PMOC MONTHLY REPORT

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

June 1 to June 30, 2014

PMOC Contract No. DTFT60-09-D-00007

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

Urban Engineers of New York, P.C., 2 Penn Plaza, Suite 1103, New York, New York 10121
PMOC Lead, Charles A. Halboth, PE, 212-736-9100; cahalboth@urbanengineers.com
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 2nd 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 phase of the project.

b. New Contract Procurements

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

c. Construction Progress

All construction is approximately 67.68 % complete (overall project completion is approximately 66.7%) as of June 30, 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.
- The 96th Street Station Finishes, Mechanical, Electrical, and Plumbing Systems and Ancillary Building and Entrances (Contract C2B) is approximately 40.7% complete. Ongoing construction activity includes placement of concrete roof slabs, installation of concrete masonry walls, waterproofing in station areas and installation of cast-in-place walls at the mezzanine level. Impacts on the completion of near term Milestones 2 and 5 are being mitigated to provide shared access for the Track, Signal, Traction Power, and Communication Systems contractor (Contract C6).
- At the 86th Street Station (Contract C5B), concrete placement is 94% complete. Work at Entrance #2 is ongoing with 2 of the 3 inclines complete. Waterproofing of the elevator shaft continues.
- 86th Street Station Architectural and MEP (Contract C5C) construction is 4.1% complete. Work continues in the east & west tunnels with concrete topping, conduits and preparations for construction of the benches. Construction of the Mezzanine has begun. Full access remains 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.
- The 72nd Street Station Finishes, MEP Systems, Ancillary Buildings and Entrances (Contract C4C) is 16.6% complete. The Mezzanine deck in the cavern is complete. Continuing with work at the Upper Mezzanine and erection of masonry walls at the

north end of the mezzanine. Construction of concrete walls and slabs continues in Ancillary #2/Entrance #2.

- Rehabilitation of the 63rd Street Station (Contract C3) has reached 76.6% complete. The contractor continued the installation of brackets in elevator shafts 1 through 4 and continued installation of rails. Began work in the Elevator Machine Room. Continued installation of power & communication conduits throughout. Began platform pavers and continued with other architectural finishes in the lobbies. Began mini-piles in Entrance #1.
- The Track, Signal, Traction Power, and Communication Systems Contract (C6) has progressed to approximately 29.7% complete. Significant activity during this reporting period includes the installation of LVTs and rail, wayside signal cables and wayside signal equipment in the tunnel north of 96th St. Station. .

d. Continuing and Unresolved Issues

- Finalization of cost and schedule for the revised configuration of Entrance #1 at the 72nd Street Station. This major redesign was necessitated by stakeholder issues beyond the control of the SAS project team; however the lack of resolution of the final cost and schedule for these changes remain as unresolved issues.
- Additional delays continue at the 63rd Street Station Reconstruction Project (C3). To date this project has experienced approximately 15 months of delay; its completion is now on a "near critical" schedule path for the entire project. The "ripple effect" of delays to follow-on work has not been determined.
- 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.

e. New Cost and Schedule Issues

- Increases in Additional Work Order (AWO) Exposure over recent periods have been significant. If this trend continues, AWO Expenditures an adjustment to the AWO Budget may be required.
- Delays to the start of track installation have resulted from inter-contract coordination issues as well as unforeseen field conditions.

3. PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

The Grantee has generally demonstrated the technical capacity and capability to execute Phase 1 of the SAS project. With construction progress nearing 70% complete, the Grantee has successfully managed the project through several "phases" of construction. Significant staffing changes have been made with negligible adverse impact on performance. While several elements of the project and construction management effort are not being optimally executed, MTACC has generally demonstrated the effort and ability to respond and resolve deficiencies.

b. Real Estate Acquisition

All real estate for the SAS Phase 1 Project has been acquired. Real estate acquisition and tenant relocation was performed in accordance with the approved SAS Real Estate Acquisition Management Plan, and Relocation Plan. These plans address Title 49 CFR Part 24, which implements the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and FTA real estate requirements 5010.1C.

c. Engineering/Design

The final design phase of the project was completed in late November 2010. Construction phase support by the design engineer has involved the usual submittal review and approval and technical assistance activities. Several significant redesign efforts were also required in response to unforeseen conditions.

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

d. Procurement

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

e. Railroad Force Account (Support and Construction)

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

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 2nd 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 June 30, 2014	
	$ 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**	**2,968.365**	**56.34**
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**	**2,968.365**	**56.34**
Total Federal:	**1,350.693**	**27.75**	**1,063.942***		**1,350.693**	**24.60**	879.123	16.68
Total FTA share:	**1,300.000**	**96.25**	**990.049**		**1,300.000**	**23.68**	815.23	15.48
5309 New Starts share	1,300.000	100	990.049		1,300.000	23.68	815.23	15.48
Total FHWA share:	**50.693**	**3.75**	73.893		**50.693**	**0.96**	73.893	1.40
CMAQ	48.233	95.15	71.433		48.233	0.88	71.433	1.35
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	.05
Total Local share:	**2,699.307**	**55.47**	**3,509.000****		****3,509.000**	**63.92**	**2,089.242**	**39.66**
State share	450.000	16.67	100.000		450.000	8.20		
Agency share	2,249.307	83.33	1,145.782		3,059.000	55.72		
City share	0	0			0	0		

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

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

j. Project Risk

Major issues that have either increased or decreased the risk of project schedule and cost increases during the 2nd Quarter 2014 have been summarized as follows:

Decrease	Increase
• Efforts to accelerate the fabrication of long-lead equipment appear to have been successful. Permanent power is now forecast to be available in time to support station startup and commissioning activities.	• Due to resource conflicts with other MTACC projects, NYCT personnel are not expected to be available to participate in startup and commissioning planning for SAS until 1st Quarter 2015.

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 2nd Quarter 2014 meeting to review MTACC's compliance with ELPEP requirements was held on June 19, 2014. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** Update of the TCC Plan is not yet completed pending finalization of select roles, responsibilities and levels of authority. During Q2-2014 MTACC has focused on completing the current revisions to the SAS Project Management Plan. Target date for MTACC's submittal of the revised PMP is July 2014. FTA/PMOC review will be completed in August 2014.
- **Schedule Management Plan (SMP)**: MTACC will focus on SMP updates during Q3-2014. MTACC's 2nd Quarter 2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its SMP.
- **Cost Management Plan (CMP)**: MTACC will focus on SMP updates during Q3-2014. MTACC's 2nd Quarter 2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its CMP.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP)**: MTACC will focus on RMCP updates during Q3-2014. MTACC's 2nd 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 2nd Quarter 2014, a new scheduling Manager was identified and began work on the project.

Observation:

The most recent SAS Organization Chart, contained in the MTACC 1st Quarter 2014 Report to the FTA, continues to indicate 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 Certification Manager and Deputy Construction Program Director positions are not included on this chart.

The PMOC notes that some concern has been expressed regarding the part-time status of the new Safety/Security Certification Manager. Given the current status of the Safety /Security Certification effort and the overall status of the project, anything less than a full time level of effort from this position must be critically evaluated.

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.

A complete evaluation of the viability of a part-time Safety /Security Manager should be conducted by MTACC/SAS senior management.

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 have been forwarded to MTACC.

Observation:

MTACC has noted it intends to update sub-plans of the SAS PMP; however no observable progress has been made to date.

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:

As of June 30, 2014, New York City Transit (NYCT) Engineering Force account expenditures are $39,229,381 of the $95,400,000 budget. NYCT) labor expenditures are $8,473,615 of the $25,600,000 budget.

Observation:

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

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

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 2nd 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 continues its efforts to provide up-to-date information and improve community access to SAS project staff and provide transparency to the project. Additional details are contained within Section 2.6 of this report.

Observation:

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 2nd 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 Polices Act of 1970, as amended, and FTA real estate requirements 5010.1C.

c) Local Funding Agreements

Funds totaling $2.964 billion were allocated in MTA's 2000-2004 and 2005-2009 Capital Plans. The balance of $1.487 billion to complete SAS Phase 1 was budged 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 2nd 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 June 2014, the Second Avenue Subway Quality Management team continued holding Quality Meetings and Quarterly Quality Oversights 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 June 2014 include:

- Nonconformance Reports (NCRs)

  Except for out of specification concrete, only 3 nonconformance reports were written in June. Seven additional nonconforming conditions were noted but no NCRs were written. The PMOC is concerned that nonconforming conditions noted by the SAS contractors and their subcontractors might not be documented on NCRs. In addition, many of the concrete related nonconformance reports that are written are documented much later than when the nonconformance occurred. The PMOC recommends that the SAS Quality Manager reinforce the requirement that all nonconforming conditions must be documented when the nonconformance occurs.

- Contractors' lack of attention to closing Nonconformance Reports

  The PMOC is concerned that when NCRs are written, they are not dispositioned and closed out in a timely manner. As of June 30, 2014, the total number of NCRs open on SAS is 89. With the exception of the C5B contract (7 NCRs closed in June) very few NCRs have been closed during the last three months as shown in the following table. Most of the open NCRs are at least three months old.

Month	Total Number* of NCRs Closed in Current Month
April	5
May	6
June	12

* The numbers are the totals for all SAS contracts.

- Inspection Daily Reports

  Past Monthly Reports identified a major issue that it took excessive time on several SAS contracts to enter Daily Inspection Reports into the Contractor Management System (CMS). During Monthly Quality Management Meetings, the PMOC stressed the importance to enter

Daily Inspection Reports promptly. At the end of June 2014, all contractors are current with their entries with the exception of the C4C contractor.

Quarterly Quality Oversights (QQOs)

MTACC revised the checklist that SAS uses to perform 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. The new checklist was used for the first time on the C3 contract when the QQO was conducted in the second quarter of 2014. Several problems were noted:

- Many questions were redundant. The QQO took 1 ½ days. With the old checklist, it took less than one day to conduct a QQO. The PMOC discussed this with the MTACC Chief of Quality, Safety, and Site Security who will convene a team to eliminate the redundancy.
- Although the numerical rating for each question has been simplified at the suggestion of the PMOC, the overall rating is automatically calculated to two decimal places, e.g., 89.46%. The MTACC Chief of Quality, Safety, and Site Security will make a change so that the rating is rounded to the nearest percent.
- The PMOC is still concerned that the QQO has a numerical rating. This is unusual. Most oversights and audits conducted by other grantees do not have a numerical rating. The SAS C3 Contractor's Quality Manager is only concerned about what his number is since that is what his management measures him on. The actual findings are secondary. Other SAS contractors also focus on the rating rather than the findings.
- The SAS C3 Quality Manager was not prepared for this QQO. The QQO was conducted on a different floor from the contractor's Quality Manager's desk and he had to keep going back and forth to retrieve information. This was another reason that the QQO lasted for 1 ½ days.

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 QQO checklist requirements and other changes that have occurred since Revision 3 was issued. The PMOC expected to receive a draft of Revision 4 to review in June 2014. Due to other priorities, this date has slipped until July 2014.

Contract Package C2A	
Status:	Through June 30, 2014, a total of 36 NCRs have been issued. All 36 have been closed by both the contractor and SAS. In June 2014, no new NCRs were written and three were closed.
Observation:	The last three open NCRs on this contract were closed in June 2014.
Concerns and Recommendations:	None.

Contract Package C2B	
Status:	Through June 30, 2014, a total of 47 NCRs have been issued. 30 have been closed and 17 NCRs are still open. In June 2014, four new NCRs were written and none were closed.
Observation:	Of the 17 open NCRs, 12 are for concrete that was out of specification. Two of the five open non-concrete NCRs have been open between nine months and one year.
Concerns and Recommendations:	The PMOC is concerned that the older concrete NCRs have not been closed.
Contract Package C3	
Status:	Through June 30, 2014, a total of 80 NCRs have been issued. 68 have been closed and 12 NCRs are still open. In June 2014, no new NCRs were written and two were closed.
Observation:	Of the 12 open NCR's, 5 were written by the contractor on one of their subcontractors. Four of these NCRs have been open 4 to 10 months
Concerns and Recommendations:	Only two C3 NCRs have been closed in the past 3 ½ months. The PMOC is concerned that 9 of the 12 open NCRs have been open for 4 to 10 months.
Contract Package C4B	
Status:	Through June 30, 2014, a total of 122 NCRs have been issued. 121 have been closed and 1 NCR is still open. In June 2014, no new NCRs were written and none were closed.
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 June 30, 2014, a total of 48 NCRs have been issued. One has been closed and 47 NCRs are still open. In June 2014, 15 new NCRs were written and none were closed. 14 of the new NCRs were for concrete that was out of specification. These conditions occurred in April and May 2014 but were not documented by the contractor until June.
Observation:	43 of the open NCRs are for concrete that was out of specification. The contractor is performing two concrete analyses, one for each of their

	suppliers. Both analyses will be submitted to the SAS C4C CCM in July 2014. Submittal of Inspection Daily Reports are one month behind.
Concerns and Recommendations:	The PMOC is concerned that the C4C contractor has not been generating NCRs for concrete that was out of specification until one to two months passed. The C4C Contractor's Quality Manager has obtained additional help and the NCR and Daily Report backlogs have started to be reduced.
Contract Package C5B	
Status:	Through June 30, 2014, a total of 73 NCRs have been issued. 61 have been closed and 12 NCRs are still open. In June 2014, no new NCRs were written and seven were closed.
Observation:	Of the 12 open NCRs, 6 are for concrete that was out of specification. The C5B contractor identified 5 nonconforming conditions but did not issue nonconformance reports.
Concerns and Recommendations:	The PMOC is concerned that nonconformance reports are not written as soon as the nonconforming condition is found and recommends that the SAS Quality Manager instruct all contractors that NCRs must be written as soon as the nonconforming condition occurs.
Contract Package C5C	
Status:	Through June 30, 2014 no NCRs have been issued.
Observation:	The C5C contractor identified 3 concrete nonconforming conditions on June 26, 2014 but did not issue nonconformance reports.
Concerns and Recommendations:	The PMOC is concerned that nonconformance reports are not written as soon as the nonconforming condition is found and recommends that the SAS Quality Manager instruct all contractors that NCRs must be written as soon as the nonconforming condition occurs.
Contract Package C4C	
Status:	Through June 30, 2014, a total of 48 NCRs have been issued. One has been closed and 47 NCRs are still open. In June 2014, 15 new NCRs were written and none were closed. 14 of the new NCRs were for concrete that was out of specification. These conditions occurred in April and May 2014 but were not documented by the contractor until June.
Observation:	43 of the open NCRs are for concrete that was out of specification. The contractor is performing two concrete analyses, one for each of their suppliers. Both analyses will be submitted to the SAS C4C CCM in July 2014. Submittal of Inspection Daily Reports are one month behind.
Concerns and Recommendations:	The PMOC is concerned that the C4C contractor has not been generating NCRs for concrete that was out of specification until one to two months passed. The C4C Contractor's Quality Manager has

	obtained additional help and the NCR and Daily Report backlogs have started to be reduced.
Contract Package C5B	
Status:	Through June 30, 2014, a total of 73 NCRs have been issued. 61 have been closed and 12 NCRs are still open. In June 2014, no new NCRs were written and seven were closed.
Observation:	Of the 12 open NCRs, 6 are for concrete that was out of specification. The C5B contractor identified 5 nonconforming conditions but did not issue nonconformance reports.
Concerns and Recommendations:	The PMOC is concerned that nonconformance reports are not written as soon as the nonconforming condition is found and recommends that the SAS Quality Manager instruct all contractors that NCRs must be written as soon as the nonconforming condition occurs.
Contract Package C5C	
Status:	Through June 30, 2014 no NCRs have been issued.
Observation:	The C5C contractor identified 3 concrete nonconforming conditions on June 26, 2014 but did not issue nonconformance reports.
Concerns and Recommendations:	The PMOC is concerned that nonconformance reports are not written as soon as the nonconforming condition is found and recommends that the SAS Quality Manager instruct all contractors that NCRs must be written as soon as the nonconforming condition occurs.
Contract Package C6	
Status:	Through June 30, 2014 a total of seven NCRs have been issued. Four have been closed and three NCRs are still open. In June 2014, no new NCRs were written and none were closed. None of the seven total NCRs were for concrete placement.
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.

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

Observation/Concerns and Recommendations:

None

1.2.4 Project Budget and Cost

Status:

Total project cost in the approved FFGA ($4,866,614,000) and Current Working Budget (CWB) which is based on Revision 9 to the Project Cost Estimate, are allocated into the Standard Cost Categories (SCC) as shown below in Table 1-1.

Table 1-1: Standard Cost Categories

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (March 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

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (March 31, 2013)
Subtotal		$4,050,000,000	$4,451,000,000
Financing Cost		$816,614,000	$816,614,000
Total Project		**$4,866,614,000**	**$5,267,614,000**

Table 1-2 lists the associated grants in the Transportation Electronic Award Management (TEAM) System with respective appropriated, obligated, and disbursed amounts as of June 30, 2014. No additional Federal Funds were obligated to the MTA for the SAS Phase 1 Project during the 2nd 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 FY 2012 allocation published in the Federal Register on January 11, 2012. Total Federal Funds obligated as of June 30, 2014 is $1,063,942,000.

Table 1-2: Appropriated and Obligated Funds

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru June 30, 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	$237,849,000
NY-03-0408-08	$197,182,000	$197,182,000	$12,362,408
NY-03-0408-09**	$186,566,000	0	0
NY-03-0408-10***	$123,384,621	0	0
NY-17-X001-00	$2,459,821	$2,459,821	$2,459,821
NY-36-001-00*	$78,870,000	$78,870,000	$78,870,000
NY-95-X009-00	$25,633,000	$25,633,000	$25,633,000
NY-95-X015-00	$45,800,000	$45,800,000	$45,800,000
Total	$1,373,892,821.00	$1,063,942,200.00	$879,122,608.00

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

A total of $2,968,364,991 has been expended on the project through June 31, 2014, of which $497,615,464 has been spent on design and $1,810,247,097 on construction (MTACC's June 2014 Cost and Schedule Summary Input).

Observation:

Local funds totaling $2,089,242,383 have been spent as of June 30, 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.

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

Concerns and Recommendations:

None.

1.2.6 Project Safety and Security

Status:

Safety – The OSHA Lost Time Injury Rate and Recordable Injury Rate from the start of construction until May 31, 2014 are 1.84 and 5.23, 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 8,456,777 hours. Total lost time injuries since project inception is 78 and other recordable injuries are 143. The total number of recordable injuries is 221 (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 four contractors and the lost time rate is being driven by three contractors. Safety Managers for each of these contractors have held additional tool box meetings, increased training and increased monitoring of the tasks being performed.

Concerns and Recommendations: None

1.3 FTA Compliance

Status:

The PMOC and FTA review comments to the updated SAS Project Management Plan (Revision 9) have been transmitted to the MTACC. Incorporation of the comments is expected in July 2014 and PMOC/FTA review is anticipated to be completed in August 2014.

Based on its internal compliance reviews, MTACC has generally complied with ELPEP and its associated sub-plans throughout the 4th Quarter 2013. Any PMOC issues issues are specifically discussed in Section 4.4 (Compliance With Schedule Management Plan), Section 5.4 (Project Cost and Contingency) and Section 6.3 (Risk Management Status) of this report.

Observation:

MTACC has discussed updating major sub-plans to the PMP, specifically the Schedule Management Plan, Project Cost and Contingency Management Plan and Risk Management Plan.

Concerns and Recommendations:

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

1.3.1 FTA Milestones Achieved

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

The ELPEP Hold Point "90% Project Bid/50% Construction Complete" was achieved in March 2013. The next ELPEP Hold Point "100% Project Bid/85% Construction Complete" is currently forecast for the 2nd Quarter 2015.

1.3.2 Readiness for Revenue Operations

Status:

No change this period.

2.0 PROJECT SCOPE

2.1 Status & Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

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

Observation:

The primary role of the design team currently includes:

- Construction Administration, generally including shop drawing review, responding to RFIs, providing design clarifications where needed and technical support during construction package bidding.
- Detailing and documentation of design changes as may be required.
- Supporting AWO evaluation and resolution.

Concerns and Recommendations:

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

2.1.2 Procurement

Status:

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

Observations:

None

Concerns and Recommendations:

None

2.1.3 Construction

Status:

All 10 construction contracts for SAS Phase 1 Project have been awarded with two contracts being closed. Accomplishments during this reporting period on the eight open contracts are summarized as follows:

Observations:

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

- Substantial Completion was achieved on November 5, 2013. Punchlist and contract closeout activities are ongoing.

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

- Installed 4,280 LF out of 10,200 LF of traction power conduit in the main station.
- Completed installation of 1-sided Cast-In-Place (CIP) Walls at the mezzanine level.
- Completed 39 out of 47 roof slab pours in the main station.
- Completed MC Cable installation for tunnel lighting in South Tunnel S2.
- Installed approximately 35,000 SF out of 159,100 SF of total Concrete Masonry Wall (CMU) for the entire station and tunnels.
- Installed approximately 5% of HVAC duct throughout the station.
- Completed 162,600 SF out of 246,400 SF of all waterproofing in the station.
- Completed installation of conduits and sanitary piping embedded in the platform between gridlines 1 and 5at the South End of the station.

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

- Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
- Area 5
  - 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 continued installation of rails. Began work in the Elevator Machine Room.
  - Continued installation of power & communication conduits throughout. Continued installation of water mist & sprinklers throughout Area 5.
  - Began installing tiles at the 3rd Mezzanine and began finishes in Area 5 Lobbies.
  - Continued installing conduits throughout in Area 5.
- Entrance #1
  - Mobilized and began installation of micro-piles.
- Ancillary #2
  - The work is ongoing intermittently. This work is not a part of the schedule critical path.
- Platforms
  - Began installation of platform pavers at the G4 (lower platform).
  - Continuing with wall tile framing on the G3 & G4 platforms.
  - Continuing with carriers, duct work, conduits to light fixtures, support brackets and ceiling panel framing at the G3 (upper) platform.
- Fan Plants
  - Continuing installation of chiller piping, communication & power conduits in the West Fan Room.
  - 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
  - The stop-work-order was lifted and work continued with completion of placement of 1st Mezzanine wall and placement of 2nd Mezzanine slab.
  - Began placement of 2nd Mezzanine walls.
- G3/G4 Tunnel:
  - Continued with conduits, wiring, receptacles & sound powered phones.
  - Began installation of dry fire stand pipe.
- Ancillary #1
  - Completed placement of Lower Mezzanine walls and placement of Mezzanine slab.
  - Began formwork for Mezzanine walls.
- Mezzanine
  - The mezzanine deck in the cavern is complete. Began work on the Upper Mezzanine.
  - Continuing with concrete curbs north to south along both east and west walls.
  - Erection and painting of CMU walls at the north end continued and was approximately 85% complete.
  - Began installation of some smoke exhaust ductwork on the north end.
- Entrance #3
  - Continued with waterproofing to street level.
  - Continued with wall placements to street level.
- Entrance #1
  - Continued with excavation and rock dowel installation at the garage.
- Platform Level
  - Continued with precast panel installation. Work was approximately 50% complete.
  - Completed mockup for the architectural finish on the underside of the mezzanine deck in the public area.
- Milestones
  - Milestones #2 (Limited access) & #6 (Shared access) were achieved in June 2014 as scheduled.
  - Milestone #8 (Complete work in Signal Rooms to Allow full access) is scheduled for July 14, 2014.

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

- The contractor has returned to 2 shifts. All surface operations end at 10:00PM daily.

- Excavation is 100% complete.
- Through June 30, 2014 permanent concrete placement was approximately 94% 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.

- Main Cavern (North and South)
  - The concrete wall placements are complete.
  - 23 of the 24 North Ancillary arch placements have been completed and the work is approximately 92% complete. The contractor began preparations for dismantling the formwork.
- Ancillary #2
  - Concrete work is approximately 96% complete.
- Entrance #1
  - Continued with the erection of CMU walls.
  - NYCT conducted an inspection of the new stairs and there were no issues.
- Entrance #2
  - Concrete placement was approximately 62% complete.
  - 2 of the 3 incline concrete placements have been completed.
  - Continued with waterproofing in the Elevator Shaft.
- West Tunnel (north of E. 87th St.)
  - Concrete work was approximately 50% complete.
- Milestones
  - The contractor is scheduled to be complete with work north of the station September 14, 2014, Except for Entrance #2. Turnover to the 5C contractor is scheduled for October 2014.

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

- Tunnels (east & west)
  - Continued placing formwork for construction of the benches in the west tunnel.
  - Continued with conduits in the east tunnel.
  - Completed the ling of the Cross Passageways.
  - Continued with concrete topping to the invert.
- Ancillary #1
  - Approximately 50% of the invert slab was completed.
  - The contractor forecasts the end of July 2014 for closing the street opening at the South Open Cut.
- Mezzanine
  - Continued with the erection of formwork and began placing the mezzanine deck.

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

Coordination:

- Ongoing review of 63rd St., 72nd St., 86th, and 96th St. Station contractors' shop drawings (approx. 5,726 reviewed to-date 73% of the projected total) for work coordination and to avoid conflicts during field installation.

Track:

- Delivered LVT blocks and other miscellaneous track material and started track installation in the east tube north of 86th St (Zone 2).
- Delivered and installation commenced on low resistance (aluminum) third rail between 99th – 105th Streets.

Communications:

- Delivered and continued installation of antenna, fiber optic and other communications cables, as well as, Emergency Alarm (EA) equipment between 63rd and 96th Street.
- Continued fiber optic cable and cable tray ladder as per Milestone 5A (Wide Area Network (WAN) at 63rd Station and Rail Control Center (RCC)).
- Factory Acceptance Testing (FAT) preparatory work continues for 96th Street Station Network, 63rd Street Station Public Address Customer Information Screen (PACIS), 63rd Street Station Customer Information Screen (CIS), and 96th Street Station Intrusion Access Control (IAC).

Traction Power:

- Completed track insulated joint work at 63rd Street.
- Conduits for third rail jumper cables and cable bracket for negative power installation between 99th and 105th Streets was completed. Conduit and cable installation was completed to the manholes.
- Ninety percent (90%) of the traction power equipment for all three substations and four circuit breaker houses (CBH) has been factory tested and stored in the contractor's warehouse and yards.

Concerns and Recommendations:

SAS is currently focusing on completing the construction of various station electrical spaces and turning them over to the Systems Contractor. The Project Team' ability to maintain schedule, coordinate turnover activities and provide the Systems Contract access to the various areas in a timely fashion is a key concern.

2.1.4 Force Account (FA) Contracts

Status:

As of June 30, 2014, Engineering Force account expenditures are $39,229,381 of the $95,400,000 budget. New York City Transit (NYCT) labor expenditures are $8,473,615 of the $25,600,000 budget.

Observation:

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. Completion of the Safety and Security Certification Program is a major activity prior to Revenue Service. Coordination of this effort needs greater attention. At present this effort appears to be disjointed.

Concerns and Recommendation:

The SAS Project Team has committed to update the Concept of Operations Plan to reflect how the stations will function with the deletion of the Customer Service Centers. SAS Project team needs to assure all parts clearly understand their roles and responsibilities related to the Safety and Security Certification Program. Process for verification of requirements, change control, and acceptance of completed action must be documented and delineated.

2.2 Third-Party Agreement

Status:

During the 2nd 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. Through June 30, 2014, $46,839,995 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 2nd 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:

During the 2nd Quarter 2014, Community Outreach activities included the following:

- Production of 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.
- Coordinated tours of the underground work area on April 19 and May 17. Local business owners and residents participated in a briefing at the CIC and then proceeded to the 86th Street Station site to view the progress.
- As part of the ongoing *Transit Talk* series, the Community Outreach team presented: *Sights and Attractions of the Q –* and *The Transit Revolution and How It's Changing Everything.*
- In April, the Community Outreach staff met with stakeholders at the quarterly Construction Advisory Committee (CAC) meeting. Station area issues and project wide updates were presented and discussed.
- In April and May, the Community Outreach Team coordinated and facilitated interagency meetings with representatives from: NYPD, FDNY, DSNY, DOT, BIC, and DOH, to identify and discuss specific areas of concern.
- The Community Outreach staff coordinated with *Congresswoman Carolyn Maloney's office* to host the Congresswoman's SAS Report Card press conference on May 16th.
- The Community Outreach Team hosted a Second Avenue Small Business Services event at the Community Information Center, conducted by the Manhattan Chamber of Commerce. The event provided them with an update on the construction as well as to hear how MTACC can be a better neighbor.

- In May, Community Outreach staff prepared and delivered interactive presentations to elementary school students living and going to school along the project alignment.

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 in 2013. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments have been forwarded to MTACC. MTACC anticipated completion of the current PMP update by June 30, 2014, but the revised PMP has not yet been issued.

Observation:

Update #9 in its present form 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:

FTA and PMOC review comments to Revision 9 of the SAS PMP are currently being addressed by MTACC. Agreed upon revisions may have a "ripple impact" to the PMP Sub Plans which will require updating.

Observations:

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

Concerns and Recommendations:

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

3.3 Project Procedures

Status:

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

Observations:

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

Concerns and Recommendations:

None

4.0 PROJECT SCHEDULE STATUS

4.1 Integrated Project Schedule

Status:

The Integrated Project Schedule (IPS) is a management level schedule that integrates all ten construction packages along with design, procurement, startup and other support activities. IPS Update #95 was received on July 8, 2014 and is based on a Data Date of June 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 presents a summary of schedule dates.

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. #92 Forecast S/C	Upd. #95 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%	99.8%	14.4%	11/5/13A	11/5/13A	202 CD	34 CD
C2B	6/22/12	11/25/15	57%	41.5%	15.2%	7/8/16	6/20/16	208 CD	-18 CD
C3	1/13/11	5/13/14	102%	77.4%	24.2%	8/10/15	9/24/15	499 CD	45 CD
C4B	10/1/10	12/3/13	116%	98.0%	17.5%	1/14/14A	1/14/14A	42 CD	0 CD
C4C	2/14/13	11/13/15	47%	16.8%	30.3%	7/26/16	5/27/16	196 CD	-60 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	84%	93.4%	-9.5%	12/16/14	12/16/14	0 CD	0 CD
C5C	6/12/13	5/31/16	33%	4.1%	28.6%	5/31/16	5/31/16	0 CD	0 CD
C6	1/18/12	8/18/16	52%	29.7%	22.0%	8/18/16	8/18/16	0 CD	0 CD

1. Quarterly Change reflects schedule gain/loss over most recent calendar quarter. Negative sign denotes time gain and positive sign denotes time loss.

2. Schedule Duration reflects schedule gain/loss based on current contract duration. Negative sign denotes time increase and positive sign denotes time decrease.

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 499 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 C5B 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)	Ud #94 (3)	Ud #95 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C2B	MS #2	Shared site access @ 93rd Street shaft	03/22/14	*11/26/14*	***10/9/14***	-201	48	135
C2B	MS #4	Shared access in East & West track-ways thru Sta (1238+50 ->1225+25); 97th -> 99th St Tunnel in 99th to 105th St Tunnels	09/21/14	*1/16/15*	***1/20/15***	-121	-4	98
C2B	MS #5	Shared access @ East & West Tunnels South of 96th St Station (1225+25 and STA. 1209+00)	02/20/14	*7/7/14*	***7/7/14***	-137	0	8
C2B	MS#5A	Shared Access E & W Track to grid 11		*7/30/14*	***7/30/14***		0	1
C2B	MS #6	Full access to Comms Rooms & Closets	08/21/14	*12/10/14*	***12/17/14***	-118	-7	125
C2B	MS #7	Full access to Signals Rooms	08/21/14	*12/10/14*	***12/17/14***	-118	-7	51
C2B	MS #8	Full access to Traction Power Rooms:	08/21/14	*12/10/14*	***12/17/14***	-118	-7	125
C2B	MS #9	Full access to Station Service Centers	11/21/14	*6/26/15*	***7/8/15***	-229	-12	109
C2B	MS #10	Complete all remaining Comms, Signal , & Traction Power work	09/21/14	*4/6/15*	***3/27/15***	-187	10	382
C2B	SS	Substantial Completion	12/21/15	*7/26/16*	***6/20/16***	-182	36	40
C3	#3c	Compl Mezz Lvls Comm Rms/Sta Serv Ctr	*04/15/13*	*05/30/14*	***06/30/14***	*-441*	*-31*	*337*
C3	#4	Compl Lwr/Uppr Platforms & Signal Rms	*10/14/13*	*05/30/14*	***06/30/14***	*-259*	*-31*	*196*
C3	#4b	Compl Lwr/Uppr Platforms & Signal Rms	*10/14/13*	*10/27/14*	***11/24/14***	*-406*	*-28*	*377*
C3	SS	Substantial Completion	05/13/14	*07/31/15*	***09/24/15***	*-499*	*-55*	*67*
C4C	MS #2	Limited access thru 72nd Street Station 1172+40 ->1163+00	01/13/14	*06/13/14*	***06/13/14***	-151	0	48
C4C	MS #3	Shared access thru 72nd Street Station 1172+40 ->1163+00	11/27/14	*11/26/14*	***12/02/14***	-5	-6	40
C4C	MS #6	Shared access south of 72nd Street Station 1163+00 -> 149+50	6/13/14	*06/13/14*	***06/13/14***	0	0	48

Pkg	MS	Description	Dates			Variance		Sch. Float
			Adjusted (2)	Ud #94 (3)	Ud #95 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C4C	MS #7	Turnover of Communications Rooms to Systems Contractor	8/28/14	*12/02/14*	***12/16/14***	-110	-14	231
C4C	MS #8	Turnover of Signal Rooms South of station to C6	7/15/14	*09/16/14*	***10/16/14***	-93	-30	56
C4C	MS #9	Complete all Signal Roms except M8	9/29/14	*12/09/14*	***12/10/14***	-72	-1	0
C4C	MS #10	Complete north power rooms	2/25/15	*12/30/14*	***12/30/14***	57	0	149
C4C	MS #11	Complete south power rooms	03/24/15	*11/26/14*	***11/26/14***	118	0	169
C4C	MS #12	Full access @ Station Service Center(s)	08/28/14	*08/13/15*	***06/02/15***	-278	72	71
C4C	MS #13	Full access @ Lubrication Room(s)	08/28/14	*10/09/14*	***11/07/14***	-71	-29	259
C4C	MS #14	Complete all remaining Comm, Signal & Traction Power Rooms	08/28/14	*06/16/15*	***08/29/14***	-1	291	253
C5B	*SS*	*Substantial Compl/All Work w/o Ent. #2*	*09/04/14*	*09/23/14*	***09/16/14***		*7*	*128*
C5B	*SS*	*Substantial Compl/All Work incl. Ent. #2*	-	*12/16/14*	***12/16/14***		*0*	*98*
C5C	MS #1	Vehicle access thru 86th Street Station 1209+00 -> 1198+00	10/23/14	*10/27/14*	***10/27/14***	*-4*	*0*	101
C5C	MS #2	Limited Access; Sta. 1209+00->1198+00	01/22/15	*01/26/15*	***01/27/15***	*-5*	*-1*	204
C5C	MS #3	Shared Access; Sta. 1209+00->1198+00	05/22/15	*03/25/15*	***03/10/15***	*73*	*15*	163
C5C	MS #4	Shared Access; Sta. 1198+00->1172+00	10/23/14	*10/31/14*	***10/31/14***	*-8*	*0*	30
C5C	MS #5	Turnover of Comm. Rooms	09/23/14	*09/30/14*	***09/19/14***	*4*	*11*	262
C5C	MS #6	Turmnover of Comm. Rooms	03/24/15	*02/10/15*	***02/06/15***	*46*	*4*	193
C5C	MS #7	Turnover of Signal Rooms	02/25/15	*02/20/15*	***02/04/15***	*21*	*16*	93
C5C	MS #8	Turnover of Signal Rooms	02/25/15	*02/20/15*	***02/04/15***	*21*	*16*	93
C5C	MS #9	Turnover Traction Power Rooms	02/26/15	*02/23/15*	***02/19/15***	*7*	*4*	19
C5C	MS #10	Turnover Traction Power Rooms	02/25/15	*01/28/15*	***02/10/15***	*15*	*-13*	264
C5C	MS #11	Full access @ Station Service Center(s)	03/24/15	*02/17/15*	***02/18/15***	*34*	*-1*	379
C5C	MS #14a	Complete all remaining Comm, Signal & Traction Power Rooms	09/23/14	*09/15/14*	***09/15/14***	*8*	*0*	11
C5C	MS#14b	Limited Access all locations	09/23/14	*06/24/15*	***02/20/15***	*-150*	*124*	315
C5C		Substantial Completion	05/31/16	*05/31/16*	***05/31/16***	*0*	*0*	78
C6	#2A	Complete LAN - 96th St. Station	05/18/15	*08/10/15*	***08/17/15***	*-91*	*-7*	*146*

Pkg	MS	Description	Dates			Variance		Sch. Float
			Adjusted (2)	Ud #94 (3)	Ud #95 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C6	#2B	Complete WAN - 96th St. Station	05/18/15	*08/10/15*	***08/17/15***	*-91*	*-7*	*146*
C6	#3A	Complete LAN - 86th St. Station	07/18/15	*07/28/15*	***07/17/15***	*1*	*11*	*300*
C6	#3B	Complete WAN - 86th St. Station	07/18/15	*07/28/15*	***07/17/15***	*1*	*11*	*300*
C6	#4A	Complete LAN - 72nd St. Station	02/18/15	*08/27/15*	***08/26/15***	*-189*	*1*	*159*
C6	#4B	Complete WAN - 72nd St. Station	02/18/15	*08/27/15*	***08/26/15***	*-189*	*1*	*159*
C6	#5A	Complete LAN - 63rd St. Station	04/18/14	*03/31/15*	***04/28/15***	*-375*	*-28*	*358*
C6	#5B	Complete WAN - 63rd St. Station	04/18/14	*03/31/15*	***04/28/15***	*-375*	*-28*	*358*
C6	#5C	Complete all 63rd St. Station work	04/18/14	*05/07/15*	***06/04/15***	*-412*	*-28*	*358*
C6	SS	Substantial Completion	08/18/16	*07/28/16*	***07/28/16***	*21*	*0*	*0*

Notes:

1. All schedule dates based upon June 1, 2014 update (IPS Update #95)
2. Contract packages 1, 2A, 4B 5A have completed all work.
3. Milestones not shown have been completed.

Observations and Analysis:

- No milestones were achieved over the recent update period.
- Dates and schedule float for each schedule milestone appear reasonable.
- C3 Milestones # 3c and 4 each experienced a 31 CD delay over the most recent update period. In effect, no productive work was achieved with respect to the achievement of these milestones. This is not consistent with MTACC's stated objective of emphasizing the turnover of equipment rooms to the systems contractor.
- The forecast Substantial Completion date for C3 is now September 24, 2015. Completion of this contract is essentially "near-critical", with 28 WD of schedule float. This contract has experienced delays to Substantial Completion in excess of 15 months.
- C4C MS #14 is forecast for completion on August 29, 2014. Based on its description, this milestone cannot complete later than C4C Milestones # 7, 8, 9, 10 and 11. All of these milestones are currently forecast to complete after C4C MS # 14.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#95 (DD=6/01/14), 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		
MS#5 – Shared Access @ E & W Tunnels south of 96th Street Station		7/7/14
MS#5A – Shared Access @ E & W Track to Grid 11		7/30/14
Mezzanine Masonry Walls (93 -> 95 Streets)		7/15/14
C3 – 63rd Street Station Rehab		
MS#4a – Signal Rooms		6/30/14
MS#3c – Mezzanine & Platform Levels – Complete conduit		6/30/14
Install micro-piles @ Entrance #1		8/20/14
Relocation of Sewer Service – Entrance #1		6/20/14
C4C—72nd Street Station Finishes		
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
Ancillary #2 – 1st Upper Mezzanine		6/17/14
Ancillary #2 – 2nd Upper Mezzanine		6/11/14
C5B – 86th St. Station Mining & Lining		
Structural Concrete @ Ancillary #2 (all activities)		7/21/14
Entrance #1 – 83rd Street Architectural Work		9/9/14
C5C – 86th St. Station Finishes & MEP		
F/P/S Mezzanine Concrete – Column Line 3 -> 15		7/14/14
Ancillary #1 Invert – Column Line 1 -> 2/3		6/27/14
East tunnel concrete work – slab, benches, etc.		8/26/14
C6 – Systems		
Zone 2 Track S1 @ 86th – set ties, surface, align & set rail, other equipment		6/26/14
Zone 2 Track S1 @ 86th – install drainage, expansion joints, concrete pads		7/22/14

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. MTACC is focusing on the turnover of equipment rooms and work areas to the systems contractor from the respective general contractors.

Concerns and Recommendations:

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

4.3 Critical Path Activities

Status:

Based on Update #95 of the IPS, the calculated date for completion of all SAS Phase 1 activities is September 20, 2016. This results in 73 work days (WD) or 102 calendar days (CD) 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

Observations and Analysis:

The PMOC considers monitoring and evaluation of key "near-critical" paths to be an important element of the schedule review.

There are two independent critical paths indicated in Update #95 of the SAS IPS.

Critical Path #1 is initiated by Activity C6TW-020 "Zone 2 Track S1 @ 86th – Set ties, surface & align, thread $ clip rail, install boxes, CDTs and rebar" and continues through the installation of the Trackwork in Zones 6, 3, 4,5, 7, 8 and 10 which is forecast to complete on September 3, 2015. This path then shifts to the installation of the wayside equipment at 86th Street which starts with Activity #C6C2-435 "Wayside @86th – Install Riser Boxes" and completes with Activity #C6C2-455 "Wayside @86th – MTA inspect and provide punch list, perform punchlist work" on July 28, 2016. The completion of the wayside equipment punchlist at 86th Street then ties to C6 Substantial Completion for Revenue Service which is forecast for July 28, 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 20, 2016.

Critical Path #2 is initiated with ongoing construction of Ancillary #2 at the 72nd Street Station. General construction of this area extends through C4C MS#9 (Complete Work in all Signal Rooms (except M8) which is forecast for December 10, 2014). To date, this milestone has experienced approximately 71 WD of delay. Signal equipment installation and testing work extends from December 11, 2014 through July 28, 2016, whereupon this path merges with **Critical Path #1** at Activity C6TC 30A C6 Substantial Completion for Revenue Service Testing.

Secondary Paths: Major secondary float paths of significance to the overall status of the project. It is noteworthy that there are now two independent +3 WD float paths, demonstrating the increasing schedule criticality of rail systems installation and testing to the overall project schedule:

+3 WD: This path is initiated by C5C, Milestone #9 which provides access for the C6 Contractor to all traction power rooms at the north end of the 86th Street Station

on March 18, 2015. Installation of equipment and cable is forecast to continue through June 10, 2016, at which time field testing, facility in-service testing and in-service testing starts and continues through July 25, 2016.

+4 WD: This path branches off of the critical path with the completion of Act. # C6TW-075 – Zone 7 S2 @ 72nd – Set ties, surface & align, thread & clip rails, install riser boxes, CDTs and rebar" which is forecast to complete on March 4, 2015. This initiates the start of wayside equipment installation at 72nd Street which starts with Activity #C6C4-495 "Wayside @72nd – Install Riser Boxes and completes with Activity #C6C4-299 "Wayside @72nd – Perform Punchlist Work" on July 11, 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.

+14 WD: NYCT Pre-Revenue Operation Activities scheduled to start on August 18, 2014 is unchanged this period.

+21 WD: This path follows structural and architectural construction of Ancillary #1 in the 86th Street Station (C5C). This work is forecast to start on May 8, 2014 and extends through the completion of Activity # C5C-AA2301-1950; Install Block Walls Mezzanine level Rooms 3011-3045 which is forecast to complete on March 19, 2015. The IPS indicates that completion of this work represents achievement of C5C Milestones 6, 7, 8, 9 and 11, which allow follow-up work in communications, traction power and signal rooms to commence.

The PMOC notes that the IPS does not include any MEP work as precedents for achievement of Milestones 6, 7, 8, 9 and 11. Previous experience suggests this may be a significant omission which should be evaluated using the C5c construction schedule.

+28 WD: This path starts with the relocation of sewer service at Entrance 1 of the 63rd Street Station which is currently underway as part of AWOs #30 and 40. The path then follows pile installation, foundations, structural and architectural construction and escalator installation and commissioning. This is the controlling path leading to Substantial Completion of the C3 contract, which is currently forecast for September 24, 2015.

The critical path is now dominated by work activities performed by the systems (C6) contractor. A comparison of key dates contained in the IPS Critical Path and the C6 Update #22 (both with DD=6/1/14) provides the following:

	Start Wayside @ 86th Street	All Work Complete
C6 Update #22	10/28/2015	9/14/2016
IPS Update #95	9/4/2015	7/28/2016
Δ (Calendar Days)	54	48

Observation:

Based on this comparison, the PMOC concludes the IPS does not accurately model the corresponding construction schedule upon which it is supposed to be based. Variances are based upon MTACC's assumed recovery of previous delays which have yet to be achieved or agreed upon by all involved parties.

Adjusting the IPS to reflect the completion of all contractor construction activities on September 14, 2016 approximates the effect of realizing the current risks which are identifiable along the project critical path and results in the following:

IPS #95	RSD	Construction Complete	Contingency (measured against) Dec. 30, 2016	Feb. 28, 2018
Risk-Mitigated (MTACC)	Dec. 30, 2016	Sept. 21, 2016	102 CD	526 CD
Risk-Realized (PMOC)	Dec. 30, 2016	Nov. 7, 2016	54 CD	478 CD

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 believes that 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.

- Minimum Allowable Secondary Float Path
  - ELPEP Requirement: 25 Calendar Days (approximately 18 WD).
  - Secondary float paths with Total Float (TF) =3 WD (approximately 4 CD), 3 WD (approximately 4 CD) and 21 WD (approximately 29 CD).
- Secondary Schedule Mitigation (critical path compression)
  - ELPEP Requirement: 125 CD
  - Mitigation opportunities will be pursued as they are identified.
  - Evaluation of the C6 Contractor's comprehensive schedule acceleration/proposal is currently on hold.

Observation:

The PMOC notes that an increase in "near-critical" paths is likely as project completion nears and that satisfaction of this requirement may not be consistent with maintaining the project budget.

Concerns and Recommendations:

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

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 4-5: Allocation of FFGA and Current Working Budget to Standard Cost Categories

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (March 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

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (March 31, 2013)
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 March 31, 2014 of its CWB into the FTA Standard Cost Categories. Revisions to the SCC allocations incorporate the Revision 10 modifications to the MTACC's CWB. MTACC converts the CWB to the SCC format quarterly.

Conclusions and Recommendations:

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

4.5.1 Project Cost Management and Control

Status:

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

Observation:

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

Concerns and Recommendations:

None

4.5.2 Project Expenditures and Commitments:

Status:

As of June 30, 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	$1,932,649,956	66.2%
Total Soft Cost	$1,308,108,085	$1,035,715,036	79.2%
Contingency	$468,077,616	(Included above)	
Subtotal	$4,451,000,000	$2,968,364,992	66.7%

(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 June 2014, SAS Phase 1 is approximately 66.7% complete. The completion status of the active construction contracts through June 30, 2014, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100%
- C26005 (96th Street Station) – 99.8%
- C26010 (96th Street Station) – 41.5%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 93.4%
- C26012 (86th Street Station) – 4.1%
- C26006 (63rd Street Station) – 77.4%
- C26007 (72nd Street Station) – 98.0%
- C26011 (72nd Street Station – 16.8%
- C26009 (Systems) – 29.7%

Aggregate Construction % Completion:

- 100% of all construction work is under contract
- 67.7% of all construction is complete

Based upon cost data received from MTACC for March 2014:

- Value of construction in place this period = $27,845,152
- Estimated value of construction remaining = $742,164,343
- Target construction completion = September 20, 2016
- # Months remaining = 27.8

Conclusions and Recommendations:

The estimated average rate of construction required to achieve target completion date = $26,731,986/MO. The average progress (payments) achieved over the most recent six month period is $34,712,003/MO. At a summary level, it appears adequate progress has been made during June 2014 to support project schedule goals.

Professional Services (as generally defined by SCC Category 80) during June 2014 totaled approximately $4.65M. 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 June 30, 2014, the status of Additional Work Orders (AWOs) on Phase 1 of the Second Avenue Subway Project is summarized as follows:

Table 4-6: AWO Summary

Contract / (Package)	% Complete	Award	Exposure		Executed	
			$	% of Award	$	% of Award
C26002 (1)	**100.00%**	**$337,025,000**	**$41,086,647**	**12.19%**	**$41,086,647**	**12.19%**
C26005 (2A)	*99.84%*	$325,000,000	*$54,806,324*	*16.86%*	$41,420,350	12.74%
C26010 (2B)	*41.47%*	$324,600,000	*$18,193,166*	*5.60%*	$7,508,502	2.31%
C26006 (3)	*77.41%*	$176,450,000	*$11,256,410*	*6.38%*	*$8,165,907*	*4.63%*
C26007 (4B)	*98.00%*	$447,180,260	*$2,787,973*	*0.62%*	*$5,035,109*	*1.13%*
C26011 (4C)	*16.76%*	$258,353,000	*$18,555,062*	*7.18%*	*$582,029*	*0.23%*
C26013 (5A)	***100.00%***	**$34,070,039**	***$6,525,471***	**19.15%**	**$6,525,471**	**19.15%**
C26008 (5B)	*93.37%*	$301,860,000	*$20,688,381*	6.85%	*$9,293,272*	*3.08%*
C26012 (5C)	*0.00%*	$208,376,000	*$0*	0.00%	*$0*	*0.00%*
C26009(6)	*29.72%*	$261,900,000	$12,780,389	*4.88%*	$3,134,331	1.20%
TOTAL TO DATE		$2,674,814,299	*$186,679,823*	*6.98%*	*$122,751,618*	*4.59%*

Bold type indicates completed contracts

To date, approximately $1,810,247,097 (67.7%) of all base contract construction work has been completed. As a % of work completed, the AWO exposure for these contracts = 10.31% and the executed AWO % = 6.78%. Based on performance to date, a forecast of total AWO expenditure for all base contract work in the range of $220M to $230M appears reasonable.

Over the first half of 2014, AWO exposure increased by $32,105,071. This was the second greatest AWO Exposure increase over a comparable time period. The overall trend of AWO Exposure has increased consistently over the most recent 18 month period.

Observation and Analysis:

If the AWO Exposure continues to increase in a similar manner, the existing budget of $229M may not be adequate.

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

	Executed AWOs	AWO Exposure
June 2014	$133,321,230	$187,003,644
May 2014	$124,459,336	$179,275,674
Δ	$8,861,894	$7,727,970
Δ	7.12%	4.31%

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

Const. Pkg.	AWO Exposure $			Changes this Period
	June-14	May-14	Period Δ	
C1	$ 41,086,647	$ 41,086,647	$ 0	Final value as reported by MTACC.
C2A	$ 54,237,897	$ 54,452,053	$ (214,156)	Decrease based on revised estimates for AWO # 130 and 162.
C2B	$ 23,273,686	$ 16,195,725	$ 7,077,961	Net increase is based on revised estimates for AWO # 19 and 45 as well as initial estimates for AWO # 52, 81, 83, 85, 87, 89 and 93,
C3	$ 12,325,398	$ 11,874,605	$ 450,793	Increase is based on revised estimates for AWO # 84, 103, 114, 120, 124, 125, 127, 130, 131, 133, 140, 143, 144, 145, 146, 147 and 148 as well as initial estimates for AWO # 135, 141, 142, 149, 150, 152, 153.
C4B	$ 2,715,423	$ 2,715,423	$ 0	No change reported this period.
C4C	$ 19,051,160	$ 18,883,581	$ 167,579	Net increase based on revised estimates for AWO # 44, 46, 47, 48 as well as initial estimates for AWO # 42, 52, 53, 55, 57, 60 and 64.
C5A	$ 6,525,471	$ 6,525,471	$ 0	Final value as reported by MTACC.
C5B	$ 20,641,288	$ 20,684,743	$ (47,094)	Decrease based on revised estimates for AWO # 43 and 78.
C5C	$ 381,566	$ 0	$ 381,566	Increase is based on initial estimates for AWO # 3, 5 and 7.
C6	$ 6,765,108	$ 6,857,426	$ (92,318)	

Const. Pkg.	AWO Exposure $			Changes this Period
	June-14	May-14	Period Δ	
	$ 187,003,644	$ 179,275,674	$ 7,727,970	

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

Const. Pkg.	Executed AWO $			Changes this Period
	June-14	May-14	Period Δ	
C1	$ 41,086,647	$ 41,086,647	$ 0	Final value as reported by MTACC.
C2A	$ 42,620,350	$ 41,420,350	$ 1,200,000	Net increase based on resolution of AWO # 155, 176 and 180.
C2B	$ 8,835,257	$ 7,668,200	$ 1,167,057	Increase is based on resolution of AWO # 19, 21, 51, 85 and 93.
C3	$ 9,004,125	$ 8,622,407	$ 381,718	Increase based on resolution of AWO # 68, 96, 98, 100, 106 and 116.
C4B	$ 5,719,478	$ 5,965,109	$ (245,631)	Net decrease based on resolution of AWO # 90 and 91.
C4C	$ 767,299	$ 693,549	$ 73,750	Increase is based on resolution of AWO # 41, 44, 48.
C5A	$ 6,525,471	$ 6,525,471	$ 0	Final value as reported by MTACC.
C5B	$ 15,590,272	$ 9,343,272	$ 6,247,000	Increase based on resolution of AWO # 43, 69, 78
C5C	$ 0	$ 0	$ 0	No change reported this period.
C6	$ 3,172,331	$ 3,134,331	$ 38,000	
	$ 133,321,230	$ 124,459,336	$ 8,861,894	

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

Concerns and Recommendations:

The PMOC is concerned over the continued, significant increase in AWO Exposure. This concern is exacerbated by a significant number of AWOs with no valuation and the artificially low number of AWOs documented to date for the C5C contract. Both areas are seen as significant growth areas for additional AWO exposure

4.6 Project Funding

Status:

Total Federal participation is currently $1,373,892,821. Appropriated, obligated and disbursed totals are shown in Table 4-7 below.

Table 4-7: Appropriated and Obligated Funds (Federal)

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru June 30, 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	$237,849,000
NY-03-0408-08	$197,182,000	$197,182,000	$12,362,408
NY-03-0408-09**	$186,566,000	0	0
NY-03-0408-10***	$123,384,621	0	0
NY-17-X001-00	$2,459,821	$2,459,821	$2,459,821
NY-36-001-00*	$78,870,000	$78,870,000	$78,870,000
NY-95-X009-00	$25,633,000	$25,633,000	$25,633,000
NY-95-X015-00	$45,800,000	$45,800,000	$45,800,000
Total	$1,373,892,821.00	$1,063,942,200.00	$879,122,608.00

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

A total of $2,968,364,991 has been expended on the project through June 31, 2014, of which $497,615,464 has been spent on design and $1,810,247,097 on construction (MTACC's June 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 4-8.

Table 4-8: 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

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

Conclusions and Recommendations:

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

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 $176,923,077.

Observations and Analysis:

During 2nd 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	$	1,035,715,036
Soft Cost Forecast to Complete	$	272,393,049
AWO Exposure	$	187,003,644
Available Contingency	$	281,073,972

During March 2014, 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 has been approved by FTA.

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.

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. Long-lead equipment for 96th and 72nd Street Stations was released in April 2014. MTACC generally believes this risk has been mitigated. MTACC has integrated this work into the IPS, which currently demonstrates that permanent power will be available in time to support the startup and commissioning of station MEP systems.
- Delays in track installation at the north end of the project are currently the biggest schedule risk and are driving the overall project critical path. MTACC is in the process of executing its mitigation plan for these delays however to date, there has not been complete buy-in by all involved contractors.
- Additional delay has been experienced in the execution of construction by the C3 contractor and transfer of spaces at the 63rd Street Station to the C6 contractor. In light of the extensive delays that have occurred on this project, there is concern that schedule management and expediting of critical interface areas within this project is no longer considered a priority.
- 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.
- 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.
- The revised construction schedule for Entrance #1 at the 72nd Street Station has not been finalized. The IPS currently contains summary activities with little substantiation. Finalizing the construction area would eliminate a significant "unknown" in the overall project schedule.

Conclusions and Recommendations:

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

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.
- 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 Mitigation efforts are concentrated on those risks identified in the following table. This process has proven to be valuable in managing risks such as contract interface management, availability of permanent power, and others.

Observation and Analysis:

The process through which risks are elevated from the Risk Register to more active management and evaluation at the monthly risk mitigation meetings is not completely defined.

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

<table>
<tr><th>Risk Description</th><th colspan="3">Mitigation Summary</th></tr>
<tr><td rowspan="2">Risk CNS 4 (C6):
Delay resulting from management of contractual interfaces during construction.</td><td colspan="3">Risk Type</td></tr>
<tr><td>Cost</td><td colspan="2">Schedule</td></tr>
<tr><td>Mitigation Strategy:
1. Refinements in existing strategy and assignment of effective personnel have</td><td colspan="3">Current Status:
1. Implementation of the revised Mitigation Strategy has produced a substantial</td></tr>
</table>

Risk Description	Mitigation Summary
been implemented.	improvement in results. 2. Monitoring of the interface management activities for milestones 3 to 6 months in the future will continue to verify mitigation of this risk.
Risk C2B, C3, 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 strategy of achieving significant schedule improvement by accelerating systems installation and testing remains "on hold". 2. Near-term 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.** Mitigation actions to recover delays encountered with track installation (C6) and to avoid additional delay of C2B Milestone #5 have been identified. Efforts to accelerate the completion and turnover of rail systems spaces in all station locations are under investigation.
Permanent (Station) Power: Permanent facility power to 72nd, 86th, and 96th Street Stations may be delayed and result in subsequent delays to equipment testing and commissioning.	**Risk Type** **Cost** / **Schedule**
Mitigation Strategy: 1. Expedite fabrication and delivery of long-lead items. 2. Monitor fabrication, delivery and installation dates to verify adherence to schedule. 3. Expedite construction of supporting infrastructure at each station to minimize potential delay. 4. Advance scheduling and coordination of feeder "cut-in" to minimize delays	**Current Status:** 1. Strategy to expedite fabrication of long-lead equipment appears to have been successful. 2. Development of a detail schedule modeling fabrication and installation is complete. 3. Transformers and switchgear for 96th and 86th Street Stations have been released for fabrication. 4. Coordination with ConEd is ongoing.
Risk C4C Entrance 1 (301 E 69th Street): Work on Entrance 1 will be delayed due to delays in obtaining design approval from the Owner for utility relocation in the building.	**Risk Type** **Cost** / **Schedule**
Mitigation Strategy: 1. Redesign has been completed. 2. Preliminary construction has been completed.	**Current Status:** 1. Concern remains over resolution of the significant AWOs required to implement this work and the overall impact this work will

<table>
<tr><th>Risk Description</th><th colspan="3">Mitigation Summary</th></tr>
<tr><td>3. Final construction details have been released to contractor.
4. Resolution of final cost and schedule modifications are pending.</td><td colspan="3">have on the project schedule.</td></tr>
<tr><td colspan="2">Risk COM 2 (C6):
Frequent late changes to the communications systems could delay C6 and the RSD.</td><td colspan="2">Risk Type</td></tr>
<tr><td colspan="2"></td><td>Cost</td><td>Schedule</td></tr>
<tr><td>Mitigation Strategy:
1. Strategy has been implemented.</td><td colspan="3">Current Status:
1. Monitoring of the effectiveness of the risk mitigation strategy is ongoing.
2. This risk is applicable to all major operating systems, not just the communications system.</td></tr>
<tr><td colspan="2">Risk COM:
Testing and Commissioning Risks.</td><td colspan="2">Risk Type</td></tr>
<tr><td colspan="2"></td><td>Cost</td><td>Schedule</td></tr>
<tr><td>Mitigation Strategy:
1. Strategy has been implemented.</td><td colspan="3">Current Status:
1. Monitoring of the effectiveness of the risk mitigation strategy is ongoing.
2. This risk is applicable to all major operating systems, not just the communications system.</td></tr>
<tr><td colspan="2">Risk CNS 8 (C6)
Delayed Safety Certification results in delay to the RSD</td><td colspan="2">Risk Type</td></tr>
<tr><td colspan="2"></td><td>Cost</td><td>Schedule</td></tr>
<tr><td>Mitigation Strategy:
1. Mitigation strategy has been implemented.
2. It has been verified that Safety Certification will not impact the RSD.</td><td colspan="3">Current Status:
1. Monitor process to verify timely progress is being made.
2. Periodic review meetings to document progress and resolve open issues.</td></tr>
</table>

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 #95, 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 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 #95 is be expressed as follows:

Table 6-1: Schedule Contingency

IPS Update #	**90**	**91**	**92**	**93**	**94**	**95**
Data Date	01/1/14	02/1/14	03/1/14	4/1/14	5/1/14	6/1/14
	Contingency (CD)					
RSD=12/31/2016						
Risk Mitigated	102	102	102	102	102	102
Risk Realized	20	20	44	44	21	54
RSD=02/28/2018						
Risk Mitigated	526	526	526	526	526	526
Risk Realized	446	446	469	469	445	478

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	The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP. PMOC Recommendation: Update the PMP and its sub-plans within the timeframes established in the ELPEP. **Update (December 2013):** 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. **Update (June 2014):** MTACC is addressing FTA/PMOC review comments.	2
SAS-20-Dec10	5.1.3 Change Orders	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. **Update (December 2013):** 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. **Update (March 2014):** PMOC monitoring of AWO process is ongoing. No adverse impacts related to the duration required to process an AWO has been noted. **Update (June 2014):** PMOC monitoring on AWO process is ongoing.	1

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-22-Jun 12	2.6 Community Relations	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. **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. **Update (December 2013):** Revision to SAS PMP is anticipated in the 1st Quarter 2014. **Update (June 2014):** Revision of the SAS PMP will be coordinated with the Amendment of the FFGA. Efforts are ongoing.	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-27-Jun 12	3.2 PMP Sub Plans	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. The PMOC recommends the development or update of applicable plans and procedures governing such work during the next PMP update period. ▪ **Update (December) 2012:** 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. ▪ **Update (September) 2013:** 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. ▪ **Update (December) 2013:** Revision to SAS PMP is anticipated in the 1st Quarter 2014. ▪ **Update (June 2014):** Revision of the SAS PMP will be coordinated with the Amendment of the FFGA. Efforts are ongoing.	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	The PMOC requested additional information regarding certain statements in the draft Rail Fleet Management Plan: ▪ 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. **Update:** The supply of vehicles for SAS Phase 1 will be addressed in the Draft Fleet Management Plan, scheduled for distribution in July 2010. **Update:** A Draft Fleet Management Plan was not submitted during July 2010. This item remains open. **Update:** As of August 31, 2010, a Draft Fleet Management Plan has not been submitted. **Update:** A Draft Fleet Management Plan was received, reviewed with comments provided to the FTA.	2	7/30/10

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
		Update: Vehicle requirements and associated cost to be addressed as part of the FFGA amendment. **Update:** 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.		

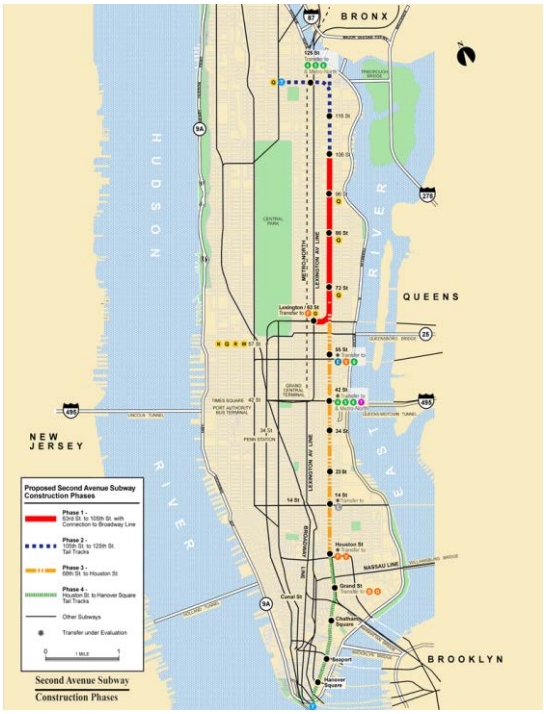
APPENDIX A -- LIST OF ACRONYMS

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

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

APPENDIX B-- PROJECT OVERVIEW AND MAP

Project Overview and Map – Second Avenue Subway



Scope

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

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

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

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

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

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

Schedule

12/20/01	Approval Entry to PE	06/12	Estimated Rev Ops at Entry to PE
04/18/06	Approval Entry to FD	03/14	Estimated Rev Ops at Entry to FD
11/19/07	FFGA Signed	06/30/14	Estimated Rev Ops at FFGA
12/30/16	Revenue Operations Date at date of this report (MTACC schedule)		
66.2%	Percent Complete Construction at March 31, 2014		
72.5%	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
2,935M	Amount of Expenditures at date of this report from Total Project Budget of $4,451M
67.7%	Percent Complete based on Expenditures at date of this report
281M	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 2nd Quarter for 2014

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

APPENDIX D – PMOC STATUS REPORT

(to be transmitted in a separate file)

APPENDIX E – SAFETY AND SECURITY CHECKLIST

Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Rail		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Design and Construction		
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGC, etc.)	Design/Bid/Build		
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan	7041.01.007308-0	11/15/07	Approved by FTA
Safety and Security Certification Plan	7041.01.007308-0 Appendix D		Certification by New York State Public Transportation Safety Board (NYSPTSB)
System Safety Program Plan			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan		N	Each active construction contractor's Construction Safety and Security Program Plan has been approved by MTACC.
Safety and Security Authority			
Is the grantee subject to 49 CFR Part 659 state safety oversight requirements?	Y		
Has the state designated an oversight agency as per Part 659.9?	Y		NYSPTSB
Has the oversight agency reviewed and approved the grantee's SSPP as	Y		The NYSTB issued a letter of recertification

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

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

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

Project Overview		
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: Activation Plan and Procedures Integrated Test Plan and Procedures Operations and Maintenance Plan Emergency Operations Plan	Y	Referenced plans are being developed as part of the Systems Contract (C6).
Has the grantee issued final safety and security certification?	N	To be covered as part of the testing in Systems Contract (C6)
Has the grantee issued the final safety and security verification report?	N	To be covered as part of the testing in Contract 6
Construction Safety		
Does the grantee have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	
Does the grantee's contractor(s) have a documented companywide safety and security program plan?	Y	
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	Reference sections 011150 Safety Requirements and 011160 Security Requirements of the Contract Terms and Conditions
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	Safety – The OSHA Lost Time Injury Rate and Recordable Injury Rate from the start of construction until May31, 2014 are 1.84 and 5.23, respectively. Both rates are above the Bureau of Labor Statistics (BLS) national Lost Time Injury Rate of 1.7 and the Recordable Injury Rate of	BLS National Lost Time Rate for Heavy and Civil Construction is 1.7 and for Recordable Injury is 3.2

Project Overview		
	3.2. The cumulative construction time worked since the project inception is 8,456,777 hours. Total lost time injuries since project inception is 78 and other recordable injuries are 143. The total number of recordable injuries is 221 (sum of the lost time injuries and the other recordable injuries).	
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	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 the Contractor's Project Managers and Safety Managers, OCIP Representative, insurance carrier representative, MTACC Construction Managers and PMOC 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		

Project Overview		
If shared track: has grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	NA	
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	NA	
Is the Collision Hazard Analysis underway?	NA	
Other FRA required Hazard Analysis – Fencing, etc.?	NA	
Does the project have Quiet Zones?	NA	
Does FRA attend the Quarterly Review Meetings?	NA	

APPENDIX F – ON-SITE PICTURES

(to be transmitted in a separate file)

Appendix G -- Core Accountability Items				
Project Status:		**Original at FFGA**	**Current***	**ELPEP****
Cost	Cost Estimate	$4,050M	$4,451M	$4,980M
Contingency	Unallocated Contingency	$555.554M	$0M	$0M
	Total Contingency (Allocated plus Unallocated)	$555.554M	$281M (June. 2014)	$181M
Schedule	Revenue Service Date	September 30, 2014	December 30, 2016	February 28, 2018

Total Project Percent Complete	Based on Expenditures	66.7%
	Based on Earned Value	N/A

Major Issue	Status	Comments
Buy America	Resolved	Non-availability waiver request for Low Vibration Track pad and block assembly was approved by FTA on 3/20/14.
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 June 30, 2014 reporting.