is currently forecast for the 2nd Quarter 2015.

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, responding to RFIs, providing design clarifications where needed and technical support during construction package bidding.
- Detailing and documentation of design changes as may be required.
- 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.
- Closeout of the contract is pending resolution of water leaks, closure of 3 punchlist items and completion of the “As Built” document set of drawings.

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

- Station Area
 - Contractor completed installation of HVAC ducts, plumbing, acoustical ceiling, floor topping, and paint in 14 rooms for Milestones 6, 7, and 8.
- Entrance #1
 - Roof slab installed with concrete curing on going. Near term activity includes removal of the forms and temporary bracing and completion of the waterproofing.
- Entrance #2
 - The Contractor installed rebar for the one sided walls. Contractor began installing electrical conduit at the mezzanine level.
- Ancillary #1
 - To date, the Contractor poured all concrete up to the third floor slab. Contractor began installing formwork for the third floor walls. Stairs from the platform to the street levels were poured.
- Ancillary #2
 - Concrete placement has progress to the third floor slip. Removal of the shoring the third floor is in progress to be followed by forming and rebar installation for the lower roof walls.
- Street Level
 - Installation of the new trunk water and gas mains are nearing completion.
 - Deck beam removal has been completed on the east side of 2nd Avenue with the exception of the beams at the intersections with the cross streets between 92nd and 99th Streets.
 - Installation of Con Ed conduit is ongoing.
 - Backing filling and placement of temporary asphalt completed from 97th to 95th Street on 2nd Avenue.

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

- Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
- Area 5
 - Continued setting traction elevator equipment in the Elevator Machine Rooms and the Elevator Shafts. Inspection of the rails in the 4-Bay Elevator Shaft was completed.
 - Continued running power connections to the elevators.

- Continued installation of power & communication conduits throughout.
- Continued erecting CMU walls on the 6th Mezzanine.
- NYCT inspections of Mezzanines #1 -#5 are ongoing.
- Entrances (#1, #2, #3 & #4)
 - Continued placing rebar mats at the Lower Mezzanine in Entrance #1. Work was stopped for 1 week due to a March 31, 2015 work related fire that damaged upper residences.
 - Rehabilitation work continues at existing Entrance #3.
 - Completed below and above grade support walls for new street Entrance #4. Continued placement of new stairs
- Platforms
 - Began installation of trackwall tiles on the active track side under a GO.
 - Continued installation of porcelain platform wall tiles on the inactive side of the G3 & G4 platform and continued installation of trackwall tiles stainless steel upper band on the inactive G3 & G4 platform levels.
 - Continued installation of ceiling panels and column cladding at the G3 & G4 platforms.
- Contract C6 Coordination
 - The C6 contractor continues will rail installation at the G3 (Upper) & G4 (Lower) inactive platforms side.
 - C6 continues to work in the Signal and communication rooms.
 - C6 workers continue to comprise approximately 30% of the site workforce.

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
 - Continued with construction of first floor walls and columns at Ancillary #2. Permanent concrete stair construction was completed from the mezzanine to first floor.
 - Substations and Transformers were delivered and set in place in Ancillary #2.
 - Completing waterproofing, rebar and formwork along incline walls and arch at Entrance #2. Completing framing for the porcelain tile walls in the mezzanine cavern accessway.
- Ancillary #1
 - Completed placing concrete walls and slabs up to basement level.

- Began ConEd inspection of the grounding grid for the basement slab.
- Mezzanine
 - At the North & South Mezzanines continuing MEP installation in Fan/Chiller rooms.
 - Continuing installation of electric equipment & conduit in the North & South EDR rooms.
 - Completing CMU & MEP the south upper mezzanine rooms.
 - Continued painting block walls, conduit & wiring and installing light fixtures in the South Mezzanine.
- Entrance #3
 - Continued placement of walls to the upper street level.
- Entrance #1
 - Excavation in the Entrance #1 garage has reached the final grade elevation.
 - Continued placing Support of Excavation (SOE) walls. Continuing with placing rebar mats for the invert slab on the Cavern incline and accessway side
- Platform Level
 - Completing platform concrete topping.
 - The last to the 3 escalators from platform to mezzanine is being set in place.
 - Continuing installation of framing for the trackwall tiles.

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

- Substantial Completion on was achieved on December 16, 2014. Contract closeout is ongoing.

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

- Tunnels (east & west)
 - Punchlist work is ongoing in the East & West Tunnels. The contractor was advised that the leaks in the tunnel(s) must be fixed and the tunnels must be dry for turnover.
- Ancillary #1
 - Continuing with the erection of walls and slabs. Work to the first floor slab is scheduled to be completed May 15, 2015.
- Ancillary #2
 - Continued with waterproofing walls to street level. Continued with floor slabs and walls erection.
- Mezzanine
 - Erection of Upper South Mezzanine CMU walls is complete and the North Mezzanine CMU walls are nearing completion.

- Continued with mechanical work in the Public Cavern.
- Delivery of the framing for Elevator #1 (Mezzanine to Platform) will be mid-April 2015.
- HVAC equipment deliveries have begun.
- Entrance #1
 - Continuing with conduit throughout.
- Entrance #2
 - Kone has mobilized for installation of the “short run” escalators.
- Platform Level
 - CMU wall erection is approximately 75% complete
 - The architectural precast panel installation at the Platform Level is substantially complete.
 - Continued forming and placing low support walls and the platform deck.
 - The 87th S. Shaft will remain open until the end of July 2015 to allow for continued deliveries by the C6 contractor

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

Coordination:

- Coordination
 - Review of Station contractors’ shop drawings for work coordination and to avoid conflicts during field installation is ongoing
- Track
 - Seven thousand one hundred (7,100) linear feet of LVT track installed to date. Three thousand four-hundred feet of aluminum rail installed to date.
- Communications:
 - Copper and fiber optic cable testing and certification are ongoing.
 - Copper and CAT6 cables installation at 63rd Street Station is 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 were delivered to the 72nd Street Station.
 - 86th Street Station Public Address/Customer Information Sign (PA/CIS) cabinets are ready for Factory Acceptance Testing (FAT).
 - Installation of Network and Public Address/Customer Information Sign (CIS) Cabinets at 96th Street Station is ongoing.
 - All fiber communication power and signal cables have been pulled in the tunnels north of 96th Street station and south of 72nd Street.

- Traction Power:
 - Rectifiers, transformers and power equipment for 72nd St., 86th St., and 96th St., stations were built, 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.
 - Continued installation of third rail and protection board in the tunnels north of 96th Street Station.
 - Started installation of the epoxy floor at 72nd St. CBH Room.
 - Negative cable installation is ongoing in the tunnels south of 96th St. in the low bench.
 - Continued installation of 2000 Kcmil traction power cable from the 96th Street Traction Power Substation Room to the platform level.
- Signal Work
 - Surveyed locations for 8 repeater signals.
 - Continued installation of wayside signal conduits and equipment.
 - Rack to rack wiring and meggering of plug couplers are ongoing in Signal Room 147 CIR at 63rd St. Station.
 - Relay racks, signals and junction boxes were delivered for 72nd and 96th Streets.
 - Started signal cable pull for 72nd St. tunnel to Cable Termination Room.

Concerns and Recommendations:

The focus of station construction work is primarily within the ancillary areas and vertical transportation. Railroad systems installation is ongoing at multiple locations throughout the site.

2.1.4 Force Account (FA) Contracts

Status:

As of March 31, 2015, New York City Transit (NYCT) Engineering Force account expenditures are \$47,297,782 of the \$95,400,000 budget. NYCT labor expenditures are \$10,781,989 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. In order to support the SAS project as it transition into the testing and commissioning phase additional NYCT force account personnel will be required.

Observations:

The SAS Project Team recognizes that testing and commissioning resource requirements, if not properly planned for, represents a major risk to the schedule. As a result, the Team has focused over the last several months in developing and implementing a risk mitigation strategy to reduce the level of this risk. The following mitigation strategy is being implemented:

- An experienced Testing and Commissioning Manager and assistants have been added to the SAS Project Team.
- Verification that the contractor's testing and commissioning plans and procedures are written and subsequently approved by NYCT.
- Resource requirements to support the testing and commissioning schedule has been developed and submitted to NYCT for concurrence. Verification of the requirements is ongoing as equipment Factory Acceptance Testing changes (discipline and number of persons required for each equipment item to be tested).
- NYCT resources required to perform testing activities for a rolling six month period has been established and is currently being updated bi-weekly.

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. The PMOC recommends implementation of the mitigation strategy as discussed above. PMOC monitoring will be ongoing.

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. Technical Work Group is effectively working with the station contractors to capture the body of evidence need for the certifiable items for each element.

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 Agreement

Status:

During the 1st Quarter 2015, the SAS Project Team continued its Interagency Coordination as defined in Section 12 of the SAS PMP.

Through March 31, 2015, \$53,925,029 of the \$91,586,000 Third-Party reimbursement budget (Rev. 10 Current Working Budget) has been spent.

Observation:

MTACC/NYCT has entered into cooperative and 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 1st Quarter of 2015.

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 significant amount of effort in maintaining effective communication and good relations with the residential and business community affected by the Second Avenue Subway construction effort. 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 1st Quarter 2015, Community Outreach activities included the following:

- Production of a monthly newsletter providing updates on construction progress, major milestones achieved and a schedule of upcoming events. These newsletters are available in electronic and hard copy formats.

- Coordinated the underground work area tour of the 86th Street Station area on Saturday, January 31st which was attended by over 50 residents.
- The quarterly Construction Advisory Committee (CAC) meeting was held in January 2015 where station area issues and project wide updates are discussed. Follow up reports are provided for stakeholders to share with their constituents.
- In January 2015, the Community Outreach team, Construction Management Team, and Contractor representatives met with the Boards of area buildings directly impacted by entrance and ancillary structures located adjacent to these buildings.
- On January 22, 2015, the MTACC Executive Team and Community Outreach members delivered a construction progress update and three month look ahead to the Community Board 8 Second Avenue Subway Task Force.
- In February, the quarterly Interagency Taskforce meeting was held. Attendees included representatives from NYPD, FDNY, DSNY, DOT, BIC, and DOH, the Construction Management and Contractor teams. Topics included upcoming work changes and how to best anticipate any coordination issues between agencies.
- As part of Engineers Week February 22-28, MTACC executives delivered presentations centered on the engineering field and the roles that engineers play in the SAS project. Over 60 students from various schools around New York City participated.
- Coordinated the underground work area tour of the 86th Street Station area on Saturday, February 21st which was attended by over 50 residents.
- On February 25th, a Quarterly Public Workshop was attended by over 70 members of the community. Construction updates were provided; questions and concerns were addressed.
- MTACC continues to meet with local elected officials to discuss constituent issues and have an open dialogue with Congresswoman Carolyn Malone's office, Council Member Ben Kallos office, Councilmember Daniel R. Garodnick's office, and Assemblymen Dan Quart's office. A meeting was held with newly elected Assemblywoman Rebecca Seawright to brief her on the project.

Conclusions and Recommendations:

None

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

On March 26, 2015, MTACC formally responded to PMOC/FTA comments regarding MTACC's PMP Update #10.

Observation:

PMOC and FTA will review MTACC responses and advise MTACC accordingly.

Concerns and Recommendations:

None.

3.2 PMP Sub Plans

Status:

FTA internal audits may result in revisions to PMP sub-plans.

Observations:

SAS Sub-Plan documents consist of: Project Quality Manual, Risk Management Plan, Design Criteria Manual, Cost Management Plan, Schedule Management Plan, Project Design Quality Manual, Real Estate Acquisition Plan, Real Estate Acquisition Management Plan, Contingency Management Plan, Safety and Security Management Plan and Quality Implementation Procedures.

Concerns and Recommendations:

Any non-compliance issues identified by the PMOC are specifically discussed in Section 4.4 (Schedule), Section 5.4 (Cost Contingency) and Section 6.3 (Risk Management Status) of this report.

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 #104 was received on March 31, 2015 and is based on a Data Date of March 1, 2015. A narrative report and the “.XER” schedule file for construction schedules were received shortly thereafter. The IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities by November 23, 2016. The available schedule contingency of 27 calendar days (CD) or 38 work days (WD) 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 #104.

Table 4-1: Summary of Schedule Dates

	FFGA	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

Table 4-2 provides a tabulation of schedule performance and current completion status for each construction contract.

Table 4-2: Summary Schedule Performance by Construction Package

Pkg.	Award Date	Contract S/C	% Complete			Ud. #101 Forecast S/C	Ud. #104 Forecast S/C	Schedule Duration	Quarterly Change	
			Time %	Payment %	Δ Time v. Money					
C1	3/20/07	3/20/12	100%	100.0%	0.0%	3/20/12A	3/20/2012	1827 CD	0	CD
C2A	5/28/09	11/5/13	100%	99.8%	0.2%	11/5/13A	11/5/2013	1622 CD	0	CD
C2B	6/22/12	12/22/15	79%	64.3%	14.9%	10/4/16	10/11/2016	1572 CD	7	CD
C3	1/13/11	5/13/14	126%	87.8%	38.7%	12/21/15	3/24/2016	1897 CD	94	CD
C4B	10/1/10	1/14/14	100%	99.9%	0.1%	1/14/14A	1/14/2014	1201 CD	0	CD
C4C	2/14/13	9/16/16	59%	46.8%	12.4%	9/16/16	9/17/2016	1311 CD	1	CD
C5A	7/9/09	11/16/11	100%	100.0%	0.0%	11/16/11A	11/16/2011	860 CD	0	CD
C5B	8/4/11	9/4/14	109%	99.2%	10.0%	12/16/14A	12/16/2014	1230 CD	0	CD
C5C	6/12/13	5/31/16	61%	32.0%	28.7%	7/27/16	8/24/2016	1169 CD	28	CD
C6	1/18/12	8/18/16	70%	51.3%	18.5%	8/22/16	10/19/2016	1736 CD	58	CD
1. Quarterly Change reflects schedule gain/loss over most recent calendar quarter. Negative sign denotes time gain and positive sign denotes time loss.										

Observations and Analysis:

Table 4-2 compares the percentage of contract time expended versus the percent complete based upon progress payments. It also calculates the quarterly change in forecast substantial completion date. These metrics result in the following observations:

- Contracts C1, C2A, C4B, C5A and C5B have all achieved Substantial Completion. Schedule dates and variances indicated for these contracts are “final”.
- The “Time v. Money” variance for the C3 Contract is reflective of the forecast 691 CD delay in Substantial Completion. Based on current activity, this S/C forecast may be pessimistic. C3 forecast delay does not appear to impact the SAS RSD.
- The “Time v. Money” variance for C5C is a concern. Rate of progress achieved to date suggests this contract may impact SAS RSD.
- The forecast Substantial Completion date for Contract C4C includes all work at Entrance #1 and includes the implementation of the schedule acceleration initiative for work in that area.

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

Table 4-3: Schedule Milestone Performance

Pkg	MS	Description	Variance				Sch. Float 104
			UD #103	UD #104	Contract	Month	
C2B	2	Shared site access @ 93rd Street shaft	02/01/15	6/12/2014A	-82	-234	
C2B	4	Shared access in East & West track-ways thru Sta (1238+50 ->1225+25); 97th - > 99th St Tunnel in 99th to 105th St Tunnels	02/02/15	03/02/15	-162	28	313
C2B	6A	Full access to Comms Rooms & Closets	02/24/15	03/09/15	-200	13	30
C2B	6B	Full access to Comms Rooms & Closets	06/11/15	06/24/15	-307	13	154
C2B	6C	Full access to Comms Rooms & Closets	06/11/15	06/24/15	-307	13	154
C2B	7A	Full access to Signals Rooms	02/24/15	04/03/15	-225	38	12
C2B	7B	Full access to Signals Rooms	06/11/15	07/20/15	-333	39	28
C2B	7C	Full access to Signals Rooms	06/11/15	07/20/15	-333	39	28
C2B	8A	Full access to Traction Power Rooms:	02/24/15	03/09/15	-200	13	30
C2B	8B	Full access to Traction Power Rooms:	06/11/15	06/24/15	-307	13	219
C2B	8C	Full access to Traction Power Rooms:	06/11/15	06/24/15	-307	13	219
C2B	9	Full access to Station Service Centers	09/08/15	09/11/15	-294	3	173
C2B	10	Complete all remaining Comms, Signal , & Traction Power work	04/21/15	05/04/15	-225	13	213
C2B	SS	Substantial Completion	10/04/16	10/11/16	-295	7	31
C3	3d	Mezz 6 & Platform Level Conduit & Station Fare Array	02/20/15	2/6/2015A	-662	-14	
C3	4c	Compl Lwr/Uppr Platforms & Signal Rms	04/20/15	04/23/15	-556	3	297
C3	SS	Substantial Completion	02/04/16	03/24/16	-681	49	174
C4C	7A	Complete Work in all Comm Rooms	03/30/16	03/17/16	-42446	-13	174
C4C	7B	Complete Work Ancillary #1	02/02/15	03/02/15	-42065	28	32

Pkg	MS	Description	Variance				Sch. Float 104
			UD #103	UD #104	Contract	Month	
C4C	10	Complete north power rooms	03/10/15	04/23/15	-57	44	51
C4C	12	Full access @ Station Service Center(s)	03/26/15	03/31/15	-215	5	68
C4C	SS	<i>Substantial Completion w/o Ent. #1</i>	09/16/16	09/17/16	-309	1	68
C4C	SS	<i>Substantial Completion - Ent. #1</i>	09/16/16	09/15/16	22	-1	49
C5C	2	Limited Access; Sta. 1209+00->1198+00	03/12/15	04/07/15	-75	26	122
C5C	3	Shared Access; Sta. 1209+00->1198+00	05/18/15	04/28/15	24	-20	108
C5C	4	Shared Access; Sta. 1198+00->1172+00	03/13/15	2/27/2015A	-127	-14	
C5C	5	Turnover of Comm. Rooms	02/25/15	03/18/15	-176	21	57
C5C	6	Turnover of Comm. Rooms	07/09/15	07/20/15	-118	11	51
C5C	6A	Room-to-Room Conduit Ready	07/09/15	07/20/15	-118	11	79
C5C	7	Turnover of Signal Rooms	03/31/15	04/09/15	-43	9	37
C5C	7A	Room-to-Room Conduit Ready	03/31/15	04/09/15	-42103	9	38
C5C	8	Turnover of Signal Rooms	03/31/15	04/09/15	-43	9	37
C5C	8A	Room-to-Room Conduit Ready	03/31/15	04/09/15	-43	9	38
C5C	9	Turnover Traction Power Rooms	05/26/15	05/06/15	-69	-20	25
C5C	9A	Room-to-Room Conduit Ready	05/26/15	05/06/15	-69	-20	105
C5C	10	Turnover Traction Power Rooms	06/17/15	05/15/15	-79	-33	95
C5C	10A	Room-to-Room Conduit Ready	06/17/15	05/15/15	-79	-33	98
C5C	11	Full access @ Station Service Center(s)	04/27/15	04/30/15	-37	3	337
C5C	14b	Limited Access all locations	06/04/15	04/24/15	-213	-41	404
C5C	15	Comp. Permanent Power	12/24/15	12/24/15	-42362	0	120
C5C	SS	Substantial Completion	10/18/16	08/24/16	-85	-55	64
C6	2A	Complete LAN - 96th St. Station	01/08/16	01/22/16	-249	14	130
C6	2B	Complete WAN - 96th St. Station	01/08/16	01/22/16	-249	14	130
C6	3A	Complete LAN - 86th St. Station	02/26/16	02/26/16	-223	0	114

Pkg	MS	Description	Variance				Sch. Float 104
			UD #103	UD #104	Contract	Month	
C6	3B	Complete WAN - 86th St. Station	02/26/16	02/26/16	-223	0	114
C6	4A	Complete LAN - 72nd St. Station	02/12/16	02/05/16	-352	-7	116
C6	4B	Complete WAN - 72nd St. Station	02/12/16	02/05/16	-352	-7	116
C6	5A	Complete LAN - 63rd St. Station	04/21/15	04/24/15	-371	3	240
C6	5B	Complete WAN - 63rd St. Station	04/21/15	04/24/15	-371	3	240
C6	5C	Complete all 63rd St. Station work	12/04/15	01/21/16	-643	48	219
C6	SS	Substantial Completion	10/19/16	10/19/16	-62	0	25

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 forecast to complete this update period (01/31/15 to 02/28/15):

Pkg.	MS	Description	UD #103 Forecast	Status	UD #104 Forecast
C2B	MS #2	Shared site access @ 93rd Street shaft	02/01/15	Complete	
C2B	MS #6A	Full access to Comms Rooms & Closets	02/24/15	Incomplete	3/9/15
C2B	MS #7A	Full access to Signals Rooms	02/24/15	Incomplete	4/3/15
C2B	MS #8A	Full access to Traction Power Rooms	02/25/15	Incomplete	3/9/15
C3	MS #3D	Mezz 6 & Platform Level Conduit & Station Fare Array	02/20/15	Complete	
C5C	MS #5	Turnover of Comm. Rooms	02/25/15	Incomplete	3/18/15
C4C	MS #7B	Complete Work Ancillary #1 (New MS)	02/02/15	Incomplete	3/2/15

2. Milestones forecast to complete during previous update period (12/31/14 to 1/31/15)

Pkg.	MS	Description	UD #103 Forecast	Status	UD #104 Forecast
C2B	MS #6A	Full access to Comms Rooms &	02/24/15	Incomplete	3/9/15

		Closets			
C2B	MS #6B	Full access to Comms Rooms & Closets	06/11/15	Incomplete	6/24/15
C2B	MS #6C	Full access to Comms Rooms & Closets	06/11/15	Incomplete	6/24/15
C5C	MS #5	Turnover of Comm. Rooms	03/31/15	Incomplete	3/18/15
C4C	MS #10	Complete north power rooms	03/10/15	Incomplete	4/23/15

3. Milestones scheduled for completion during the next update period (03/01/15 to 03/31/15).

Pkg.	MS	Description	UD #104 Forecast	Float
C2B	4	Shared access in East & West track-ways thru Sta (1238+50 - >1225+25); 97th -> 99th St Tunnel in 99th to 105th St Tunnels	03/02/15	313
C4C	7B	Complete Work Ancillary #1	03/02/15	32
C2B	6A	Full access to Comms Rooms & Closets	03/09/15	30
C2B	8A	Full access to Traction Power Rooms:	03/09/15	30
C5C	5	Turnover of Comm. Rooms	03/18/15	57
C4C	12	Full access @ Station Service Center(s)	03/31/15	68

4. Milestones with unusual schedule 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 #103	UD #104	Variance
C3	SS	Substantial Completion	02/04/16	03/24/16	49
C6	5C	Complete all 63rd St. Station work	12/04/15	01/21/16	48
C4C	10	Complete north power rooms	03/10/15	04/23/15	44
C2B	7B	Full access to Signals Rooms	06/11/15	07/20/15	39

Pkg	MS	Description	UD #103	UD #104	Variance
C2B	7C	Full access to Signals Rooms	06/11/15	07/20/15	39
C2B	7A	Full access to Signals Rooms	02/24/15	04/03/15	38
C2B	4	Shared access in East & West track-ways thru Sta (1238+50 - >1225+25); 97th -> 99th St Tunnel in 99th to 105th St Tunnels	02/02/15	03/02/15	28
C4C	7B	Complete Work Ancillary #1	02/04/16	03/24/16	28
C5C	10	Turnover Traction Power Rooms	06/17/15	05/15/15	-33
C5C	10A	Room-to-Room Conduit Ready	06/17/15	05/15/15	-33
C5C	14b	Limited Access all locations	06/04/15	04/24/15	-41
C5C	SS	Substantial Completion	10/18/16	08/24/16	-55

5. 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 #103	UD #104	Variance
C5C	6A	Room-to-Room Conduit Ready	07/09/15	07/20/15	56
C2B	6B	Full access to Comms Rooms & Closets	06/11/15	06/24/15	44
C2B	6C	Full access to Comms Rooms & Closets	06/11/15	06/24/15	44
C5C	SS	Substantial Completion	10/18/16	08/24/16	38
C5C	14b	Limited Access all locations	06/04/15	04/24/15	29
C5C	6	Turnover of Comm. Rooms	07/09/15	07/20/15	28
C2B	7B	Full access to Signals Rooms	06/11/15	07/20/15	-27
C2B	7C	Full access to Signals Rooms	06/11/15	07/20/15	-27
C6	5A	Complete LAN - 63rd St. Station	04/21/15	04/24/15	-31
C6	5B	Complete WAN - 63rd St. Station	04/21/15	04/24/15	-31

Pkg	MS	Description	UD #103	UD #104	Variance
C4C	10	Complete north power rooms	03/10/15	04/23/15	-32
C6	5C	Complete all 63rd St. Station work	12/04/15	01/21/16	-34
C3	SS	Substantial Completion	02/04/16	03/24/16	-35
C5C	11	Full access @ Station Service Center(s)	04/27/15	04/30/15	-38
C5C	3	Shared Access; Sta. 1209+00->1198+00	05/18/15	04/28/15	-47

6. Milestones with excessive float values are listed in the following table.

			UD# 104	
Pkg	MS	Description	Date	Float
C5C	14b	Limited Access all locations	04/24/15	404
C5C	11	Full access @ Station Service Center(s)	04/30/15	337
C2B	4	Shared access in East & West track-ways thru Sta (1238+50 ->1225+25); 97th -> 99th St Tunnel in 99th to 105th St Tunnels	03/02/15	313
C3	4c	Compl Lwr/Uppr Platforms & Signal Rms	04/23/15	297
C6	5A	Complete LAN - 63rd St. Station	04/24/15	240
C6	5B	Complete WAN - 63rd St. Station	04/24/15	240
C2B	8B	Full access to Traction Power Rooms:	06/24/15	219
C2B	8C	Full access to Traction Power Rooms:	06/24/15	219
C6	5C	Complete all 63rd St. Station work	01/21/16	219
C2B	10	Complete all remaining Comms, Signal , & Traction Power work	05/04/15	213
Example: Based on this information, C2B, MS#8B & 8C can be achieved as late as 4/25/16 (219 WD later than the currently scheduled date of 06/24/15).				

Observations and Analysis:

- Two of seven milestones forecast for completion during this update period were actually achieved.
- Of the five milestones not completed, but forecast to complete during the previous update period (12/31/14 to 01/31/15), none were completed this period.

- Six additional milestones are forecast for completion during the upcoming reporting period ((03/01/15 to 03/31/15).
- The number of milestones with excessive schedule and float variances has decreased from previous reports, as has the magnitude of these variances. This suggests fewer “downstream” changes to the schedule and improved consistency in schedule reporting.
- Ten milestones remain which appear to have excessive float values. Several of these milestones appear to be logically connected directly to SAS Substantial Completion or directly related activities. This logic suggests these milestones do no influence or control the start or completion of any other SAS work tasks. The PMOC questions this logic.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#104 (DD=03/01/15), major activities that can be anticipated to either start or complete over the upcoming 90 days include the following:

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

Activity ID	Start	Finish
C2B – 96th Street Station Concrete, Finishes & Utilities		
Perform Factory Acceptance Test (FAT) Escalator (E06)-Entrance 1		4/14/15
Install Wet Pipe Sprinkler at Platform - Station Area S2 (93-95 St)		05/06/15
Install Water Treatment System in South Chiller Room SA-2		06/04/15
Perform Factory Acceptance Testing (FAT) on Axial Fans-Ancillary 2		06/01/15
C3 – 63rd Street Station Rehab		
Conduct System Readiness/Pre-start-up/Startup Test for Cooling Towers CT1-W and CT2-W		04/09/15
Startup for Supply Fans SF 1E & 2E		06/29/15
Install Elevator 5 (Street Level) at Entrance 2	05/04/15	
Conduct Final Inspection of Sprinkler System		06/02/15
C4C—72nd Street Station Finishes		
Anc. #1 Basement FPR 7011 - Install Equipment LV Swgr/Xfners/Elect Equip		06/09/15
Station Elevator - ELEV #1 - Set frame - wire & Terminate		05/12/15
Anc. #1 Street Level WP, Rebar, Slab & Walls		05/12/15
Entr. 1 Str. Entrance Structural - /Underpinning	05/27/15	
C5C – 86th St. Station Finishes & MEP		

Activity ID	Start	Finish
Install Platform architectural finishes: doors/tiles/signage/painting		05/26/15
Fabricate Deliver low voltage switchgear/switchboard		05/22/15
Ancillary 2 Mechanical work - HVAC/AF/DC		05/28/15
Fabricate Deliver low voltage switchgear/switchboard		05/22/15
C6 – Systems		
Traction Power Substation @ 86th - Install HT Switchgear and Rectifiers		05/21/15
Signal Rooms @ 96th - Install Panel, Recorder, Couplers, Wires, Megger, & Power Terms	06/02/15	
Tower Signal Rooms @ 96th - Install Trouble Indication Panel and Tower Machine in Relay Room		05/27/15
Fiber Optics @ 63rd - Install Cable, Splice and Terms		04/10/15

Observations and Analysis:

Significant work forecast for the upcoming period involves installation of major MEP equipment and the start of testing and commissioning of station facilities and systems at select locations. MTACC continues to focus on the turnover of equipment rooms and work areas to the systems contractor from the respective general contractors.

Concerns and Recommendations:

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

4.3 Critical Path Activities

Status:

This period schedule contingency for SAS Phase 1 remained unchanged from the previous update at 27 WD (38 CD). The IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities on November 23, 2016, with approximately 38 calendar days (CD) or 27 work days (WD) of contingency, resulting in a forecast Revenue Service Date (RSD) of December 30, 2016.

Schedule contingency is summarized as follows:

	<u>Dates</u>	<u>Contingency</u> <u>(CD)</u>	
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:

MTACC's schedule narrative identifies three independent float paths as "critical". Each of these paths has no more than 15 WD of schedule float. The PMOC concurs with MTACC's evaluation of the relative importance of these paths and for consistency, will follow the same reporting format. The following narrative identifies four "critical" paths; the 2nd Critical Path could be considered a branch of the primary critical path. It has been included in the narrative to underscore the significance of the trackwork to the overall schedule.

1st Critical Path (TF=0): The longest continuous path begins with Zone 3 trackwork, followed by Zone 4 trackwork, forecast to complete on May 1, 2015. The path continues through the 3rd rail installation in Zones 4, 5, 6, 7, 8, 10 and 11 and is scheduled for completion on August 11, 2016 and is followed by traction power cable termination and testing at the 86th Street Station in August 17, 2016. This path then follows through 86th Street Substation FIST, In-Service and Operational Testing through September 14, 2016. NYCT Proof of Route Familiarization then proceeds until November 23, 2016, which is the scheduled completion of all construction and testing activities. The Critical Path then completes with 27 WD (39 CD) of Schedule Contingency resulting in an RSD of December 30, 2016.

2nd Critical Path (TF=1): This path begins with Zone 3 trackwork on the TF=0 path, and then branches to the TF=1 path and follows trackwork in Zones 5, 6 and 7, special trackwork installation in Zone 8 and Zones 10 and 11, all of which should be completed by July 6, 2016. After completion of this work, this path rejoins the TF=0 path and follows traction power installation and testing at the 86th Street Station.

MTACC has received a modified schedule from the C6 Contractor containing a new track installation plan whereby all remaining track installation is forecast for completion by March 2016. When incorporated in the IPS, this revised plan will have the effect of increasing schedule float on the track and track-related construction activities by approximately 5 months. However, based on IPS Update #104, the independent float path representing signal installation at 72nd Street Station will become "most critical", limiting the improved forecast for completion of all construction and testing activities to 7 WD.

3rd Critical Path (TF=7): This path is initiated by installation of conduit between signal equipment rooms within the 72nd Street Station. Forecast completion for the conduit work is June 26, 2015, after which wire is pulled, devices trimmed out FIAT, FSIT and FIST testing is completed and the 72nd Street signal installation is ready for Systemwide Operational and Train Tests on October 17, 2016. Successful completion of Operational Testing is followed by completion of all construction activity on November 23, 2016.

4th Critical Path (TF=12): This path begins with architectural and finish work performed by the C2B Contractor required to achieve Milestone 7A. Achieving this milestone will provide the C6 Contractor with unrestricted access to mezzanine, platform and back-of-the-house spaces at the 96th Street Station. This access allows installation of conduit, wire and equipment for the signal system throughout the station and adjacent wayside areas. FIAT, FIST, FSIT and SIT testing is forecast to begin on December 21, 2015 and complete on October 10, 2016, at which time the 96th Street signal element will be complete and ready for Systemwide operational & train tests.

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

- +25 WD:** This path is initiated by the construction of interior spaces within Ancillary 1 at the 86th Street Station which control the turnover (C5C MS #9) and start of traction power substation work by the Systems Contractor (C6) on May 6, 2015. This work consists of installation of Epoxy Floors, Switchgear and Transformers, through July 2, 2015 and then continues through the grounding, installation of supports, Bus Duct and Installation and Termination of HT cables. Installation work is forecast for completion on July 13, 2016 and is followed by FIAT, FIST, and IST for the traction power system and should complete by August 11, 2016. Facility Integrated Testing at 86th St station followed by Proof of Route Familiarization Training extends the path through November 23, 2016.
- +26/31 WD:** This path extends through construction of Ancillary #2 at the 96th Street Station. The path is initiated by structural construction up to the 3rd floor level and through 4th level parapet walls, forecast to complete on October 4, 2015. From that date, the path follows mechanical installation of fans and ducts for tunnel ventilation, electrical power and lighting installation through June 11, 2016. The path then follows interior and exterior architectural construction through C2B Substantial Completion on October 11, 2016.

Previously, this path was one of the four most critical schedule paths on the project. MTACC mitigated previous delays through an accelerated construction effort for this work.
- +30/38 WD:** This path is initiated by LAN/WAN conduit installation below the platform level at the 86th street Station. Completion of this work is required to satisfy C5C Milestone #7, forecast for April 9, 2015. This path then continues through the installation of the signals equipment, racks, pulling, megger and termination of cables through September 22, 2015, followed by installation of relays, breakdown testing, FIST, & FSIT by August 29, 2016, when Station signal Systems are ready for operational testing to be conducted through October 19, 2016 followed by operational RSD of November 23, 2016.
- +33 WD:** This path represents electrical construction of equipment within Ancillary #1 specifically required for permanent power at the 72nd Street Station. Following the “Permanent Power Available” date of December 1, 2015, this path follows the installation and commissioning of Escalators #1 and #5, followed system testing, local testing and integrated testing of MEP facilities within the 72nd Street Station.
- +37/39 WD:** There are several float paths all involving station construction at 96th Street. These paths generally involve work at Entrance 2 & 3 canopies, track drainage, escalators and mechanical systems. The number of near-critical paths involving construction at the 96th Street Station appears to be increasing significantly.

Concerns and Recommendations:

Based on the PMOC review of IPS Update #104:

- Track installation remains a major critical path and driver of forecast RSD. MTACC states that revised logic for this work (to be included in IPS Update #105), resulting from resequencing of work activities, will eliminate this work as a primary critical path. This mitigation of previous delays is expected to regain approximately 7 to 14 WD of schedule float.
- A significant decrease in schedule float for numerous paths involving construction at the 96th Street Station was noted. Much of the affected work appears to be independent of water-leakage issues.

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)
 - 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).
 - There are multiple “critical paths” with TF less than or equal to 17 CD. There are currently no independent, secondary float paths with Total Float (TF) less than 25 CD.
- Secondary Schedule Mitigation (critical path compression)
 - ELPEP Requirement: 125 CD
 - Mitigation opportunities will be pursued as they are identified.
 - Evaluation of the C6 Contractor’s comprehensive schedule acceleration/proposal is currently on hold.

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.

5.0 BUDGET/COST

Status:

The FFGA baseline budget and current working budget 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	FFGA	MTA's Current Working Budget (Dec. 31,, 2014)
10	Guideway & Track Elements	\$612,404,000	\$622,478,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,277,642,000
30	Support Facilities	0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$524,561,000
50	Systems	\$322,707,000	\$250,134,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$281,500,000
70	Vehicles	\$152,999,000	0
80	Professional Services	\$796,311,000	\$1,185,742,929
90	Unallocated Contingency	\$555,554,000	\$308,942,010
Subtotal		\$4,050,000,000	\$4,451,000,000
Financing Cost		\$816,614,000	\$816,614,000
Total Project		\$4,866,614,000	\$5,267,614,000

Observation and Analysis:

Table 5-1 represents MTACC's most recent update December 31, 2014 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 March 31, 2015, a summary comparison of the SAS Current Working Budget (Estimate Revision #10) and expenditures is as follows:

Description	CWB	Expended	%
Total Construction (1)	\$2,674,814,299	\$2,260,591,167	76.3%
Total Soft Cost	\$1,308,108,085	\$1,090,576,040	83.4%
Contingency	\$468,077,616	(Included above)	
Subtotal	\$4,451,000,000	\$3,351,167,207	75.3%

(1) % complete includes AWOs executed to date.

Observations:

The PMOC notes that expenditures are generally representative of the level of completion of each project element. It is noted that “soft costs” as defined on this project, include significant front-end costs (property acquisition, OCIP, etc.) which skew the percentage of those categories expended to date.

Based upon financial expenditures reported by the MTACC during March 2015, SAS Phase 1 is approximately 75.3% complete. The completion status of the active construction contracts through March 31, 2015, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100%
- C26005 (96th Street Station) – 99.8%
- C26010 (96th Street Station) – 64.3%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 99.2%
- C26012 (86th Street Station) – 32.0%
- C26006 (63rd Street Station) – 87.8%

- C26007 (72nd Street Station) – 99.9%
- C26011 (72nd Street Station – 46.8%
- C26009 (Systems) – 51.3%

Aggregate Construction % Completion:

- 100% of all construction work is under contract
- 79.1% of all base construction (not including AWOs) is complete.
- 76.3% 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 March 2015:

- Value of construction in place this period = \$26,862,740
- Estimated value of construction remaining = \$414,223,132
- Target construction completion = November 23, 2016
- # Months remaining = 19.8

Conclusions and Recommendations:

The estimated average rate (six-month average) of construction required to achieve target completion date = \$23,486,246/MO. The average progress (payments) achieved over the most recent six month period is \$36,799,181/MO. At a summary level, it appears adequate progress continues to be made to support project schedule goals.

Professional Services (as generally defined by SCC Category 80) during March 2015 totaled approximately \$3.03M. This rate of expenditure is somewhat lower than that experienced during recent periods and may be partially explained by the lack of a progress payment for the Construction Manager (CM). At the current rate of expenditure, the existing budget should be sufficient to fund professional services into the 3rd Quarter 2017.

5.3 Change Orders

Status:

As of March 31, 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)	99.84%	\$325,000,000	\$47,615,409	14.65%	\$47,615,409	14.65%
C26010 (2B)	64.27%	\$324,600,000	\$32,099,910	9.89%	\$22,411,573	6.90%
C26006 (3)	87.81%	\$176,450,000	\$18,600,179	10.54%	\$12,437,769	7.05%
C26007 (4B)	99.94%	\$447,180,260	\$1,325,639	0.30%	\$1,325,639	0.30%
C26011 (4C)	46.76%	\$258,353,000	\$26,681,228	10.33%	\$22,588,995	8.74%
C26013 (5A)	100.00%	\$34,070,039	\$6,525,471	19.15%	\$6,525,471	19.15%
C26008 (5B)	99.16%	\$301,860,000	\$21,714,203	7.19%	\$17,772,109	5.89%
C26012 (5C)	31.95%	\$208,376,000	\$6,510,466	3.12%	\$940,300	0.45%
C26009(6)	51.28%	\$261,900,000	\$7,046,647	2.69%	\$6,290,395	2.40%
TOTAL TO DATE		\$2,674,814,299	\$209,205,799	7.82%	\$178,994,307	6.69%

Bold type indicates completed contracts

To date, approximately \$2,116,696,649 (79.1%) of all base contract construction work has been completed. As a % of work completed, the AWO exposure for these contracts = 9.88% and the executed AWO % = 8.46%. Based on performance to date, a forecast of total AWO expenditure for all base contract work in the range of \$250M to \$260M appears reasonable.

Observation and Analysis:

AWO expenditures are forecast to exceed the existing budget of \$229M.

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

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
March-15	\$178,994,307	\$209,427,806
February-15	<u>\$174,719,624</u>	<u>\$209,205,799</u>
Δ	\$4,274,683	\$222,007
Δ	2.45%	0.11%

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

Const. Pkg.	AWO Exposure			
	Mar-15	Feb-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	\$32,099,910	\$35,528,294	-\$3,428,384	Net decrease is the result of revised estimates for AWO # 84, 88, 89, 100, 106, 108, 112, 116, 120, 124, 138, 140, 143 and initial estimates for AWO # 127, 137, 144, 147, 148, 151 and 152.
C3	\$18,600,179	\$17,735,037	\$865,142	Net increase is based on revised estimates for AWO # 37, 137, 150, 151, 157, 158, 161, 162, 164, 166, 168, 169, 171, 175, 177, 178, 180, 181, 183, 185, 187, 192, 193, 194, 195, 196, 197, 199 and initial estimates for AWO # 200 through 207.
C4B	\$1,325,639	\$1,325,639	\$0	No change reported this period.
C4C	\$26,681,228	\$26,438,264	\$242,964	Net increase is based on initial estimates for AWO # 6, 43, 119, 127, 137, 139, 140, 143 and revised estimates for AWO # 49, 69, 77, 84, 92, 93, 100, 101, 102, 109, 110 and 120,.
C5B	\$21,714,203	\$21,728,731	-\$14,528	Net decrease is the result of an initial estimate for AWO # 12 and revised estimates for AWO # 49, 59, 101 and 102.
C5C	\$6,510,466	\$4,401,871	\$2,108,595	Net increase is based on revised estimates for AWO # 7, 67 and initial estimates for AWO # 21, 25, 30, 31, 34, 52, 56, 77 and 78.
C6	\$7,046,647	\$7,042,443	\$4,204	Net increase is based on revised estimates for AWO # 42, 55 and initial estimates for AWO # 74, 77 and 81.
	\$209,205,799	\$209,427,806	-\$222,007	

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

Const. Pkg.	Executed AWOs			
	Mar-15	Feb-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	\$47,065,746	\$549,663	Net increase is based on execution of AWO # 143, 159 and 183.

Const. Pkg.	Executed AWOs			
	Mar-15	Feb-15	Period Δ	Changes this Period
C2B	\$22,411,573	\$20,881,922	\$1,529,651	Increase is based on execution of AWO # 61, 81, 82, 92, 100, 124 and 147.
C3	\$12,437,769	\$11,759,069	\$678,700	Net increase is based on execution of AWO # 86, 123, 135, 139, 141, 161, 174, 181 and 191.
C4B	\$1,325,639	\$1,325,639	\$0	No change reported this period.
C4C	\$22,588,995	\$21,265,192	\$1,323,803	Increase is based on execution of AWO # 58, 76, 77, 82, 95, 103, 105, 108 and 130.
C5B	\$17,772,109	\$17,772,109	\$0	No change reported this period.
C5C	\$940,300	\$812,500	\$127,800	Increase is based on execution of AWO # 64, 65, 67, 69, 74, 76 and 78.
C6	\$6,290,395	\$6,225,329	\$65,066	Increase is based on execution of AWO # 55 and 77.
	\$178,994,307	\$174,659,624	\$4,334,683	

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 (\$) thru March 31, 2014
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

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru March 31, 2014
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	\$102,497,334
NY-03-0408-09***	\$186,566,000	\$186,566,000	0
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	\$969,257,534.00

 * Denotes American Recovery and Reinvestment Act (ARRA) funds. ** Appropriated. *** Disbursement from this grant is restricted until NYMTA and FTA issue an amendment to the FFGA for Phase 1 of the SAS Project.

A total of \$3,351,167,207 has been expended on the project through March 31, 2015, of which \$4887,962,968 has been spent on design and \$2,116,696,648 on construction (MTACC's March 2015 Cost and Schedule Summary Input).

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) – 11/19/2007
- Enterprise Level Project Execution Plan – 01/15/2010
- MTACC Current Working Budget – 6/2011
- MTACC Current Working Budget – 8/2013 (Revision 10)
- Contemporaneous EAC forecasts.

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	\$2,977,444,831.00
Engineering Services Subtotal	\$622,862,000	\$684,157,000.00
Third Party Expenses	\$554,086,273	\$562,086,000.00
TA Expenses	\$131,160,085	\$132,890,202.00
Contingency	\$308,077,343	
Executive Reserve	\$160,000,000	
Total	\$4,451,000,000	\$4,356,578,033

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
- \$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 \$149,230,769.

Observations and Analysis:

During 1st 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.

	<u>Contingency Analysis</u>	
	<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	\$1,090,576,040	\$1,090,576,040
Soft Cost Forecast to Complete	\$217,532,045	\$288,557,162
AWO Exposure	\$209,205,799	\$302,630,532
Total Contingency	\$258,871,817	\$94,421,967
Reserved Contingency	\$160,000,000	\$94,421,967
Available Contingency	\$98,871,817	
Transfer from "Reserved" Contingency =		\$65,578,033

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.

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 available 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:

Risk Registers for each active SAS construction contract have been updated and the risk analysis was completed in late December 2014. Preliminary risk analysis results were shared with MTACC Executive Management in early March 2015. Updated schedule and cost contingency forecast curves have been completed and are awaiting evaluation and approval by Program Controls and SAS Executive Management prior to release.

Observation and Analysis:

None at this time.

Conclusions and Recommendations:

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

6.3 Risk Management Status

Status:

At the February 18, 2015 Cost and Schedule Meeting, a new format was introduced; combining the cost/schedule meeting with the risk management meeting. This approach reflects the current status of the project wherein all significant risks are primarily schedule risks.

Observation and Analysis:

The PMOC concurs with the new format implemented by MTACC.

Conclusions and Recommendations:

The SAS Project Team continues to utilize the Risk Management Process as a means to identify threats to the project cost performance and schedule goals and actively manage retained risks.

6.4 Risk Mitigation

Status:

Risk Mitigation efforts have been concentrated on those risks identified in the following table. 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 identified in the following table. Also included are descriptions of the current mitigation strategy and an update of the status of the mitigation actions.

<u>Risk Description</u>	<u>Mitigation Summary</u>
<p><u>Track Delay:</u></p> <p>Track installation has been delayed due to the slow progress in completing the technical submission process. Conflicting survey data has been a major cause of this delay. Installation of trackwork has been a Primary Critical Path on the SAS IPS and these delays have had a direct impact on both Program Contingency and the SAS forecast completion date for all construction and testing.</p>	<p><u>Mitigation Actions:</u></p> <ol style="list-style-type: none"> 1. MTACC and the C6 Contractor have developed modified track installation sequences that allow continual installation and concurrent access with Station Finishes Contractors. This modified installation sequence is expected to remove track-work installation off the SAS IPS critical path. 2. Contractor track profile submissions are complete except for Zone 11. MTACC is working with the C6 Contractor to expedite approval of remaining track-work alignment submittals. This is expected to correct the previous issue with submittal delays. 3. Meetings are being held with contractor to further identify areas where the track-work installation can expedited.
<p><u>Facility Power:</u></p> <p>There is the risk that permanent facility power at all new stations may not be available in time to support planned Testing and Commissioning activities. Delay in the availability of permanent power will have a direct impact on project contingency.</p>	<p><u>72nd Street Station:</u></p> <p>Work in the Ancillary 1 subbasement and basement rooms has been delayed approximately 3-4 weeks because the station contractor did not coordinate concrete formwork activities efficiently</p> <p>MTACC is working with the station contractor to overcome the impact of these delays and expedite availability of permanent power as follows:</p> <ol style="list-style-type: none"> 1. Develop a schedule that completes facility power rooms prior to December 2015. 2. Closely monitor progress against the latest schedules for the facility power installation 3. Implement 72nd and 86th Street acceleration plans for installation of facility power equipment. 4. Conduct regular meetings with Con Edison to assure that feeders are ready to be energized to support December 2015 date <p><u>86th Street Station:</u></p> <p>Equipment delivery has slipped slightly due to</p>

<u>Risk Description</u>	<u>Mitigation Summary</u>
	<p data-bbox="781 279 1442 457">fabrication changes to low voltage equipment; however, equipment delivery is still forecast to be on time. Contractor needs to complete rooms and room-to room conduit runs in order to accommodate equipment delivery.</p> <p data-bbox="781 478 1442 583">MTACC continues to work with the contractor to identify measures to expedite room completion and room-to-room conduit installation.</p> <p data-bbox="781 615 1047 657"><u>96th Street Station:</u></p> <p data-bbox="781 674 1442 888">Fourteen of 19 rooms have been turned over to the Systems Contractor, who has accepted six rooms to date. Three of the remaining rooms are scheduled for turnover by end of April. The Dispatcher and Station Service Center rooms are scheduled for August and September 2015.</p> <p data-bbox="781 909 1442 1123">Water leaks at this station are generating concerns that equipment installation might be delayed until leak issue is resolved. MTACC has employed the services of Nicholson/Sovereign, an experienced grouting firm, to study the situation and to present a plan for mitigating the leak issue.</p>
<p data-bbox="201 1157 634 1192"><u>72nd Street Station Entrance 1:</u></p> <p data-bbox="201 1209 755 1352">Previously, MTACC negotiated a change order with Contract 4C to expedite work at 72nd Street Station Entrance 1 from January 27, 2017 to September 16, 2016.</p> <p data-bbox="201 1373 755 1554">Subsequent to this change order, the Contractor encountered problems with removal of rock on the escalator incline, which has become a risk to completing the work by September 16, 2016.</p> <p data-bbox="201 1575 716 1680">Completion of Entrance 1 work by September 2016 is necessary in order to maintain Project RSD.</p>	<p data-bbox="781 1157 1414 1226">The following is being done to assure completion by September 2016:</p> <ol data-bbox="781 1247 1442 1680" style="list-style-type: none"> <li data-bbox="781 1247 1442 1390">1. Monitoring the progress of rock excavation, concrete lining installation and street work. The project receives bi-monthly updates on progress and places in fragnet for review and status. <li data-bbox="781 1411 1442 1554">2. Contractor has commenced with concreting the lower portion of the escalator incline ahead of planned schedule as one means of maintain schedule. <li data-bbox="781 1575 1442 1680">3. The Project is exploring opportunities to increase work hours on certain upcoming activities within the building.

Concerns and Recommendations:

The PMOC does not concur that risk associated with late design changes requested by NYCT can be effectively mitigated through improvements in the AWO management process. The

PMOC recommends revisiting the “root causes” of this risk and refining management efforts to address those issues.

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 #104, MTACC continues to forecast all Phase 1 construction and pre-revenue testing to be complete on November 23, 2016. This results in 38 CD (27 WD) of contingency when measured against the MTACC’s target RSD of December 30, 2016 and a 461 CD contingency when measured against the FTA Risk-Informed RSD of February 28, 2018.

Observations:

Major risks previously identified in the construction contractor 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 #104 results in the following contingencies:

Table 6-1: Schedule Contingency

IPS Update #	99	100	101	102	103	104
Data Date	10/1/14	11/1/14	12/1/14	1/1/15	2/1/15	3/1/15
	Contingency (CD)					
RSD=12/31/2016						
Risk Mitigated	81	84	87	69	38	38
Risk Realized	81	84	87	69	38	38
RSD=02/28/2018						
Risk Mitigated	505	508	511	492	461	461
Risk Realized	505	508	511	492	461	461

Concerns and Recommendations:

The PMOC concerns regarding schedule are enumerated in Section 4 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-09-Jan10	3.0 PMP	<p>The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP.</p> <p><u>PMOC Recommendation:</u> Update the PMP and its sub-plans within the timeframes established in the ELPEP.</p> <p><u>Update (June 2014):</u> MTACC is addressing FTA/PMOC review comments.</p> <p><u>Update (September 2014):</u> MTACC's review comments associated with PMP Update #9 were incorporated into PMP Update #10. A draft copy of PMP Update #10 was forwarded to the FTA/PMOC for review during this reporting period. PMP Draft Update #10 does not adequately address the PMOC's comments associated with Update #9. FTA/PMOC will schedule a meeting with MTACC to review each area of concern so that any misunderstandings are resolved.</p> <p><u>Update (December 2014):</u> The PMOC's enhanced comments and explanations resulting from its review of MTACC's PMP Update #10 were transmitted to FTA on November 5, 2014. Reconciliation of any outstanding issues is being evaluated.</p> <p><u>Update (March 2015):</u> MTACC responses to FTA/PMOC comments regarding the Rev. 10 update to the PMP have been received.</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-27- Jun 12	3.2 PMP Sub Plans	<p>The PMOC has noted that community relations activities continue to be a very significant element of the overall management of this project. However, neither the PMP nor any applicable sub plan identify this work, the manner by which it will be managed or executed, the scope of the work or any budgetary or financial controls.</p> <p>The PMOC recommends the development or update of applicable plans and procedures governing such work during the next PMP update period.</p> <ul style="list-style-type: none"> ▪ <u>Update (June 2014):</u> Revision of the SAS PMP will be coordinated with the Amendment of the FFGA. Efforts are ongoing. ▪ <u>Update (September 2014):</u> SAS-09-Jan10 above. ▪ <u>Update (December 2014):</u> See SAS-22-Jun 12 above. ▪ <u>Update (March 2015):</u> See SAS-22-Jun 12 above. 	2

8.0 GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS

Priority in Criticality column

1 – Critical

2 – Near Critical

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
		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
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
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
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

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
03/15	Amended FFGA Signed		
12/30/16	Revenue Operations Date at date of this report (MTACC schedule)		
75.3%	Percent Complete Construction at March 31, 2015		
80.8%	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
3,351M	Amount of Expenditures at date of this report from Total Project Budget of \$4,451M
75.3%	Percent Complete based on Expenditures at date of this report
259M	Total Project Contingency remaining (allocated and unallocated contingency)

* Being revisited as a result of the Enterprise Level Project Execution Plan

APPENDIX C – LESSONS LEARNED

There were no Lessons Learned to report for 4th Quarter for 2014

#	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 – PMOC STATUS REPORT
(to be transmitted in a separate file)

APPENDIX E – 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.
Does 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?	Safety – The OSHA Lost Time Injury Rate and Recordable Injury Rate from the start of construction until February 28, 2015 are 1.75 and 4.99, respectively. Both rates are above the Bureau of Labor Statistics (BLS) national Lost Time Injury Rate of 1.7 and the Recordable Injury Rate of	BLS National Lost Time Rate for Heavy and Civil Construction is 1.7 and for Recordable Injury is 3.2

Project Overview		
	3.2. The cumulative construction time worked since the project inception is 10,260,766 hours. Total lost time injuries since project inception is 90 and other recordable injuries are 166. The total number of recordable injuries is 256 (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?	Contractors are being proactive in addressing incidents. Tool box meetings, increased training and increased monitoring of construction activities are being performed in order to highlight safety awareness. Personnel with repeat safety violations are being removed from the project	
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 F – ON-SITE PICTURES
(to be transmitted in a separate file)

Appendix G -- Core Accountability Items				
Project Status:		Original at FFGA	Current*	ELPEP**
Cost	Cost Estimate	\$4,050M	\$4,451M	\$4,980M
Contingency	Unallocated Contingency	\$555.554M	\$0M	\$0M
	Total Contingency (Allocated plus Unallocated)	\$555.554M	\$259M (March 2015)	\$149.2M
Schedule	Revenue Service Date	September 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	75.3%		
	Based on Earned Value	N/A		
Major Issue		Status	Comments	
Safety and Security Certification		Open	The C6 Contractor is now staff with a Systems Integration Manager (SIM) supported by Systems Engineering Specialists (SES) to coordinate its efforts with the Stations MEP Contractors in the preparation of their Systems Commissioning and Integration Testing (SCIT) Plans.	
Date of Next Quarterly Meeting:		TBD		

* MTACC's Current Working Budget

** Enterprise Level Project Execution Plan (ELPEP), reflecting medium level of risk mitigation

All data based on March 31, 2015 reporting.