

PMOC MONTHLY REPORT

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

March 1 to March 31, 2014



PMOC Contract No. DTFT60-09-D-00007

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

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Length of time on project: 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 2014

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 procurement process.

b. New Contract Procurements

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

c. Construction Progress

All construction is approximately 63% complete (overall project completion is approximately 63.8%) as of March 31, 2014. 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. Completion of all Punch List and submittal of As-Built drawings is scheduled for May 25, 2014 and July 25, 2014 respectively.
- The 96th Street Station Finishes, Mechanical, Electrical, and Plumbing Systems and Ancillary Building and Entrances (Contract C2B) is approximately 34.5% complete. Completion of near term Milestones 2 and 5 are being impacted by additional change orders. Completion of these milestones will allow shared access for the Track, Signal, Traction Power, and Communication Systems contractor (Contract C6).
- At the 86th Street Station (Contract C5B), placement of Public Cavern walls and Arch is near complete. Placement of the south Ancillary Cavern Arch is complete. Invert slab placement in both Entrance #1 & #2 is complete. Wall & Arch lining in Entrance #1 is underway. Concrete wall & arch lining in Entrance #2 is beginning. Waterproofing in Ancillary #2 is ongoing. The contractor is continuing mud mat placement in the South Open Cut. Concrete work in the Pump Room is nearing completion.
- C-26012 (Contract C5C) 86th Street Station Architectural and MEP (C5C). The contractor is continuing with site conditions analysis and preparations for access to the site. Initial work will begin in the east & west tunnels. Limited site access for construction activity remains April 15, 2014 with full access still forecast for October 2014.
- The 72nd Street Station Heavy Civil/Structural (Contract C4B) achieved Substantial Completion on January 14, 2014. Final inspection of the completed work is ongoing by Construction Management and New York City Transit personnel.

- At the 63rd Street Station Rehabilitation (Contract C3) the contract focus in the existing station continues to be the installation of permanent architectural finishes, particularly at the platforms and in the elevator lobbies. Completion of the 3 Signal Rooms is nearing completion for April 2014 turnover. At the new Entrance #1 installation of temporary steel shoring was completed and the load transfer is scheduled for early April 2014.
- The Track, Signal, Traction Power, and Communication Systems Contract (C6) has progressed to approximately 23.7% complete. Significant activity during this reporting period included the ongoing review of station finishes shop drawings, acceptance testing of equipment, and delivery of LVT blocks.

d. Continuing and Unresolved Issues

- Design and procurement of switchgear required to provide permanent power to the stations is requiring an extraordinary amount of time, in part due to design reviews and changes required by ConEdison. There is a high probability that permanent power will not be available to support the C6 contractor's test schedule. To date, MTACC has been unable to fully detail the scope and magnitude of the problem in order to determine appropriate mitigation strategies.
- Discretionary design changes requested by NYCT have added cost and schedule delays to several SAS construction packages. At this stage of the project, these change requests must be minimized to allow the project team to focus on executing the remainder of the project.
- SAS construction management staff commonly demonstrates a passive approach to schedule management. In many cases, a more consistent, aggressive, pro-active attitude is needed to assist in expediting construction work in order to achieve project schedule goals.

e. New Cost and Schedule Issues

- Delays to the start of track installation have resulted from inter-contract coordination issues as well as unforeseen field conditions.
- Delays to the completion of station cavern lining at the 86th Street Station may delay the start of work by the follow-on (C5C) contract.

3. PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

During the 1st Quarter 2014, the SAS Executive Management Staff was realigned to provide support to another MTACC Capital program. The realignment has not negatively impacted the capacity and capability of the SAS management team to successfully manage the construction phase of this project. Although all elements of the construction management effort are not being optimally executed, MTACC has 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)

Force Account labor on the SAS Phase 1 Project is being provided by New York City Transit (NYCT) employees. The Revision 10 Current Working Budget increased the funding for this effort from \$43,000,000 to \$95,400,000. Through the 1st Quarter 2014, \$36,510,395 has been expended.

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 2014, significant progress was achieved 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 significant erosion in schedule contingency has occurred and there remain major risks to be mitigated in order to achieve this goal. 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	December 31, 2013	Sept. 20, 2016	October 2017
Revenue Service	September 30, 2014	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 \$1,063.942M has been obligated. 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 in general conformance with the current IPS.

Table 2: Project Budget/Cost Table



	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of March 31, 2013	
	\$ 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	2,840.876	53.93
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	2,840.876	53.93
Total Federal:	1,350.693	27.75	1,063.942		1,350.693	24.60	852.548	16.18
Total FTA share:	1,300.000	96.25	990.049		1,300.000	23.68	778.655	14.78
5309 New Starts share	1,300.000	100	990.049		1,300.000	23.68	778.655	14.78
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	1,988.328	37.75
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		
<p>* Obligated amounts obtained from the Transportation Electronic Award Management (TEAM) system and MTACC's Grant Management Department.</p> <p>** Current MTA Board approved budget is \$3,509,000,000.</p>								

j. Project Risk

Major issues that have either increased or decreased the risk of project schedule and cost increases during the 1st Quarter 2014 have been summarized as follows:

Decrease	Increase
<ul style="list-style-type: none">FTA’s waiver of its Buy America requirement on the basis of non-availability for the pad and rubber boot—components of the concrete blocks used in the LVT system allows track installation to proceed and eliminates the risk of delay in reprocurring these materials.	<ul style="list-style-type: none">Delays in starting trackwork installation are impacting the overall project schedule.

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 1st Quarter 2014 meeting to review MTACC's compliance with ELPEP requirements was held on March 31, 2014. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** FTA has requested MTACC to update the Technical Capacity and Capability Plan. Completion of the update is pending resolution of coordination issues between the existing Change Control Committee (CCC) and the two newly established high level committees (MTA Chairman level and LIRR/Amtrak management level). The revised TCC Plan is expected to be completed by mid-June 2014.
- **Schedule Management Plan (SMP):** MTACC's 1st Quarter 2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its SMP.
- **Cost Management Plan (CMP):** MTACC's 1st Quarter 2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its CMP.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** MTACC's 1st Quarter 2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its RMP.

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

During the 1st Quarter 2014, the following staffing changes occurred.

- The SAS Project Executive accepted a position on another project and completed the transition out of SAS in mid-March 2014. The Deputy Program Manager assumed the role of Project Executive. The Program Manager for Construction Support assumed the role of Deputy Program Manager. The transitions went smoothly with no negative impact on project performance.
- The Safety & Security Manager and the Interface Coordinator both resigned during this period. Replacement staff members for both positions were promptly identified and both started work on the project in late March 2014.
- The Scheduling Manager resigned from the project in late March 2014. A replacement has yet to be identified. Existing MTACC and SAS staff will assume responsibility for this function in the interim.

Observation:

The most recent SAS Organization Chart, contained in the MTACC 4th Quarter Report to the FTA, indicates that Contracts C3, C4B/4C, C5B/5C and C6 are the responsibility of the CCM Construction Program Director and that Contracts C2A/2B are the responsibility of an MTACC Program Manager. To some extent, this organizational divide is observable and suggests that coordination and interface issue management may not be handled consistently or thoroughly. In addition, the Interface Coordinator, Safety/Security Manager and Deputy Construction Program Director positions are not included on this chart.

Concerns and Recommendations:

The PMOC recommends an updating of the SAS Organization Chart and more importantly, define the manner by which issues affecting both of these construction divisions are coordinated and managed.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC.

Observation:

Sub-plans of the SAS PMP will require updating also to reflect the current status and phase of the project and the results of MTACC's internal audit.

Concerns and Recommendations:

MTAA should develop a schedule to review and update all PMP sub-plans.

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:

Utilization of NYCT staff is ongoing in providing force account resources. Through the 1st Quarter 2014, \$36,510,395 of the \$95,400,000 budget has been expended.

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. The Force Account budget appears to be adequate and has not changed in Revision 10 of the SAS Cost Estimate.

Concerns and Recommendations:

None

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 2014. First aid, recordable and lost time incidents are reported and corrective action taken to address deficiencies and negative trends.

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.

The Monthly Project Wide Safety Meeting continues to be held the first Friday of each month. Lessons learned from incidents/accidents are being 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). MTACC is in the process of updating the SAS SSMP to more completely identify and define the required activities during the construction phase of the project. Select CM staff has received training on their roles in supporting this effort.

Concerns and Recommendations: None

e) Grantee’s Approach to Asset Management

Status:

Asset Management – Identification and control of project assets will be coordinated among the Track, Power, Signals and Communications Systems Contractor (C6), Station Contractors (C2B, C4C and C5C) and NYCT’s Department of Subways.

Observation:

The SAS project team has developed a project asset inventory list which will be integrated into the NYCT property management system.

Concerns and Recommendations:

None

f) Grantee’s Approach to Community Relations

Status:

MTACC has launched implemented several initiatives to improve community access to SAS project staff and provide transparency to the project. Community Outreach initiatives include:

- General Public Sessions (Workshops and “Ask the Experts”).
- Good Neighbor Initiative.
- Air Quality Monitoring Information.
- Daily Emails.
- Construction Advisory Committees.
- Community Information Center.
- Community Tours.
- Community Newsletters.
- On-Site Transparency.

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 Outreach 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 going forward, including an overall execution plan and proposed scope of activities. [Ref: SAS-22-Jun 12].

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

a) Federal Requirements

During the 1st Quarter 2014, 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.

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 were allocated in MTA's 2000-2004 and 2005-2019 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 2014, there has been no material change in the scope of the SAS Project.

Observation:

The PMOC has monitored 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 has effectively managed 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 the 1st Quarter 2014, 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.

Observation:

- **Major Issues**

The major issues noted by the PMOC during March 2014 were:

- The excessive time that it takes to enter Daily Inspection Reports into the Contractor Management System (CMS) on the C2A, C2B, C4C, and C6 contracts.
- The contractors' Quality Managers on both the C2B and C5B contracts left in March 2014. Although there was limited overlap between the present Quality Managers and their replacements, the new Quality Managers are doing an acceptable job.

- **Quarterly Quality Oversight (QOOs)**

MTACC revised the checklist that SAS uses to do quarterly quality oversight of its contractors. The number of elements was increased from 15 to 19, the numerical rating was simplified, and at the suggestion of the PMOC, the generic checklist was updated to reflect unique contractor requirements.

- **Project Quality Manual**

Revision 3 of the SAS Project Quality Manual (PQM) was issued in April 2009. The SAS Quality Manager will prepare a draft of Revision 4 to reflect the new MTACC QOQO checklist requirements and other changes that have occurred since Revision 3 was issued. The PMOC expects to receive a draft of Revision 4 to review in May or June 2014.

- **Analysis of Concrete Strength**

C2A/C2B Contracts: The C2A/C2B contractor prepared its analysis and the Engineer of Record approved it. Open Nonconformance Reports (NCRs) on C2A and C2B are expected to be closed in April 2014.

C3 Contract: The C3 contractor submitted its statistical evaluation of concrete strength test results in early March 2014 and it was approved by the engineer of Record. The C3 contractor then closed out 23 concrete related NCRs.

C4B Contract: An analysis of concrete strength results was performed on the C4B project. This document contains a statistical evaluation of concrete strength test results to demonstrate compliance with the contractual acceptance criteria for all cast-in-place concrete placed under Contract C4B. Based on this analysis, the Engineer of Record agreed that the concrete NCRs that are open can be closed.

C4C Contract: This contract is still in its early stages. The C4C contractor is gathering data before the statistical analysis can be submitted. It estimated that the analysis will be performed in June 2014.

C5B Contract: The C5B contractor prepared its analysis and the Engineer of Record requested additional information. The C5B contractor supplied the requested information and the Engineer of Record approved their analysis in February 2014. The contractor then closed 18 concrete related NCRs in February 2014.

C6 Contract: None of the six NCRs are concrete related.

Contract Packages C2A and C2B	
Status:	<p>On C2A, through March 31, 2014, a total of 36 NCRs have been issued. 30 have been closed by both the contractor and SAS, 2 NCRs were voided, and 4 NCRs are still open. In March 2014, no new NCRs were written and none were closed.</p> <p>On C2B, through March 31, 2014, a total of 35 NCRs have been issued. Eight have been closed and 27 NCRs are still open. In March 2014, one new NCR was written and none were closed.</p> <p>The C2A and C2B quality managers are both three weeks behind in entering Inspection Daily Reports into the CMS System.</p>
Observation:	<p>On the C2A contract, of the four open NCRs, two are for concrete that was out of specification as reported by the contractor's test lab.</p> <p>On the C2B contract, of the 27 open NCRs, 22 are for concrete that was out of specification. The five open non-concrete NCRs have been open between six months and one year.</p>
Concerns and Recommendations:	<p>The PMOC is concerned that the C2B contractor is not managing NCRs. The contractor took until January 16, 2014 to document out of specification concrete that occurred from September-December 2013 and has made no effort to close the five non-concrete NCRs that have been open between six and twelve months. The PMOC is concerned that entry of Inspection Daily Reports on the C2A and C2B contracts is three weeks behind. The contractor's C2A/C2B Manager had agreed to provide additional support based on the PMOC's previous concern and recommendation but to date this has not been effective.</p>

Contract Package C3	
Status:	Through March 31, 2014, a total of 77 NCRs have been issued. 66 have been closed and 11NCRs are still open. In March 2014, one new NCR was written and 27 were closed, 23 of which were concrete related. Entering of Inspection Daily Reports is current.
Observation:	The contractor's concrete statistical analysis was submitted and approved and the contractor did an effective job in closing NCRs.
Concerns and Recommendations:	None.
Contract Package C4B	
Status:	Through March 31, 2014, a total of 122 NCRs have been issued. 117 have been closed and 5 NCRs are still open. In March 2014, no new NCRs were written and 19 were closed. All of the closed NCRs were for out of specification concrete that was accepted by the engineer of record based on the statistical analysis that was performed. Entering of Inspection Daily Reports is current.
Observation:	The contractor has done an effective job of documenting NCRs as the nonconforming condition occurs and closing them in a timely manner.
Concerns and Recommendations:	None.
Contract Package C4C	
Status:	Through March 31, 2014, a total of 11 NCRs have been issued. One has been closed and 10 NCRs are still open. In March 2014, three new NCRs were written and none were closed. All of the NCRs written in March were for concrete placement. Entering of Inspection Daily Reports is three weeks behind.
Observation:	All 10 of the open NCRs are for concrete that was out of specification. The contractor is waiting for additional NCRs to be written before being able to perform the concrete analysis.
Concerns and Recommendations:	The PMOC is concerned that entry of Inspection Daily Reports on the C4C contract is three weeks behind.
Contract Package C5B	
Status:	Through March 31, 2014 a total of 66 NCRs have been issued. 45 have been closed and 21 NCRs are still open. In March 2014, two new NCRs were written and one was closed. Entering of Inspection Daily Reports is one week behind in entering

	them into the CMS System.
Observation:	Of the 21 open NCRs, 13 are for concrete that was out of specification. The SAS C5B Contractor's Quality Manager will prepare another statistical analysis that will enable them to be closed.
Concerns and Recommendations:	None.
Contract Package C6	
Status:	Through March 31, 2014 a total of six NCRs have been issued. Four have been closed and two NCRs are still open. In March 2014, one new NCR was written and none were closed. None of the six total NCRs were for concrete placement. Entering of Inspection Daily Reports is two weeks behind.
Observation:	None.
Concerns and Recommendations:	The PMOC is concerned that entry of Inspection Daily Reports on the C6 contract is three weeks behind.

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	December 31, 2013	Sept. 16, 2016	October 2017
Revenue Service	September 30, 2014	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. FTA/ELPEP used 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 (December 31, 2013)
10	Guideway & Track Elements	\$612,404,000	\$642,478,000
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	\$1,026,608,085
90	Unallocated Contingency	\$555,554,000	\$448,076,915
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 March 31, 2014. No additional Federal Funds were obligated to the MTA for the SAS Phase 1 Project during the 1st Quarter 2014. Grant amendment NY-03-0408-09 in the amount of \$186,566,000 is still pending FTA approval. This amount represents the full FFY 2012 allocation published in the Federal Register on January 11, 2012. Total Federal Funds obligated as of March 31, 2014 is \$1,063,942,000.

Table 1-2: Appropriated and Obligated Funds

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
NY-03-0408-06	\$274,920,030	\$274,920,030	\$274,920,030
NY-03-0408-07	\$237,849,000	\$237,849,000	\$223,637,065
NY-03-0408-08	\$197,182,000	\$197,182,000	0
NY-03-0408-09**	\$186,566,000	Pending	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	\$1,250,508,200.00	\$1,063,942,200.00	\$852,548,265.00

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

A total of \$2,840,875,917 has been expended on the project through March 31, 2014, of which \$470,075,253 has been spent on design and \$1,713,110,246 on construction (MTACC's March 2014 Cost and Schedule Summary Input).

Observation:

Local funds totaling \$1,983,328,000 have been spent as of March 31, 2014.

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.

Major risks to the project currently include the management and execution of the numerous prime contractor interfaces as well as overall construction delay and failure to achieve the December 30, 2016 RSD goal. These risks are under continual review and evaluation by the SAS Project Team.

Concerns and Recommendations:

The PMOC continues to recommend the SAS Project Management Team refresh and refocus its risk management effort to a more focused and finite level to identify those “micro” technical and organizational issues that could delay the RSD. Potential issues in this category may include availability of permanent power, required NYC DOB or other third party acceptance of completed work, and management of specific, schedule-critical handoffs between contracts.

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, 2014 are 1.87 and 5.43, 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 7,809,361 hours. Total lost time injuries since project inception is 73 and other recordable injuries are 139. The total number of recordable injuries is 212 (sum of the lost time injuries and the other recordable injuries).

Security – Implementation of the Contractor’s Site Security Plans are ongoing.

Observation:

The high rate of recordable incidents is being driven by three contractors and the lost time rate is being driven by one contractor. Management of these specific contractors has been requested to implement corrective action through increased training and monitoring.

Concerns and Recommendations:

None

1.3 FTA Compliance

Status:

The PMOC and FTA received the final updated SAS Project Management Plan (Revision 9) for review. Comments will be transmitted to the MTACC in the near future.

The SAS Project Team has substantially complied with ELPEP and its associated sub-plans throughout the 4th Quarter 2013. Any non-compliance 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:

Several issues involving compliance with “Buy America” requirements have been encountered. The most recent and potentially the most serious of these issues involves the “Low Vibration Track System”.

On March 21, 2014, in response to the MTACC’s request for a Buy America waiver for the pad and rubber boot of a concrete block for the Low Vibration Track (LVT) system the FTA waived its Buy America requirements on the basis of non-availability for the pad and rubber boot—components of the concrete blocks used in the system. The waiver is limited to Phase 1 of the Second Avenue Subway Project and is valid only for the pads and rubber boots.

Concerns and Recommendations:

None at this time.

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” was currently forecast to be achieved in the 4th Quarter 2014, however MTACC has reforecast the achievement of this milestone to 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. The redesign of Entrance 1 at the 72nd Street Station is underway. This redesign was deemed necessary due to irreconcilable differences with adjacent building owners regarding utility relocations and access.

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 is impacting the schedule. The SAS project staff should continue working with the user groups and third-party agencies 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 minimized.

2.1.2 Procurement

Status:

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

Observations and Analysis:

None.

Concerns and Recommendations:

None

2.1.3 Construction

Status:

All 10 construction contracts for SAS Phase 1 Project have been awarded. Accomplishments during this reporting period are summarized as follows:

Observations:

Contract C-26002 (C1) – TBM tunnels from 92nd Street to 63rd Street

- This contract has been completed and closed

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.

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

- Concrete placements for the mezzanine have been completed.
- Forty percent (40.0%) of the Cast-In-Place (CIP) Walls at the mezzanine level have been completed.
- Concrete placements for the roof slab are twenty-one percent (21.0%) complete.
- Removal of the Support of Excavation (SOE) in the main station is 92.0% complete.
- Concrete placements for the column in the main station are 82.0% complete.
- Completed north and south grounding grid installation at mezzanine level.
- Demolition of CIP diaphragm slabs at Ancillaries 1 and 2 have been completed.
- Over all waterproofing on the Contract is 45.0% complete.
- Ninety-four percent (94.0%) of slurry wall panel joints have been chemical grouted.

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

- Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
- MPT
 - The next MPT setup will be for the transfer from Entrance #3 to Entrance #4 for the temporary construction site access. This will allow permanent work to begin at Entrance #3.
- Area 5
 - Area 5 is the focus of the work effort along with progress at Entrance #1.
 - Continued with installation of brackets in elevator shafts 1 through 4 and began installation of rails.
 - Continued installation of mechanical ductwork throughout Area 5.
 - Continued installing conduits throughout.
 - Completing MEP and drop ceilings in Signal Room 2189 and completing work in the 2 small signal rooms in Area 5.
- Entrance #1
 - The temporary shoring was completed.
 - The load transfer to the temporary shoring steel will begin Monday, April 7, 2014 and take 3-4 days to complete.
- Ancillary #2
 - The work is ongoing, but intermittent, depending on varying winter weather conditions. This work is not a part of the schedule critical path.
- Platforms

- Continued with new ceiling panels, light fixtures, column cladding, wall panels, rubbing board and track wall tile framing at the G4 (lower) platform.
- Approximately 50% of finish ceiling will be temporarily left open to allow future access to the C6 contractor.
- Continued with installation of conduits at the G3 & G4 platform
- Continued with carriers, duct work, conduits to light fixtures, and ceiling panel framing at the G3 (upper platform).
- Preparing stone bases in the G3 & G4 Elevator Lobbies.
- Fan Plants
 - Completing installation of fan dampers, and sound attenuators in the West Fan Room. Completing chiller piping.
 - Continued with installation of BMS (Building Management System) in both East & West Fan Rooms.

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 Street Station - Station Finishes, MEP Systems Ancillary Buildings and Entrances

- Ancillary 2/ Entrance 2: Completed rebar placement and pouring of the Mezzanine slab. Rebar & Forming of the Lower Mezzanine walls was in progress and will be followed by placing of the concrete. These activities will be followed by the forming, rebar and pouring of the concrete for the remaining Mezzanine slabs in April.
- Station North of 71st Street: Installation of Precast panels and concrete topping is in progress and both activities will carry into April. Also the installation of CMU & doors is in progress with the installation of exhaust ducts and conduit beginning in early April.
- G3/G4 Tunnel: Layout and installation of dry fire standpipe and conduit/wiring began and will continue into April.
- Ancillary #1: The forming & backfill at the platform level is in progress and will be followed by the forming/rebar ledge at the Mezzanine level. Concrete at the ledge for the Mezzanine will begin shortly.
- Entrance #1: Rigging & installing of structural steel for the underpinning of 1322 2nd Avenue is in progress. Demolition of the Garage slab was completed. Shortly, early to the middle of April, the chilled water piping for the Garage and asbestos abatement at the street level should begin.

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

- The contractor began a 3rd shift. All surface operations end at 10:00PM daily.
 - Excavation is 100% complete.

- Through March 31, 2014 permanent concrete placement was approximately 75.9% complete with completion still forecast for August 2014. Entrance #2 permanent concrete placement is forecast for completion in November 2014 due to previous site access delays.
- The south muck station has been dismantled.
- Main Cavern (North and South)
 - The concrete wall placements continued in the Cavern moving south to north and were approximately 95% complete through March 31, 2014. The final west wall placement is waiting on ongoing preparations for the tie-in to the Ancillary #2 Access Tunnel endwall.
 - The South Ancillary Arch concrete placement was completed. The Public Cavern Arch concrete placement continued and was 67% complete through March 31, 2014.
 - Began construction & waterproofing of the bulkhead between the north Ancillary Arch and Public Cavern Arch.
 - Concrete lining was completed in the CIR Room.
- Ancillary #1/Ancillary #2
 - At Ancillary #1 the contractor continued clearing out of the area. The new access stair for the C5C contractor was installed by this contractor and approved by FDNYC.
 - Ancillary #2 work resumed with installation of walls waterproofing and preparations for placement of the invert slab
- Entrance #1
 - The contractor completed removal of temporary underpinning steel and encasement of permanent columns.
 - Concrete placement of inclined walls and arch continued and were 67% complete through March 31, 2014.
- Entrance #2
 - Continued waterproofing throughout and rebar and concrete placement of incline invert slabs and Communications Room arch.
- Option #1 (Lining the south, east tunnel and mining the Cross Passageways)
 - In the Pump Room all concrete placement is complete.

Contract C-26012 (5C) – 86th Street Station Finishes, Mechanical, Electrical, Plumbing Systems, Ancillary Buildings and Entrances

- The contractor's field office is at 207 E. 94th St., 3rd floor. The MTACC Project Office will relocate from its present location to one closer to the contractor's office. The actual location is TBD.
- Limited access to the site continues to be April 15, 2014 (C5BMilestone #1).
- The start of work will concentrate in the east and west tunnels.

- There will be a coordination meeting with the respective surveyors of the C5B, C5C and C6 contracts on control points, etc. on April 4, 2014.
- At most recent progress meeting the contractor presented the first 6 week Look Ahead Schedule with Power Point.
- The contractor continues to assess the site conditions and talk with the C5B contractor and the Project Office. The contractor's Building Condition Surveys are near complete.
- ConEd continues to review the drawings for temporary power and discussions with the contractor and the Project Office are ongoing.
- The contractor continued with pre-construction mobilization activities, including submittals, purchasing and OCIP signup for subcontractors.

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

Coordination:

- Ongoing review of 63rd Street, 72nd St. and 96th St. Station contractors' shop drawings (approximately 4,860 reviewed to-dates) for work coordination and to avoid conflicts during field installation. Ongoing review of submittals for all disciplines. Completed approximately 62% of the planned submittals to-date.

Track:

- Delivered and laid out LVT tie blocks along the tunnel. Continue clipping rails to tie blocks north of 96th Street Station. Continued survey of tunnel south of 96th Street tunnel for track work.

Communications:

- Delivered communication cables for antenna and fiber optic in the tunnel at 92nd Street. Completed communication cables (antenna and fiber optic) in the tunnel north of 96th Street Station. Installed inner duct and began pulling fiber optic cables at 96th – 105th Street. Continue installation of fiber optic cable at 63rd Street Station.

Traction Power:

- Completed installation of cable brackets, conduits, and cables for negative power work installation in the tunnel north of 96th St Station. Continue factory acceptance testing and delivery of traction power equipment to offsite storage warehouse.

Signals:

- Continued wayside signal equipment and cables installation at 63rd Street Station area.

Concerns and Recommendations:

Station Contractors' ability to maintain schedule and provide the Systems Contract access to the various areas in a timely fashion is an ongoing concern. The SAS Project Team continues to identify, prioritize and address construction problems which have the potential to delay the project.

2.1.4 Force Account (FA) Contracts

Status:

As of March 31, 2014, force account expenditures are \$36,510,395 of the \$95,400,000 budget.

Observation:

Force account labor is being provided by NYCT. Expenditures are for general orders, work trains, and flagging support.

Concerns and Recommendation:

None

2.1.5 Operational Readiness

Status:

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

Observation:

Customer Service Centers are being deleted at various stations.

Concerns and Recommendation:

The Concept of Operations Plan should be updated 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 2014, the SAS Project Team continued its Interagency Coordination as defined in Section 12 of the SAS PMP. MTACC, PB/CCM and contractors met with Con Edison representatives to discuss and resolve permanent power issues. Thru March 31, 2014 \$45,620,643 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 2014.

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:

The Community Outreach staff continues to produce a monthly newsletter updating residents and business owners on construction progress and major milestones achieved, and providing a forward looking schedule so the community will know what to expect as the project progresses. These newsletters are delivered electronically and via hard copy.

Community tours of the underground work area of the 86th Street Station have been conducted to give the residents the opportunity to view the construction progress. Over 70 residents participated.

Community Outreach staff continues to meet with local elected officials to discuss constituent issues.

Observation:

MTACC expends a significant amount of effort in maintaining community relations, which has generally been effective in facilitating the resolution of adverse construction impacts and communicating with community stakeholder groups.

Conclusions and Recommendations:

None

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

MTACC issued draft Update #9 of the PMP for review. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC.

Observation:

Update #9 does not adequately reflect the current phase and status of the project.

Concerns and Recommendations:

MTACC and FTA/PMOC will need to resolve review comments.

3.2 PMP Sub Plans

Status:

As part of the ongoing PMP update, any revisions in the PMP which have a "ripple impact" to the PMP Sub Plans will require updating.

Observations:

SAS Sub-Plan documents consist of: Project Quality Manual, Contractors' Quality Assurance Plans, 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 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:

In November 2012, the MTACC indicated to the PMOC that it had completed development of all procedures that it intended to revise. The total count of revised procedures stands at 77.

Observations:

In the PMOC's opinion, the MTACC has developed all the revised procedures. The PMOC had recommended that the MTACC then develop a schedule that shows for which procedures training will be conducted and who will receive this training. As a result of this recommendation, MTACC developed a schedule of training for applicable procedures and conducted training for the SAS staff on six separate occasions, covering a total of 20 different procedures, during the first quarter of 2014 as shown in the following table:

Date of Training	
02/10/2014	
02/21/2014	
02/28/2014	
03/21/2014	
03/28/2014	
03/28/2014	

* The PMOC attended this session

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 #92 was received on April 21, 2014 and is based on a Data Date of March 1, 2014. This update contained “.PDF” schedule reports for all remaining work, the critical/longest path, variance tabulation between Updates # 91 and 92; summary schedule and the “.XER” schedule file for the IPS. The IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities by September 20, 2016, with approximately 102 calendar days (CD) or 73 work days (WD) of contingency when measured against MTACC’s target Revenue Service Date (RSD) of December 30, 2016.

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	December 31, 2013	Sept. 16, 2016	October 2017
Revenue Service	September 30, 2014	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			Upd. #89 Forecast S/C	Upd. #92 Forecast S/C	Schedule Duration	Quarterly Change
			Contract Time %	Payment %	Δ Time v. Money				
C1	3/20/07	3/20/12	100%	100.0%	0.0%	3/20/12A	3/20/12A	609 CD	0 CD
C2A	5/28/09	4/17/13	114%	99.9%	14.3%	11/5/13A	11/5/13A	202 CD	34 CD
C2B	6/22/12	11/25/15	49%	34.5%	14.8%	6/3/16	7/8/16	226 CD	35 CD
C3	1/13/11	5/13/14	94%	72.2%	21.8%	6/15/15	8/10/15	454 CD	56 CD
C4B	10/1/10	12/3/13	108%	98.0%	9.6%	1/14/14	1/14/14A	42 CD	0 CD
C4C	2/14/13	11/13/15	38%	8.1%	29.8%	11/13/15	7/26/16	256 CD	256 CD
C5A	7/9/09	11/16/11	100%	100.0%	0.0%	11/16/11A	11/16/11A	313 CD	0 CD
C5B	8/4/11	12/16/14	76%	85.0%	-8.6%	2/10/15	12/16/14	0 CD	-56 CD
C5C	5/25/16	5/25/16	24%	0.0%	0.0%	5/16/16	5/31/16	6 CD	15 CD

Pkg.	Award Date	Contract S/C	% Complete			Upd. #89 Forecast S/C	Upd. #92 Forecast S/C	Schedule Duration	Quarterly Change
			Contract Time %	Payment %	Δ Time v. Money				
C6	1/18/12	8/18/16	46%	23.7%	22.5%	8/18/16	8/18/16	0 CD	0 CD
<p>1. Quarterly Change reflects schedule gain/loss over most recent calendar quarter. Negative sign denotes time gain and positive sign denotes time loss.</p> <p>2. Schedule Duration reflects schedule gain/loss based on current contract duration. Negative sign denotes time increase and positive sign denotes time decrease.</p>									

Observations and Analysis:

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

- Contracts C1, C2A, C4B and C5A 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 454 CD delay in Substantial Completion.
- The “Time v. Money” variances for the C4C and C5C Contracts are reflective of the extended preconstruction periods for each contract and are expected.
- The forecast Substantial Completion date for Contract C4C (7/26/16) appears to be an error.
- The forecast Substantial Completion date for Contract C5C includes all work at Entrance #2 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	Dates			Variance		Sch. Float
			Adjusted (2)	Upd #91 (3)	Upd #92 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C2B	MS #2	Shared site access @ 93rd Street shaft	03/22/14	9/8/14	10/15/14	-207	-37	577
C2B	MS #4	Shared access in E & W trackways thru Sta. (1238+50 - >1225+25); 97th -> 99th St Tunnel in 99th to 105th St	09/21/14	1/20/15	1/20/15	-121	0	39
C2B	MS #5	Shared access @ E & W Tunnels South of 96th St Station (1225+25 and STA. 1209+00)	02/20/14	2/21/14	6/24/14	-124	-123	2
C2B	MS #6	Full access to Comm. Rooms & Closets	08/21/14	12/18/14	1/2/15	-134	-15	206

Pkg	MS	Description	Dates			Variance		Sch. Float
			Adjusted (2)	Upd #91 (3)	Upd #92 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C2B	MS #7	Full access to Signals Rooms	08/21/14	12/18/14	1/2/15	-134	-15	60
C2B	MS #8	Full access to Traction Power Rooms:	08/21/14	12/18/14	1/2/15	-134	-15	167
C2B	MS #9	Full access to Station Service Centers	11/21/14	7/9/15	7/24/15	-245	-15	375
C2B	MS #10	Complete all remaining Comm., Signal , & Traction Power work	09/21/14	4/28/15	4/28/15	-219	0	438
C2B	SS	Substantial Completion	12/21/15	6/21/16	7/8/16	-200	-17	125
C3	#3c	Comp. Mezz.. Comm. Rms./Station Service Center	04/15/13	05/27/14	05/27/14	-407	0	337
C3	#4	Comp L &U Platforms & Signal Rooms	10/14/13	04/17/14	04/18/14	-186	-1	226
C3	#4b	Comp L&U Platforms & Signal Rooms	10/14/13	09/15/14	10/05/14	-356	-20	391
C3	SS	Substantial Completion	05/13/14	08/11/15	08/10/15	-454	1	87
C4C	MS #2	Limited access thru 72nd Street Station 1172+40 ->1163+00	01/13/14	06/13/14	06/13/14	-151	0	84
C4C	MS #3	Shared access thru 72nd Street Station 1172+40 ->1163+00	11/27/14	11/20/14	11/26/14	1	-6	82
C4C	MS #5	Limited access south of 72nd Street Station 1163+00 -> 149+50	4/14/14	04/14/14	04/14/14	0	0	127
C4C	MS #6	Shared access south of 72nd Street Station 1163+00 -> 149+50	6/13/14	06/11/14	06/13/14	0	-2	84
C4C	MS #7	Turnover of Communications Rooms to Systems Contractor	8/28/14	09/14/14	09/18/14	-21	-4	325
C4C	MS #8	Turnover of Signal Rooms South of station to C6	7/15/14	07/08/14	07/11/14	4	-3	372
C4C	MS #9	Complete all Signal Rooms except M8	9/29/14	09/26/14	09/30/14	-1	-4	44
C4C	MS #10	Complete north power rooms	2/25/15	10/22/14	10/31/14	117	-9	186
C4C	MS #11	Complete south power rooms	03/24/15	11/24/14	11/26/14	118	-2	169
C4C	MS #12	Full access @ Station Service Center(s)	08/28/14	08/27/14	08/28/14	0	-1	338
C4C	MS #13	Full access @ Lubrication Room(s)	08/28/14	08/26/14	08/28/14	0	-2	338
C4C	MS #14	Complete all remaining Comm. Signal & Traction Power Rooms	08/28/14	08/27/14	08/28/14	0	-1	338
C5B	#1	Comp All work South of Grid Line 15	03/04/14	05/15/14	04/15/14	-42	30	19
C5B	SS	Substantial Comp/All Work w/o Ent. #2	09/04/14	10/14/14	10/08/14		6	26

Pkg	MS	Description	Dates			Variance		Sch. Float
			Adjusted (2)	Upd #91 (3)	Upd #92 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C5B	SS	<i>Substantial Comp/All Work incl. Ent. #2</i>	-	02/23/15	12/16/14		69	225
C5C	MS #1	Vehicle access thru 86th Street Station 1209+00 -> 1198+00	10/23/14		10/27/14	-4		569
C5C	MS #2	Limited Access; Sta. 1209+00->1198+00	01/22/15		01/30/15	-8		500
C5C	MS #3	Shared Access; Sta. 1209+00->1198+00	05/22/15		05/29/15	-7		119
C5C	MS #4	Shared Access; Sta. 1198+00->1172+00	10/23/14		10/28/14	-5		104
C5C	MS #5	Turnover of Comm. Rooms	09/23/14		09/25/14	-2		273
C5C	MS #6	Turnover of Comm. Rooms	03/24/15		03/31/15	-7		161
C5C	MS #7	Turnover of Signal Rooms	02/25/15		02/24/15	1		272
C5C	MS #8	Turnover of Signal Rooms	02/25/15		02/23/15	2		158
C5C	MS #9	Turnover Traction Power Rooms	02/26/15		02/27/15	-1		15
C5C	MS #10	Turnover Traction Power Rooms	02/25/15		02/12/15	13		260
C5C	MS #11	Full access @ Station Service Center(s)	03/24/15		03/25/15	-1		363
C5C	MS #14a	Complete all remaining Comm. Signal & Traction Power Rooms	09/23/14		09/25/14	-2		277
C5C	MS#14b	Limited Access all locations	09/23/14		02/20/15	-150		485
C6	#1	Completion of Signal Block Design	08/18/12			-23		
C6	#2A	Complete LAN - 96th St. Station	05/18/15	05/18/15	05/18/15	0	0	331
C6	#2B	Complete WAN - 96th St. Station	05/18/15	05/18/15	05/18/15	0	0	331
C6	#3A	Complete LAN - 86th St. Station	07/18/15	07/17/15	07/17/15	1	0	148
C6	#3B	Complete WAN - 86th St. Station	07/18/15	07/17/15	07/17/15	1	0	148
C6	#4A	Complete LAN - 72nd St. Station	02/18/15	02/18/15	02/18/15	0	0	414
C6	#4B	Complete WAN - 72nd St. Station	02/18/15	02/18/15	02/18/15	0	0	414
C6	#5A	Complete LAN - 63rd St. Station	04/18/14	04/09/15	04/17/15	-364	-8	119
C6	#5B	Complete WAN - 63rd St. Station	04/18/14	04/09/15	04/17/15	-364	-8	119
C6	#5C	Complete all 63rd St. Station work	04/18/14	05/21/15	05/04/15	-381	17	361
C6	SS	Substantial Completion	08/18/16	08/18/16	08/18/16	0	0	23

Notes:

1. All schedule dates based upon March 1, 2014 update (IPS Update #92)
2. Contract packages 1, 2A, 4B 5A have completed all work.
3. Milestones not shown have been completed.

Observations and Analysis:

- For C2B the IPS does not reflect the Contractor’s forecast date (7/3/14) for MS #5. The small variance is due to a disagreement with the Contractor over the achievement of the Milestone.
- For C3 the IPS reflects the Contractor’s forecast dates.
- For C4C the IPS does not reflect the Contractor’s MS#7 and MS#9 forecast dates. The Contractor has extended MS#7 due to an asbestos issue at Entrance #1. MTACC will not recognize this delay until it completes its independent analysis. Similarly, the Contractor has submitted a TIA which affects MS#9 and MTACC will adjust that Milestone when its independent review is complete.
- The IPS reflects the Contractor’s forecast dates for all Milestones.
- For C5C the IPS reflects Access and Milestone dates that are consistent with the C5C Contract.
- For C6 the IPS reflects the Contractor’s Milestone forecast dates for MS#2A/2B, 3A/3B, 5A/5B and 5C. MTACC does not agree with the Contractor’s forecast delays to MS#4A/4B and is attempting to reconcile.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#92 (DD=3/01/14), 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		
Tunnel Light fixtures (99 th -> 105 th Streets)		6/24/14
Build Platform Slab & Walls – Station Area S1		6/24/14
Track Drainage Supervisory System		6/13/14
C3 – 63rd Street Station Rehab		
MS#4a – Signal Rooms		4/18/14
MS#3c – Mezzanine & Platform Levels – Complete conduit		5/27/14
Structural Work – Entrance #3		4/18/14
Arch. Finishes; Paint finish coat @ 2 nd Mezzanine		5/20/14
C4C—72nd Street Station Finishes		
MS#5 - Allow Limited Access btw STA 1163+00 & 148+00		4/14/14
MS#2 - Allow Limited Access btw STA 1172+40 & STA 1163+00		6/13/14
MS#6 - Allow Shared Access btw STA 1163+00 & 148+00		6/13/14

Activity ID	Start	Finish
Station Upper Mezz. Slab & Beams		6/11/14
C5B – 86th St. Station Mining & Lining		
Pump Room #16 – Complete MEP		4/24/14
Complete Restoration/Turnover – South Areas		5/15/14
C5C – 86th St. Station Finishes & MEP		
Invert Slab @ Entrance #1		6/5/14
C6 – Systems		
Zone 1 Track Installation @ 96 th Street		6/26/14
Signal Rooms @ 63 rd Street Station – Begin Work		4/21/14
Comm. Room MR223D @ 63 rd Street – Pull Comm. & Fiber Cable		6/26/14

Observations and Analysis:

There are numerous turnovers between the heavy civil to architectural packages and from the architectural packages to the systems packages over the remainder of 2014. The efficiency of these turnovers will be a key factor in achieving the current SAS schedule goals.

Concerns and Recommendations:

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

4.3 Critical Path Activities

Status:

Based on Update #92 of the IPS, the calculated date for completion of all SAS Phase 1 activities is September 20, 2016. This results in 102 calendar days of contingency when compared to the MTACC’s revenue service goal of December 30, 2016.

The IPS contains numerous contractual milestones and schedule constraints which support modeling the interaction of the construction packages. Accurate modeling of the interaction of the active construction packages complicates the identification and interpretation of the overall project critical path. Due to the inherent limits in the accuracy of CPM methodology and the information developed in a complicated project of this nature, the schedule model can never be a 100% accurate representation of the project. As such, the PMOC considers the monitoring and evaluation of key “near-critical” paths to be an important element of this schedule review.

Observations and Analysis:

Project Critical Path: The most “critical” or longest schedule path that controls the completion of SAS Phase 1 is initiated by Activity C6TW-011 “Zone 1 Track S1 @ 96th – Set Ties, Thread & Clip Rails, Surface & Align, Install Riser Boxes Rebar and Conduit” and continues through the installation of the Trackwork in Zone 1 through Zone 7 which is complete by April 30, 2015. This path then shifts to the installation of the wayside equipment at 72nd Street which starts with Activity #C6C4-290 “Wayside @72nd – Install Riser Boxes, Conduits, Tray” and completes with Activity #C6C4-299 “Wayside @72nd – Perform Punchlist Work” on

July 28, 2016. The completion of the wayside equipment punchlist at 72nd Street then ties to Substantial Completion of Contract 6 which finishes on August 18, 2016 and then ties into the “Proof of Operations Tests”, then completion of “Dispatch Tower Tests at 96th St. Station”, “Traction Power Operational Test”, “Route Familiarization and Equipment Training”, tying to an Operational Revenue Service Date (ORD) of September 20th, 2016.

The PMOC has several concerns with respect to the depiction of this work in the IPS:

1. IPS logic requires that C2B Milestone #5 - Shared access @ E & W Tunnels South of 96th St. Station (1225+25 and STA. 1209+00) be completed prior to the start of Zone 1 Track installation (Activity # C6TW-011). Update #92 of the IPS forecasts that C2B Milestone #5 will be completed on 6/24/14. This update also reports that Zone 1 track installation started on 2/26/14 and initiates the project’s critical/longest schedule path.

MTACC reports it has developed a schedule acceleration strategy that will overcome the impact of this delay and that this acceleration/mitigation will be documented in forthcoming updates of contractor schedules and the IPS. MTACC’s efforts to maintain the project RSD are noteworthy however, the PMOC is concerned that the MTACC’s inconsistent analysis and reporting of schedule issues and the resulting actions may be misinterpreted or result in delays in their resolution.

2. As previously noted, critical track installation occurs within the limits of the 86th Street Station between June 27, 2014 and October 1, 2014. The relationship between milestone Activity # C5C S590, Station Ready for Track Installation, and track installation activities within the station area has not been made. There are no successor activities in the IPS to Activity # C5C S590. If this activity were logically connected to the schedule, the C5C station area will not be ready for trackwork installation until March 30, 2015. IPS Update #92 does not appear to address this issue.
3. As previously noted, summary activities within the IPS and their logical relationships deviate substantially from the same work depicted in the C6 construction schedule for a portion of the IPS critical path. The PMOC takes note of this issue due to the fact that MTACC has previously emphasized the importance of replicating each contractor’s schedules within the IPS.

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

- +19/+3 WD: This combined path is initiated by C5B construction of the south cavern arch, which is scheduled to be complete on April 24, 2014. Completion of this work leads to C5B demobilization and handoff of the south station and tunnels to the C5C Contractor on May 16, 2014. The path then follows construction of Ancillary 1 by the C5C Contractor through April 27, 2015, at which time traction power rooms at the north end of the 86th Street Station are turned over to the C6 Contractor via C5C MS#9. A schedule lag representing time required for the turnover process effectively reduces float to +3WD. Installation of equipment and cable is then forecast to continue through June 10, 2016, at which time field testing, facility in-service testing and in-service testing starts and continues through August 1, 2016.

The PMOC notes that the IPS forecasts energizing the tracks in the 86th Street Station Area on July 22, 2016 (Act # 86ENTS1200). There is no logical relationship between the traction power work on the +3 WD float path and energizing the track.

Concerns and Recommendations:

The PMOC is concerned about the accuracy and consistency of the transfer and summarization of information between contractor schedule updates and the IPS. This can never be a completely accurate process. However, the PMOC a more rigorous and consistent transfer of information from an approved contractor schedule update to the IPS will benefit the usefulness of the IPS in describing the current schedule status, consequential forecast of future schedule events and development of mitigation schemes where necessary.

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.
 - N/A.
- Minimum Allowable Secondary Float Path
 - ELPEP Requirement: 25 Calendar Days (approximately 18 WD).
 - Secondary float paths with Total Float (TF) =3 CD (approximately 4 WD) and 15 WD (approximately 21 WD). PMOC notes that satisfaction of this requirement may not be consistent with maintaining the project budget.
- 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.

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 area where it believes current SAS schedule practices compromise the accuracy and usefulness of the IPS.

4.5 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 (December 31, 2013)
10	Guideway & Track Elements	\$612,404,000	\$642,478,000
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	\$1,026,608,085
90	Unallocated Contingency	\$555,554,000	\$448,076,915
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 conformance to its budget.

4.5.1 Project Cost Management and Control

Status:

The SAS Project Team accumulates and reports actual cost expenditures against MTACC-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 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

4.5.2 Project Expenditures and Commitments:

Status:

As of March 31, 2014, 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	\$1,824,744,118	63.0%
Total Soft Cost	\$1,308,108,085	\$1,016,131,799	77.7%
Contingency	\$468,077,616	(Included above)	
Subtotal	\$4,451,000,000	\$2,840,875,917	63.8%

(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 2014, SAS Phase 1 is approximately 63.85% complete. The completion status of the active construction contracts through March 31, 2014, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100%
- C26005 (96th Street Station) – 99.6%
- C26010 (96th Street Station) – 33.9%

- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 84.6%
- C26012 (86th Street Station) – 3.0%
- C26006 (63rd Street Station) – 71.4%
- C26007 (72nd Street Station) – 98.0%
- C26011 (72nd Street Station) – 8.1%
- C26009 (Systems) – 23.5%

Aggregate Construction % Completion:

- 100% of all construction work is under contract
- 64.5% of all construction is complete

Based upon cost data received from MTACC for March 2014:

- Value of construction in place this period = \$32,492,722
- Estimated value of construction remaining = \$850,070,181
- Target construction completion = September 20, 2016
- # Months remaining = 29.7

Conclusions and Recommendations:

The estimated average rate of construction required to achieve target completion date = \$28,585,431/MO. The average progress (payments) achieved over the most recent six month period is \$35,667,035/MO. At a summary level, it appears adequate progress has been made during March 2014 to support project schedule goals.

Professional Services (as generally defined by SCC Category 80) during March 2014 totaled approximately \$5.5M. This rate of expenditure has been relatively typical for the project during recent periods. At this rate of expenditure, budget values established via Revision 10 appear adequate, as long as no significant delays to the RSD are encountered. At the current rate of expenditure, the PMOC estimates a delay to the RSD of approximately 5 months will trigger the need for additional contingency to cover professional service costs.

4.5.3 Change Orders

Status:

As of March 31, 2014, 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)	99.69%	\$325,000,000	\$53,638,724	16.50%	\$41,323,750	12.72%

Contract / (Package)	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26010 (2B)	34.53%	\$324,600,000	\$18,273,617	5.63%	\$5,579,338	1.72%
C26006 (3)	72.16%	\$176,450,000	\$10,919,018	6.19%	\$7,431,407	4.21%
C26007 (4B)	98.00%	\$447,180,260	\$2,731,398	0.61%	\$5,240,513	1.17%
C26011 (4C)	8.08%	\$258,353,000	\$16,593,881	6.42%	\$364,661	0.14%
C26013 (5A)	100.00%	\$34,070,039	\$6,525,471	19.15%	\$6,525,471	19.15%
C26008 (5B)	85.03%	\$301,860,000	\$18,400,580	6.10%	\$9,235,672	3.06%
C26012 (5C)	0.00%	\$208,376,000	\$0	0.00%	\$0	0.00%
C26009(6)	23.72%	\$261,900,000	\$12,753,553	4.87%	\$2,617,031	1.00%
TOTAL TO DATE		\$2,674,814,299	\$180,922,889	6.76%	\$119,404,490	4.46%

To date, approximately \$1,713,110,247 (64.5%) of all base contract construction work has been completed. As a % of work completed, the AWO exposure for these contracts = 10.56% and the executed AWO % = 6.97%. Based on performance to date, a forecast of total AWO expenditure of slightly more than \$200M appears reasonable. This compares favorably with the \$229M AWO contingency contained in the MTACC CWB. This forecast assumes there is no significant delay to MTACC's current RSD of December 30, 2016.

Observation and Analysis:

The value of AWOs reported by MTACC/NYCT in March 2014 is summarized as follows:

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
March 2014	\$119,404,490	\$180,922,889
February 2014	\$117,946,104	\$180,229,155
Δ	\$1,458,386	\$693,734
Δ	1.34%	0.38%

The change in AWO Exposure during March 2014 for each construction contract is summarized as follows:

Const. Pkg.	AWO Exposure \$			Changes this Period
	March-14	Feb.-14	Period Δ	
C1	\$41,086,647	\$41,086,647	\$0	Final value as reported by MTACC.
C2A	\$53,638,724	\$53,928,578	(\$289,854)	Decrease is based upon a revised estimate for AWO # 69
C2B	\$18,273,617	\$17,707,682	\$565,935	Net increase based upon initial estimates for AWO # 19, 22, 25, 37, 54, 74 and 75 as well as revised estimated for AWO # 38, 49 and 50.
C3	\$10,919,018	\$10,181,987	\$737,031	Net increase based on revised estimates for AWO # 56, 91, 93, 108, 116, 117, 118, 119,

Const. Pkg.	AWO Exposure \$			Changes this Period
	March-14	Feb.-14	Period Δ	
				120, 121, 122, 123, 124 and 125 as well as initial estimates for AWO # 126 through 136.
C4B	\$2,731,398	\$3,658,083	(\$926,685)	
C4C	\$16,593,881	\$16,393,040	\$200,841	
C5A	\$6,525,471	\$6,525,471	\$0	Final value as reported by MTACC.
C5B	\$18,400,580	\$19,003,348	(\$602,768)	
C5C	\$0	\$0	\$0	No change reported this period.
C6	\$12,753,553	\$11,744,319	\$1,009,234	Net increased based on revised estimates for AWO # 8, 17, 26, 28, 32, 34 and 35 as well as initial estimates for AWO # 33, 36, 40 and 45.
	\$180,922,889	\$180,229,155	\$693,734	

The changes in Executed AWO Value for each construction contract are summarized as follows:

Const. Pkg.	Executed AWO \$			Changes this Period
	Feb.-14	Feb.-14	Period Δ	
C1	\$41,086,647	\$41,086,647	\$0	Final value as reported by MTACC.
C2A	\$41,323,750	\$41,123,950	\$199,800	Increase is based on resolution of AWO # 163, 169, 170, 171 and 172.
C2B	\$5,579,338	\$5,030,502	\$548,836	Net increase is resolution of AWO # 2, 22, 33, 49, 50, 62, 65 and 74.
C3	\$7,431,407	\$7,107,157	\$324,250	Increase is based on resolution of AWO # 29, 32, 49, 75, 85109 and 111.
C4B	\$5,240,513	\$5,240,513	\$0	No change reported this period.
C4C	\$346,661	\$364,661	\$0	No change reported this period.
C5A	\$6,525,471	\$6,525,471	\$0	Final value as reported by MTACC.
C5B	\$9,235,672	\$9,235,672	\$0	No change reported this period.
C5C	\$0	\$0	\$0	No change reported this period.
C6	\$2,617,031	\$2,231,531	\$385,500	Net increase based on resolution of AWO # 8, 26, 33, 34, 36 and 45.
	\$119,404,490	\$117,946,104	\$1,458,386	

Concerns and Recommendations:

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.

The PMOC remains somewhat concerned over the complete lack of AWO activity for the C5C (86th Street Station Finishes) contract. The preconstruction period represented an opportunity to resolve some of these issues prior to the start of work. The PMOC is concerned that the preconstruction period on C5C has not been effectively used to identify and minimize the impact of changes during construction.


4.6 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
NY-03-0408-06	\$274,920,030	\$274,920,030	\$274,920,030
NY-03-0408-07	\$237,849,000	\$237,849,000	\$223,637,065
NY-03-0408-08	\$197,182,000	\$197,182,000	0
NY-03-0408-09**	\$186,566,000	0	0
NY-03-0408-10***	\$123,384,621	0	0
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
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
Total	\$1,373,892,821.00	\$1,063,942,200.00	\$852,548,265.00

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

A total of \$2,840,875,916 has been expended on the project through March 31, 2014 of which \$470,075,253 has been spent on design and \$1,713,110,246 on construction (MTACC's March 2014 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

4.6.1 Overall Project Funding

Refer to Section 5.2 of this Report.

4.6.2 Local Funding

Refer to Section 5.2 of this Report.

4.7 Cost Variance Analysis

Status:

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 v. EAC

Category	Current Working Budget	EAC Forecast
Total Construction	\$2,674,814,299	\$2,904,814,299
Engineering Services Subtotal	\$622,862,000	\$650,000,000
Third Party Expenses	\$554,086,273	\$557,500,000
TA Expenses	\$131,160,085	\$130,775,000
Contingency	\$308,077,343	
Executive Reserve	\$160,000,000	
Subtotal	\$4,451,000,000	\$4,243,089,299

Conclusions and Recommendations:

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

4.8 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 \$183,077,000.

Observations and Analysis:

During 1st Quarter 2014, 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.

Phase 1 Budget	\$	4,451,000,000
Construction Awards	\$	2,674,814,299
Soft Cost Expended	\$	1,016,131,799
Soft Cost Forecast to Complete	\$	291,976,286
<u>AWO Exposure</u>	<u>\$</u>	<u>180,229,155</u>
Available Contingency	\$	287,848,461
ELPEP Requirement	\$	183,077,000

During March 2013, it was agreed that MTACC had achieved the initial “hold point” (90% Bid, 50% Constructed) on the contingency drawdown curve. From that point forward, the ELPEP required minimum contingency balance will be reduced monthly. The next “hold point” (100% Bid, 85% Constructed) was forecast to be achieved during the 4th Quarter of 2014. MTACC has acknowledged that this milestone goal will not be achieved, and requested it be reforecast to May 2015. This change will require MTACC to maintain a minimum \$140M contingency balance through that date. This request by MTACC is currently under review.

Concerns and Recommendations:

This evaluation is based on a thorough evaluation 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.

5.0 PROJECT RISK

5.1 Initial Risk Assessment

No change this period.

5.2 Risk Updates

Status:

There was no change in status during this period. Risk Registers for all active contracts should be updated in 2nd Quarter 2014.

Observation and Analysis:

Issues observed by the PMOC this period which may represent a risk to project cost or schedule performance include:

- MTACC previously identified the supply of permanent power for station facilities at 96th, 86th, and 72nd Street Stations to be a significant risk. MTACC has worked aggressively to expedite the design and review of contractor submittals with ConEd and anticipate release of the 96th Street Station equipment for fabrication in early April 2014. MTACC generally believes this issue no longer constitutes a significant schedule risk. Although MTACC has made progress in integrating this issue into the IPS they are still unable to provide detailed forecasts of equipment delivery dates, etc.
- Delays in starting track installation at the north end of the project are currently the biggest schedule risk and are driving the overall project critical path. There are several causes for this delay including unforeseen conditions, survey coordination defects and contractor coordination. MTACC has taken steps to resolve the survey coordination issue, which will hopefully reduce the time required to resolve future survey discrepancies. The Contractors' schedule forecasts that track installation will not be able to start until June 25, 2014. While some mitigation should be available, it appears significant project float will be consumed by this delay.
- Delays to completion of C5B cavern lining activities may delay or disrupt the handoff of areas to the C5C contract. Prompt execution of these handoffs is a key schedule risk.
- MTACC has modified its short-term approach to schedule improvement and delay mitigation. The "all-in-one" systems installation and testing acceleration approach will be temporarily tables until such time as specific status and issues at each station location can be better forecast. Until then, the focus will be on immediate opportunities to improve the schedule and expedite construction in key project locations.
- Additional cost and delay has been experienced in the execution of construction by the C3 contractor and transfer of spaces to the C6 contractor as a result of a lack of clarity or variance in milestone definitions in the respective contract specifications. This risk is included in the C3 Risk Register, but not in the C2B, C4C or C5C Risk Registers. Lessons learned from the C3/C6 milestone coordination need to be applied to the remaining stations before the actual turnover process.

- The risk of late design changes by user departments, specifically communications, has been mitigated over recent months. However, this issue is identified as a significant risk for C2B, C4C and C5C as well as C6 and should be periodically reviewed.

Conclusions and Recommendations:

The PMOC is concerned that risks identified during the schedule update process are not being consistently transferred to the IPS. A consistent, transparent methodology for evaluating schedule risk and reasonably depicting those risks in the IPS is needed.

5.3 Risk Management Status

Status:

Risk Management includes the manner by which the project team identifies and copes with risks retained by the MTACC. The SAS Risk Manager supports and coordinates specific risk management efforts, which may involve a wide range of senior project management personnel.

Observation and Analysis:

The risk management process generally includes:

- Contract Risk Registers are maintained and updated on a Quarterly basis. The last update was completed in March 2014.
- Information from the risk registers is used in the updating of the cost and schedule drawdown curves to provide risk-informed cost and schedule forecasts
- Formal risk mitigation meetings on a monthly basis.
- Issuance of the Monthly Risk Report.

SAS senior managers recognize that management of contract interfaces is one of the most significant risks associated with the project and have initiated an aggressive process to assure this risk is effectively mitigated.

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.

5.4 Risk Mitigation

Status:

Risk Registers for active construction contracts were updated during September 2013.

Observation and Analysis:

The most significant risks identified in the following table. Also included are descriptions of the current mitigation strategy and an update of the status of the mitigation actions taken to date.

<u>Risk Description</u>	<u>Mitigation Summary</u>	
Risk CNS 4 (C6): Delay resulting from management of contractual interfaces during construction.	Risk Type	
	Cost	Schedule
Mitigation Strategy: 1. The previously detailed mitigation strategy has not resulted in effective management of contractual interfaces. 2. It has been determine that the overall strategy remains sound; however significant improvements in implementation are necessary. 3. The status of milestones that are one to three months in the future will be reviewed at monthly risk management meetings to verify satisfactory progress or problems where additional effort is required.	Current Status: 1. Interface management responsibilities have been temporarily redistributed pending the hire of a new Interface Manager. 2. Positive progress reported on achieving upcoming milestones. Revisions to process and personnel appear to have had a positive impact on the management of this risk.	
Risk C3, C2B, C4C, C5C and C6 Schedules: Construction contract delays that will extend Project Completion beyond the current RSD.	Risk Type	
	Cost	Schedule
Mitigation Strategy: 1. The previously detailed strategy of achieving significant schedule improvement by accelerating systems installation and testing remains a valid, but will be placed “on hold” for the immediate future. 2. Ongoing schedule improvement will focus on “targets of opportunity” where specific action directed to critical or near-critical work tasks will result in measurable schedule improvement.	Current Status: 1. Acceleration of specific “targets of opportunity” will be detailed as they are identified. 2. No change in this risk during this update period.	
Permanent (Station) Power: Permanent facility power to 72 nd , 86 th , and 96 th Street Stations may be delayed and result in subsequent delays to equipment testing and commissioning.	Risk Type	
	Cost	Schedule
Mitigation Strategy: 1. Obtain services of an experienced ConEd liaison engineer to facilitate design and review process.	Current Status: 1. Mitigation Strategy Items #1 and #2 continue. Cooperation and progress among all parties appears to be good.	

<u>Risk Description</u>	<u>Mitigation Summary</u>			
<ol style="list-style-type: none"> 2. Expedite contractor design and ConEd review processes where possible. 3. Development of detail schedule “fragnet” to identify schedule problems and monitor progress. 4. Expedite construction of supporting infrastructure at each station to minimize potential delay. 5. Advance scheduling and coordination of feeder “cut-in” to minimize delays 	<ol style="list-style-type: none"> 2. Development of a detail schedule which models this issue is still incomplete. This risk was identified in August 2013. MTACC’s inability to develop a schedule and quantify the potential impacts suggests a significant deficiency in its management of this risk. 3. Based upon design reviews to date, MTACC anticipated releasing the 96th Street Station switchgear for fabrication by mid-April 2014. 			
<p>Buy America</p> <p>Delay resulting from resolution of MTA’s request for a non-availability waiver for the LVT Pad and Boot.</p>	<p style="text-align: center;">Risk Type</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Cost</td> <td style="width: 50%; text-align: center;">Schedule</td> </tr> </table>		Cost	Schedule
Cost	Schedule			
<p>Mitigation Strategy:</p> <ol style="list-style-type: none"> 1. Request waiver of Buy America requirement for this item based upon “non-availability”. 2. Options include: <ol style="list-style-type: none"> a. MTACC’s position accepted – no changes required. b. Request rejected – exclude FTA funding & use local funding only. c. Request rejected – develop alternative with compliant materials. 	<p>Current Status:</p> <ol style="list-style-type: none"> 1. On September 11, 2013, MTACC transmitted its request for a “non-availability” waiver for the LVT Pad and Boot. 2. MTACC’s waiver request was posted in the Federal Register for a 30-day comment period on December 17, 2013. This period expired on January 17, 2014 with no known comments having been received. 3. On March 21, 2014, the FTA hereby waived its Buy America requirements on the basis of non-availability for the pad and rubber boot—components of the concrete blocks used in the LVT system. 4. This risk can be closed. 			
<p>Risk C4C Entrance 1 (301 E 69th Street):</p> <p>Work on Entrance 1 will be delayed due to delays in obtaining design approval from Owner for utility relocation in the building.</p>	<p style="text-align: center;">Risk Type</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Cost</td> <td style="width: 50%; text-align: center;">Schedule</td> </tr> </table>		Cost	Schedule
Cost	Schedule			
<p>Mitigation Strategy:</p> <ol style="list-style-type: none"> 1. Develop an alternate design (relocation from inside building to sidewalk) to reduce impacts to building utilities. 2. Prepare a Tech memo and submit to FTA for approval. 3. Develop and negotiate access agreements with affected property owners 4. Excavate/concrete and underpin the 	<p>Current Status:</p> <ol style="list-style-type: none"> 1. In progress. 2. Complete. 3. Access agreements with affected adjacent property owners have been obtained and work is progressing. 4. Concern was expressed about the numerous AWOs required to implement this work and the lack of IPS detail pertaining to this work. 			

<u>Risk Description</u>	<u>Mitigation Summary</u>			
<p>common wall via C4C.</p> <p>5. Exercise C4C options for Entrance # 1 in order to engage contractor's engineering and to provide time to develop an underpinning design and construction staging plan.</p>	<p>At this time, the impact of this work on the overall project schedule has not been determined.</p>			
<p>Risk COM 2 (C6): Frequent late changes to the communications systems could delay C6 and the RSD.</p>		<p>Risk Type</p> <table border="1" data-bbox="1133 579 1458 657"> <tr> <td data-bbox="1133 579 1295 657">Cost</td> <td data-bbox="1295 579 1458 657">Schedule</td> </tr> </table>	Cost	Schedule
Cost	Schedule			
<p>Mitigation Strategy:</p> <ol style="list-style-type: none"> 1. Confirm that previously agreed Communications design changes have been incorporated into the design. Resolve any outstanding issues. 2. Future User Department requested changes shall go through the CCG/ CCB approval process. A User Department representative's approval signature is required on the change request forms. The request will include cost and schedule impacts of the requested change. 3. Requested changes exceeding \$50,000 or having any schedule impact, must be presented to the Board by a User Department representative with substantiation of need provided. 	<p>Current Status:</p> <ol style="list-style-type: none"> 1. MTACC has reported that this item has been completed. 2. CCG/CCB review and approval process appears to be having a positive effect on limiting the number of User Department requests for design changes. 3. Monitoring of the effectiveness of the risk mitigation strategy is ongoing. 4. This risk is applicable to all major operating systems, not just the communications system. 			
<p>Risk CNS 8 (C6) Delayed Safety Certification results in delay to the RSD</p>		<p>Risk Type</p> <table border="1" data-bbox="1133 1413 1458 1491"> <tr> <td data-bbox="1133 1413 1295 1491">Cost</td> <td data-bbox="1295 1413 1458 1491">Schedule</td> </tr> </table>	Cost	Schedule
Cost	Schedule			
<p>Mitigation Strategy:</p> <ol style="list-style-type: none"> 1. Develop a detailed plan for executing the work required to achieve certification of SAS Phase 1. 2. Implement that plan. 3. Concern continues to be expressed regarding the role of NYSPTS in this process, primarily due to the lack of precedent and explicit definition of the roles and responsibilities of all parties 4. Internal meeting(s) to prepare the outline 	<p>Current Status:</p> <ol style="list-style-type: none"> 1. MTACC has developed a detailed plan for executing the work required to achieve certification of SAS Phase 1. 2. Implementation of that plan is currently underway. 3. NYSPTS role has been confirmed to be one of oversight and verification of the MTACC/NYCT certification process. Their role will not impact the RSD. 4. Review of MTACC's updated SSMP and 			

<u>Risk Description</u>	<u>Mitigation Summary</u>
of the committee meeting with NYS. 5. There is concern that delays in finding a new Safety and Certification Manager will adversely impact this process. 6. Hold Safety Certification Meeting with NYS representative in attendance.	further efforts to define roles and responsibilities should address this issue. 5. Meeting with NYSPTSB scheduled for April 1, 2014 to better define relationships, requirements and manner by which all parties will function on the project.

Concerns and Recommendations:

The SAS Project Management Team continues to utilize the risk mitigation process to reduce the adverse cost and schedule impact of identified risks. Schedule risks are the predominant risks currently challenging the project team. The PMOC has recommended that schedule risks identified via the schedule update process be included in the risk management process to ensure their effective disposition.

5.5 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 #91, MTACC continues to forecast all Phase 1 construction and pre-revenue testing to be complete on September 21, 2016. This results in 102 CD (73 WD) of contingency when measured against the MTACC's target RSD of December 30, 2016 and a 526 CD contingency when measured against the FTA Risk-Informed RSD of February 28, 2018. As previously noted, the PMOC considers this to be an extremely optimistic assessment of the schedule status, representing 100% mitigation of several major issues which are acknowledged to have potential to significantly impact the project schedule.

The PMOC understands MTACC's decision to discount certain contractor schedule analyses from the IPS, realizing that contractor's positions may be overstated for a variety of reasons. However the PMOC also notes the MTACC's tendency to understate the potential cost and schedule significance of certain issues as well as the extended period of time required to resolve such differences between MTACC and the contractors.

Observations:

It is the opinion of the PMOC that the RSD should be expressed as a range of dates representing a risk-mitigated forecast and a risk-realized forecast based upon currently recognized, major schedule risks. Using this approach the RSD calculated by IPS #XX would be expressed as follows:

Table 6-1: Schedule Contingency

IPS Update #	87	88	89	90	91	92
Data Date	10/1/13	11/1/13	12/1/13	01/1/14	02/1/14	03/1/14
	Contingency (CD)					
RSD=12/31/2016						
Risk Mitigated	102	102	102	102	102	
Risk Realized				20	-20	
RSD=02/28/2018						
Risk Mitigated	537	537	537	526	526	
Risk Realized				446	105	

Concerns and Recommendations:

The PMOC recommends a more comprehensive approach for incorporating known schedule risks into the monthly IPS update be developed. This will enhance the accuracy and reliability of schedule forecasts and provide the necessary visibility to critical issues which require resolution.

6.0 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 (September 2013):</u> MTACC issued draft Update #9 of the PMP for review. PMOC’s review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013. Update of the various Sub-Plans will be addressed once comments associated with the review of the PMP are resolved.</p> <p><u>Update (December 2013):</u> PMOC’s review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC when available. MTACC intends to revise the SMP, CMP and RMP sub-plans based upon the results of its internal audit.</p>	2
SAS-20- Dec10	5.1.3 Change Orders	<p>Processing duration for AWOs is excessive. The average processing duration currently equals the published MTA maximum duration of 90 days. Improvement is required to facilitate contractor cooperation and reduce risk of “backlash” through perceived unfair treatment.</p> <p><u>Update (September 2013):</u> PMOC’s monitoring of the high dollar AWOs is ongoing. An in-depth review of the AWO procedure will be performed once authorized by FTA RII.</p> <p><u>Update (December 2013):</u> Processing durations continue to exceed the period specified by MTACC procedure. To date, no adverse impacts related to excessive processing duration have been observed. PMOC will continue to monitor AWO processing.</p>	1

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-22- Jun 12	1.1.2 f Community Relations	<p>MTACC's community outreach efforts have had a positive impact on relations with the affected community. Many of the specific issues and resulting actions may have been beyond contemplation prior to the start of construction. Based upon the "lessons learned" to date, the PMOC recommends the MTACC develop a more comprehensive plan for construction phase community relations going forward, including an overall execution plan and proposed scope of activities</p> <p>Update (September 2013): MTACC issued draft Update #9 of the PMP for review. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013 and will address this concern.</p> <p>Update (December 2013): No change this period.</p>	2
SAS-26- Jun 12	2.6 Community Relations	<p>The community relations effort has proven to be an important element of the management of this project. It is the recommendation of the PMOC that the community relations effort be fully incorporated into the mainstream of project scope, budget and risk management activities to support the goals of cost-effective and transparent decision making and the related goals of the ELPEP.</p> <p>Update March 2013: No update this period.</p> <p>Update September 2013: MTACC issued draft Update #9 of the PMP for review. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013 which will also address this concern.</p> <p>Update (December 2013): Revision to SAS PMP is anticipated in the 1st Quarter 2014.</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-27- Jun 12	3.2	<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 (December) 2012:</u> PMOC will coordinate with the MTACC to issued Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is forecasted for mid-2013. ▪ <u>Update (September) 2013:</u> A draft of PMP Rev. 9 for was provided to the FTA/PMOC for review. PMOC’s review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013. ▪ <u>Update (December) 2013:</u> Revision to SAS PMP is anticipated in the 1st Quarter 2014. 	2

7.0 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
SAS-A17-Aug08	2.4 Vehicles	<p>The PMOC requested additional information regarding certain statements in the draft Rail Fleet Management Plan:</p> <ul style="list-style-type: none"> ▪ NYCT should provide a test plan for increasing the period between inspections of the new technology fleet. ▪ NYCT should explain why, in light of the ongoing state of good repair fleet replacement program, the cars financed under the SAS project are no longer needed. ▪ MTACC should explain why they are considering removing the vehicles from the project scope without reducing the project funding. <p>Update: The supply of vehicles for SAS Phase 1 will be addressed in the Draft Fleet Management Plan, scheduled for distribution in July 2010.</p> <p>Update: A Draft Fleet Management Plan was not submitted during July 2010. This item remains open.</p> <p>Update: As of August 31, 2010, a Draft Fleet Management Plan has not been submitted.</p> <p>Update: A Draft Fleet Management Plan was received, reviewed with comments provided to the FTA.</p>	2	7/30/10

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
		<p><u>Update:</u> Vehicle requirements and associated cost to be addressed as part of the FFGA amendment.</p> <p><u>Update:</u> No additional vehicles will be procured for the SAS Phase 1 Project. MTACC/NYCT's assertion that recent services reductions will provide ample spare vehicles for the SAS Phase 1 Project has been reflected in the Rail Fleet Management Plan which was accepted by FTA Region II. A "zero" dollar budget for the procurement of vehicles is reflected in the projects Current Working Budget (CWB) and also in the latest cost estimate (Rev. 9). No further action is planned by the PMOC.</p>		

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
S3	Skanska, Schiavone and Shea, JV
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
12/30/16	Revenue Operations Date at date of this report (MTACC schedule)		
64.0%	Percent Complete Construction at March 31, 2014		
81.6%	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
2,802M	Amount of Expenditures at date of this report from Total Project Budget of \$4,451M
63.8%	Percent Complete based on Expenditures at date of this report
288M	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 2013

#	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

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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

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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 will continue with the procurement of equipment during the Station contracts (C2B, C4B, and C5B).
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 and are currently being verified during equipment factory acceptance testing. Effort is 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	
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

Project Overview		
		Contract 6
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, 2014 are 1.87 and 5.43, 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 7,809,361 hours. Total lost time injuries since project inception is 73 and other recordable injuries are 139. The total number of recordable injuries is 212 (sum of the lost time injuries and the other	BLS National Lost Time Rate for Heavy and Civil Construction is 1.7 and for Recordable Injury is 3.2

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	recordable injuries).	
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	MTACC has expanded its safety program to include a monthly walk-thru of the various work zones by the SAS Project Management Team. In addition the SAS Project Safety Manager holds a monthly meeting with all Contractor Safety Managers, OCIP Representative, and the insurance carrier representative in order to make all aware of the safety concerns on the project and to exchange lessons learned. Each contractor is also holding its own “tool box” meetings focusing on various safety topics. Corrective Action Plans have been requested from contractors with high safety incident rates.	
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	NA	

Project Overview		
- Fencing, etc.?		
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	\$288M (March. 2014)	\$183M
Schedule	Revenue Service Date	September 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	63.8%		
	Based on Earned Value	N/A		
Major Issue		Status	Comments	
Buy America		Closed	Non-availability waiver for Low Vibration Track pad and block assembly is under review.	
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, 2014 reporting.