

PMOC MONTHLY REPORT

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

September 1 to September 30, 2013



PMOC Contract No. DTFT60-09-D-00007

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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 3rd Quarter 2013

a. Engineering/Design Progress

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

b. New Contract Procurements

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

c. Construction Progress

All construction is approximately 56 % complete (overall project completion is approximately 57.8%) as of September 30, 2013. Summary progress for each contract is as follows:

- At the 86th Street Station (Contract 5B) structural concrete is proceeding in the caverns, Entrance #1 and the southeast tunnel. Rock excavation at Entrance #2 is proceeding without delay.
- The 96th Street Station Heavy Civil/Structural Contractor (Contract C2A) is approximately 98.3% complete. Milestone 1, turnover of area for Contract C2B access, was achieved on August 19, 2013. Substantial Completion, which was scheduled for September 13, 2013 was delayed due to ongoing work at Entrance 1 (formerly Rainbow Hardware). Substantial Completion is now forecasted for October 4, 2013.
- The 96th Street Station Finishes, Mechanical, Electrical, and Plumbing Systems and Ancillary Building and Entrances (Contract C2B) is approximately 19.9% complete. Milestone 1 which gave Contract C6 access to the launch box for rail delivery was achieved on September 23, 2013. Efforts to mitigate delays associated with Milestones 2 thru 10 are ongoing in order to achieve the contract completion date of December 22, 2015.
- Work on the 72nd Street Station Heavy Civil/Structural Contractor (Contract C4B) is approximately 92.3% complete and is progressing to achieve the contractor's forecasted Substantial Completion of January 2, 2014. Waterproofing, installation of cast in place walls, and high/low benches is ongoing at various locations.
- At the 63rd Street Station (Contract C3), work continued on platform reconstruction, mechanical installation at the fan plants, Entrance #1 existing room reconfiguration, and mezzanine concrete block wall erection.
- The Track, Signal, Traction Power, and Communication Systems Contract (C6) has progressed to approximately 14.8% complete. Significant achievements during this

reporting period included the installation of equipment in three communication rooms at the 63rd Street Station and, the delivery and storage of running rail in the Launch Box area and delivery of long lead items.

d. Continuing and Unresolved Issues

- Recent schedule updates have indicated significant delays to preconstruction submittal activities involving the communication system. Several of these have become “near-critical” in the Integrated Project Schedule. Some of the scheduling issues appear to have been clarified, but the root cause of these delays needs to be identified and resolved to allow this work to progress in a timely manner.
- Discretionary design changes requested NYCT typically add scope and cost to the C6 package. At this stage of the project, these change requests must be curtailed to allow the project team to focus on executing the remainder of the project.

e. New Cost and Schedule Issues

- There is some concern regarding the timely supply of permanent power to the 96th, 86th and 72nd Street Stations.

3. PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

During the 3rd Quarter 2013, MTACC initiated a complete review of its construction management capacity and capability, with specific emphasis on the completion, turnover and closeout of individual work elements as well as overall contracts. It is anticipated that this effort will improve the efficiency with which contracts are administered by increasing staff awareness of the critical technical and contractual issues to be aware of when work is accepted and areas turned over to follow-on contractors.

Currently, the SAS is not fully realizing the benefits of an integrated project organization. This is becoming particularly evident at the station finish contracts (C2B, C4C, and C5C). Each of these contracts appears to function as an isolated single project, with little benefit or support in dealing with common issues or problems. This is of particular significance due to the fact that some members of the construction field staff appear to require significant senior management guidance.

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. However, during the 1st Quarter 2013, MTACC determined it was necessary to relocate and redesign Entrance #1 at the 72nd Street Station due to an irreconcilable dispute with the adjacent building owner at 301 E. 69th Street. This unforeseen condition has increased the design phase scope, but has not

interfered with the ongoing engineering and construction support activities performed by the design consultant.

Additional engineering staff has also been added to review the large volume of submittals associated with the Station Finishes Contracts C2B, C4C, and C5C and the incorporation of user-requested communication system modifications that were not included in the final design in the Systems Contract (C6).

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

d. Procurement

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

e. Railroad Force Account (Support and Construction)

Force Account labor on the SAS Phase 1 Project is being provided by NYCT employees. The Revision 10 Current Working Budget increased the funding for this effort from \$43,000,000 to \$94,400,000. Through the 3rd Quarter 2013, \$30,545,200 has been expended.

f. Vehicles

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

g. Systems Testing and Start-Up

Responsibility for Systems testing and start-up is allocated to the Track, Power, Signals and Communications Systems Contract C-26009 (C6). The scope of the contract calls for the hiring of a Systems Integration Manager (SIM) supported by Systems Engineering Specialists (SES) to coordinate the efforts of the Systems Contractor and the Stations MEP Contractors in the preparation of their Systems Commissioning and Integration Testing (SCIT) Plans. The SCIT Plan provides the roadmap for the way forward for systems integration to ensure that the systems elements are integrated and tested in a structured, managed, comprehensive manner that enables MTACC/NYCT to confirm that the SAS system installation is “built-up” on a segment-by-segment basis and is compliant with the SAS plans and specifications. The plans will be developed based on the MTA Capital Construction Guidelines for a Systems Commissioning and Integrated Test Plan.

During the 3rd Quarter 2013, the contractor continued the submission of contract deliverables, procurement of long lead equipment/material, and construction activities at the 63rd Street Station. Coordination meetings are ongoing between the SIM, SES and the Integration Test Managers from the Stations MEP Contractors.

h. Project Schedule

Construction progress and implementation or risk mitigation measures during the 3rd Quarter 2013, continues to support MTA’s forecasted Revenue Service Date of December 30, 2016 (see Table 1 below).

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. 16, 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 shows the project can be built within the limits of the Current Working Budget.



	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of September 30, 2013	
	\$ Millions	% of Total	Obligated (\$ Millions)	TBD	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost:	4,866.614	100	4,572.942		5,267.614	100	2,571.370	48.81
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	2,571.370	48.81
Total Federal:	1,350.693	27.75	1,063.942		1,350.693	24.60	773.123	14.68
Total FTA share:	1,300.000	96.25	990.049		1,300.000	23.68	708.871	13.46
5309 New Starts share	1,300.000	100	990.049		1,300.000	23.68	708.871	13.46
Total FHWA share:	50.693	3.75	73.893		50.693	0.96	64.252	1.22
CMAQ	48.233	95.15	71.433		48.233	0.88	61.792	1.17
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	0.05
Total Local share:	2,699.307	55.47	3,509.000**		**3,509.000	63.92	1,798.247	34.13
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 3rd Quarter 2013 have been summarized as follows:

Decrease	Increase
<ul style="list-style-type: none">• Substantial Completion of blasting and rock excavation reduces geotechnical risk and associated consequential safety risks.• On September 20, 2013, the FTA informed the MTACC it is “willing to entertain” a non-availability waiver request for the pad and rubber boot components of the Low-Vibration Track Pedestals. While this is not a guarantee of a waiver, it indicates progress in resolving a potentially significant cost and schedule risk for the C6 contract and the overall project.	<ul style="list-style-type: none">• Continuing delays to the Substantial Completion of construction Contract 2A (96th Street Heavy Civil). Potential cost and schedule consequences of this delay are being evaluated.• Con Ed’s delay in approving the design and equipment for permanent power feed to the 72nd, 86th and 96th Street Stations could impact acceptance testing by the C6 contractor.• Timely resolution of garage owner’s claim of damages to its elevator caused by the C3 Contractor during construction of Ancillary #1.• Timely resolution of potential track alignment changes in the tunnel section generally extending from the pump room to the C4B contract limits.

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

Status:

The 3rd Quarter 2013 meeting to review MTACC's compliance with ELPEP requirements was held on September 12, 2013. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** There are revisions to the Change Control Committee (CCC) processes that are being considered that will affect the TTC Plan and that these potential changes are currently in the review/discussion stage. The PMOC has completed its review of SAS PMP Rev. 9 and is reviewing these comments with FTA-RII to finalize the comment details. FTA expects to send the final comments to MTACC in the near future.
- **Schedule Management Plan (SMP):** The MTACC internal audit may identify necessary revisions to the SMP. The SAS final audit report is anticipated by October 15, 2013. The SAS 3rd Quarter 2013 ELPEP Compliance Checklist indicates MTACC is "in compliance with its SMP."
- **Cost Management Plan (CMP):** The MTACC internal audit may identify necessary revisions to the CMP. The SAS final audit report is anticipated by October 15, 2013. The SAS 3rd Quarter 2013 ELPEP Compliance Checklist indicates MTACC is "in compliance with its CMP. The PMOC concurs with this assessment."
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** The MTACC internal audit may identify necessary revisions to the RMP. The SAS final audit report is anticipated by October 15, 2013. The SAS 3rd Quarter 2013 ELPEP Compliance Checklist indicates MTACC is "in compliance with its RMP. The PMOC concurs with this assessment."

Observation:

Section 1 of the SAS Schedule Management Plan states in part:

"This [SMP] plan explains how schedules will be developed, reviewed, updated, and integrated in order to accurately track and forecast project duration (critical path), milestone delays, mitigation opportunities and workarounds, and manage schedule contingency".

The PMOC notes that the SAS Integrated Project Schedule (IPS) is currently undergoing a major "reconstruction" to better incorporate construction schedules and to correct and improve upon shortcomings and inaccuracies that have been identified over recent updates. SAS staff confidence in the accuracy of forecasts provided by the IPS is low. The SAS 3rd Quarter 2013 ELPEP Compliance Checklist does not address the current status of the SAS IPS.

Concerns and Recommendations:

Reasonable accuracy of the scheduling effort is a fundamental requirement of the SAS SMP. The PMOC is concerned that the current state of the IPS does not appear to be included in the SAS 3rd Quarter 2013 ELPEP Compliance Checklist.

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

The PMOC notes that MTACC has not yet identified a permanent construction manager for the C5C contract. During the 3rd Quarter 2013, MTACC has brought on a new scheduler assigned to the C6 contract and an Interface Manager, charged with the detail planning and execution of work area joint access occupancies and transfers among the construction contracts.

Observation:

Further delay in providing a permanent, full-time construction manager for the C5C construction contract may adversely impact the readiness of this contract to enter the active construction phase. The extended pre-construction periods afforded the station finish contracts is ideal for completing engineering submittals and resolving technical questions. To date, the C5C package appears to be lagging in this effort.

Concerns and Recommendations:

The PMOC recommends the assignment of a full-time construction manager to the C5C construction contract, as soon as possible.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013.

Observation:

SAS PMP Update #9 does not adequately reflect the current status and phase of the project. Sub-plans of the SAS PMP will require updating also to reflect the current status and phase of the project.

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. Completion of the update is anticipated in the 4th Quarter 2013.

The PMOC notes that "Buy America" and "Ship America" issues continue to be encountered.

Observation:

Conformances to the “Buy America” provisions have been raised on several items for the C2B, C4C, C5C and C6 contracts. MTACC’s internal analysis to determine if the items are sub-components thus not coming under the “Buy America” provision is ongoing.

While MTACC has been diligent in informing contractors of “Buy America” requirements, the PMOC has observed that MTACC/SAS does not have a standard procedure for independently reviewing design documents to identify potential “Buy America” nonconformances nor does MTACC/SAS have a standard procedure for analyzing and resolving “Buy America” issues identified by the construction contractors.

Concerns and Recommendations:

PMOC recommends MTACC/SAS upgrade and document its capability to identify and evaluate “Buy America” issues at the earliest possible time to minimize any delays encountered in their resolution. Any “Buy America” issues identified should be communicated to all Construction Managers since many of the manufactured products are common to all of the station contracts.

c) Grantee’s Approach to Force Account Plan

Status:

Utilization of NYCT staff is ongoing in providing force account resources. Through the 3rd Quarter 2013, \$30,545,200 of the \$93,400,000 budget has been expended.

Observation:

The Force Account requirements are documented in the SAS Force Account Plan. The plan gives a description and a cost estimate of the NYCT services required for the design of the track and signal elements of the system and to support construction activities for each individual contract. The Force Account budget appears to be adequate and has not changed in Revision 10 of the SAS Cost Estimate.

Concerns and Recommendations:

None

d) Grantee’s Approach to Safety and Security Plan

Status:

Each construction contractor continued implementation of its Safety, Security and Health Programs during the 3rd Quarter 2013. 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.

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 between 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’s approach to community relations includes the following:

- A fully staffed Community Outreach Center (CIC) located at 1628 2nd Ave., between E. 84th and E.85th Streets. The CIC offers access to full-time project staff, exhibits about different aspects of the Second Avenue Subway and special activities. The CIC opened in July 2013 and will be open through the completion of Phase 1.
- Monthly newsletters directed towards affected members of the adjacent community providing an update of construction progress and other relevant events.
- Periodic updates to Community Board Eight on the status of construction.
- Periodic public workshops focusing on key elements and upcoming activities of interest and concern to the adjacent community.
- Guided tours of select portions of the worksite.

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 methodology involved in this effort have not been formally documented. The PMOC has recommended MTACC update its Project Management Plan (Revision 9) 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 3rd Quarter 2013, MTA continued its grant management process by issuing monthly financial reports and updating the Transportation Electronic Award Management System (TEAM) to reflect disbursements from the active grants.

b) Uniform Property Acquisition and Relocation Act of 1970

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

c) Local Funding Agreements

On March 26, 2012, it was announced that the New York State Legislature has agreed to fully fund the Metropolitan Transportation Authority’s five-year capital budget, allowing several major projects, including the Second Avenue subway to proceed as planned. No further updates were reported this period.

1.2 Project Controls

1.2.1 Scope Definition and Control

Status:

The scope of the Phase 1 SAS Project is still defined in ten construction packages (contracts). During the 3rd Quarter 2013, there has been no material change in the scope of the SAS Project. Selected work elements have been being transferred between construction packages in order to mitigate delays and minimize additional cost to the project.

Observation:

Transfer of work from one contract to another has been an effective means of mitigating schedule delays and consequential subsequent cost increases. The SAS Project Team is effectively in managing this activity. The scope of the SAS Project is still defined by the FEIS, ROD and the FFGA. NYCT is providing support for rail systems engineering, installation and overall operating systems inspection and testing.

Concerns and Recommendations:

Control of user-requested design changes during the construction phase has been identified as a potential area of concern. The SAS project staff is working with user groups to minimize and prioritize design changes to ensure that only necessary changes are incorporated and that their impact to construction cost and schedule is minimized.

1.2.2 Quality

Status:

During the 3rd Quarter 2013, the Second Avenue Subway Quality Management team continued holding Quality Meetings and Quarterly Quality Oversight of the Contractor with CCM, MTACC and PMOC participation. They participated in the job progress meetings, monitored quality matters in the field for each construction contract, reviewed and provided comments for Quality Work Plans, and participated in Preparatory Phase Sessions for numerous construction processes.

Observation:

Implementation of the Quality Management System as defined in the contract specification is ongoing. Quality control activities are being performed by the contractors per their Contractor's Quality Plans (CQP). The MTACC's SAS Quality Managers and Project Quality Managers are performing quality assurance activities. The PMOC attends Monthly Quality Management Meetings and Quarterly Quality Oversight on each SAS contract. The major issues noted by the PMOC during the third quarter of 2013 were delinquent submittals of Inspection Daily Reports on the C2B and C4B contracts and out of specification conditions for concrete on the C4B and C5B contracts. Inspection Daily Reports on C2A and C2B were being submitted in a timely manner but lapsed again. The new C2A/C2B Contractor's Manager provided additional support so that this condition would be rectified and not recur. However, the backlog on C2B did increase and the C2A/C2B Contractor's Manager told the PMOC that he obviously did not provide enough support and would provide additional help.

Revision 3 of the SAS Project Quality Manual (PQM), issued in April 2009, is being revised. The SAS Quality Manager has indicated that a draft to Revision 4 is being reviewed internally and will be sent to the PMOC for review in September 2013. This did not occur and a draft is now expected to be received in October 2013.

Contract Packages C2A and C2B	
Status:	<p>On C2A, through September 30, 2013, a total of 36 NCRs have been issued. 26 have been closed by both the contractor and MTACC, 2 NCRs were voided, and 8 NCRs are still open. In September 2013, one new NCR was written and three were closed. The NCR written in September was not for concrete placement.</p> <p>On C2B, through September 30, 2013, a total of 14 NCRs have been issued. Five have been closed and 9 NCRs are still open. In September 2013, two new NCRs were written and none were closed. None of the NCRs written in September were for concrete placement.</p> <p>In May 2013, both contracts were one month behind in submitting their Daily Inspection Reports. Based on a concern raised by the PMOC, the SAS Quality Manager stressed that the C2A/C2B contractor must submit Inspection Daily Reports within a week of being written. The new C2A/C2B Contractor's Manager provided additional resources to both contracts and at the end of September 2013, Inspection Daily Reports were one to two weeks behind on both contracts. However, at the end of September 2013, the C2B Reports are again six weeks behind.</p>
Observation:	<p>On the C2A contract, of the eight open NCRs, two are for concrete that was out of specification as reported by the contractor's test lab.</p> <p>On the C2B contract, of the nine open NCRs, one is for concrete that was out of specification.</p>
Concerns and Recommendations:	The PMOC is concerned that entry of Inspection Daily Reports on the C2B contract is again six weeks behind. The contractor's C2A/C2B Manager has agreed to provide additional support based on the PMOC's concern and recommendation.
Contract Package C3	
Status:	Through September 30, 2013 a total of 55 NCRs have been issued. 40 have been closed and 15 NCRs are still open. In September 2013, one new NCR was written and three were closed. The NCR written in September was not for concrete placement.
Observation:	Of the fifteen open NCRs, twelve are for concrete that was out of specification including one involving entrained air entrainment, three pertaining to slump, one related to unit weight measurement, and seven referring to time exceeding the two-hour requirement for placing the concrete.
Concerns and Recommendations:	The SAS C3 Quality Manager and C3 Contractor's Quality Manager have taken the proper action and the PMOC has no concerns.

Contract Package C4B	
Status:	Through September 30, 2013, a total of 98 NCRs have been issued. 42 have been closed and 56 NCRs are still open. In September 2013, 11 new NCRs were written and seven were closed. Nine of the NCRs written in September were for concrete placement.
Observation:	Of the 56 open NCRs, 42 are for concrete that was out of specification including nine involving entrained air entrainment, one pertaining to slump, and 32 referring to time exceeding the two-hour requirement for placing the concrete. The C4B contractor had submitted a waiver to the specification requesting a maximum pour time of 180 minutes. The waiver was not approved.
Concerns and Recommendations:	The PMOC recommends that the contractor devise a method that places the concrete within 120 minutes. The PMOC is also concerned that there are still 56 open NCRs on this Contract since substantial completion is scheduled in just over three months.
Contract Package C5B	
Status:	Through September 30, 2013 a total of 42 NCRs have been issued. 16 have been closed and 26 NCRs are still open. In September 2013, two new NCRs were written and none were closed. None of the NCRs written in September were for concrete placement.
Observation:	Of the 26 open NCRs, 20 are for concrete that was out of specification. Eight NCRs had multiple parameters that were out of specification. The total number of out-of-spec parameters included 6 involving entrained air entrainment, 12 pertaining to slump, 4 related to unit weight measurement, and 6 referring to time exceeding the two-hour requirement for placing the concrete. Only two NCRs have been closed since June 2013. However, most of the open NCRs are awaiting results of the 56-day break test before they can be dispositioned and closed.
Concerns and Recommendations:	The PMOC is concerned that eight NCRs had multiple parameters out of specification. Ten NCRs were written against concrete in August 2013 with six having multiple parameters out-of-spec. There were no NCRs written against concrete in September 2013 since the Contractor's Quality Manager was not sure how to interpret direction from the SAS Project Office. The PMOC recommended to the SAS and C5B Quality Managers that NCRs should always be written when an out of specification condition occurs.
Contract Package C6	
Status:	Through September 30, 2013 a total of 4 NCRs have been issued. 2 have

	been closed and 2 NCRs are still open. In September 2013, one new NCR was written and none were closed. None of the four total NCRs were for concrete placement.
Observation:	None.
Concerns and Recommendations:	None at this time.

Concerns and Recommendations:

Refer to previous section.

1.2.3 Project Schedule

Status:

A summary of project schedule information is as follows:

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	Sept. 16, 2016	October 2017
Revenue Service	September 30, 2014	December 30, 2016	February 2018

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

Observation:

The RSD, as forecast by Update #86 of the MTACC's Integrated Project Schedule (IPS), has remained December 30, 2016. For the 3rd Quarter 2013, the calculated completion of Phase 1 construction and testing has been revised to September 20, 2016, with 102 calendar days (CD) of schedule contingency when measured against the MTACC's target RSD of December 30, 2016.

During the 3rd Quarter 2013, some problems were identified with the accuracy and completeness with which certain construction contract schedules have been updated. Explanations for this situation range from staffing changes to contractor "posturing" over the effect of certain issues on the individual contract schedules. To some extent, these problems have been transferred to the IPS through the updating process.

Concerns and Recommendations:

The SAS Project Team has demonstrated its capability and capacity to actively manage the project schedule. Corrective action has been initiated through a series of actions designed to

improve the schedule updating process and “retune” the IPS so that it is an accurate forecast of work to be performed on the project.

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 (June 30, 2013)
10	Guideway & Track Elements	\$612,404,000	\$638,107,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,294,629,000
30	Support Facilities	0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$534,865,000
50	Systems	\$322,707,000	\$265,792,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$281,500,000*
70	Vehicles	\$152,999,000	0**
80	Professional Services	\$796,311,000	\$973,000,000
90	Unallocated Contingency	\$555,554,000	\$463,107,000
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

* Includes \$36.5M Cost-to-Cure

** FTA Region II has accepted MTACC/NYCT's assertion that recent services reductions will provide ample spare vehicles for the SAS Phase 1 Project.

Table 1-2 lists the associated grants in the Transportation Electronic Award Management (TEAM) System with respective appropriated, obligated, and disbursed amounts as of March 31, 2012. No additional Federal Funds were obligated to the MTA for the SAS Phase 1 Project during the 1st Quarter 2013. Grant amendment NY-03-0408-09 in the amount of \$186,566,000 is pending FTA approval. This amount represents the full FFY 2012 allocation published in the Federal Register on January 11, 2012. Total Federal Funds obligated as of September 30, 2013 is \$1,063,942,000.

Table 1-2: Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru September 30, 2013
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	\$144,212,017
NY-03-0408-08	\$197,182,000	\$197,182,000	0
NY-03-0408-09	\$186,566,000	Pending	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$1,250,508,200.00	\$1,063,942,200.00	\$773,123,217.00



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

A total of \$2,571,370,232 has been expended on the project through September 30, 2013, of which \$497,544,512 has been spent on design and \$1,509,208,556 on construction (MTACC's September 2013 Cost and Schedule Summary Input).

Observation:

Local funds totaling \$1,798,247,000 have been spent as of September 30, 2013.

Concerns and Recommendations:

The PMOC recommends the MTACC update its project cost allocation into the Standard Cost Categories to include its Revision 10 update of the Project cost Estimate.

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. During the 3rd Quarter of 2103 Risk Registers for each construction contract were updated.

Observation:

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

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

Concerns and Recommendations:

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

1.2.6 Project Safety and Security

Status:

Safety – The OSHA Lost Time Accident Rate and Recordable Accident Rate from the start of construction until August 31, 2013 are 1.90 and 5.51, respectively. The Lost Time Accident rate is below the national average of 2.0 and the Recordable Accident Rate is significantly above the national average of 3.5. The cumulative construction time worked since the project inception is 6,719,286 hours. Total lost time injuries since project inception is 64 and other recordable injuries are 121. The total number of recordable injuries is 185 (sum of the lost time injuries and the other recordable injuries).

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

Observation:

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

Concerns and Recommendations:

None

1.3 FTA Compliance

Status:

The updated SAS Project Management Plan (Revision 9) was submitted for review on July 16, 2013. The PMOC and FTA are finalizing review comments which will be transmitted to the MTACC in the near future.

The SAS Project Team has substantially complied with ELPEP and its associated sub-plans throughout the 3rd Quarter 2013. Any non-compliance issues are specifically discussed in Section 4.4 (Compliance With Schedule Management Plan), Section 5.4 (Project Contingency) and Section 6.3 (Risk Management Status) of this report.

Observation:

On September 11, 2013, MTACC submitted its “Request for Non-Availability Waiver for Low Vibration Track System” to the FTA in accordance with 49 C.F.R. §661.7(c).

Concerns and Recommendations:

None.

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 to be achieved in the 3rd Quarter 2014.

1.3.2 Readiness for Revenue Operations

Status:

No change this period.

2.0 PROJECT SCOPE

2.1 Status & Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

The design phase of SAS Phase 1 was completed in late November 2010. The redesign of Entrance 1 at the 72nd Street Station is underway. This redesign was deemed necessary due to irreconcilable differences with adjacent building owners regarding utility relocations and access.

Observation:

The primary role of the design team currently includes:

- Construction Administration, generally including shop drawing review, responding to RFIs, providing design clarifications where needed and technical support during construction package bidding.
- Detailing and documentation of design changes as may be required.
- Supporting AWO evaluation and resolution.
- Entrance 1 redesign at 72nd Street Station. This work should complete in December 2013.

Concerns and Recommendations:

None

2.1.2 Procurement

Status:

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

Observations and Analysis:

None.

Concerns and Recommendations:

None

2.1.3 Construction

Status:

All 10 construction contracts for SAS Phase 1 Project have been awarded. No significant delays or problems were encountered during this reporting period that would jeopardize the achievement of the RSD.

Observations:

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

- This contract has been completed and closed

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

- Remaining structural and demolition work at Entrance 1 (Rainbow Hardware) is driving the Milestone #2 and substantial completion. A cracked concrete pile cap is impacting completion of the milestone. AAJV is investigating redesign/corrective measures and CTJV is addressing temporary bracing. CTJV is now forecasting a substantial completion date of October 14, 2013.

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

- Milestone #1 is the completion of work for shared access to the existing tunnels at 99th thru 105th Streets and the hatch at 102 Street. This work was being driven by completion of the high/low bench installation in the existing tunnel from 102nd to 103rd Street and installation of the masonry walls from 101st to 102nd Street. This work was completed and the C6 contractor delivered running rail thru the access hatch on September 23, 2013.
- Milestone #2 is the complete of sufficient work for shared access to 93rd Street Shaft. This work is driven by removal of Ancillary 1 tier 4 and 5 excavation supports, followed by installation of wall waterproofing. Installation of the rebar for the wall started on September 3, 2013 and is ongoing. Placement of mezzanine slab is ongoing.
- Milestone 3 thru 9 is delayed due to late completion of AWO #21 work and mezzanine placement between gridlines 17-16.

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

- Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
- MPT
 - The next MPT reconfiguration will be for the Plaza in October 2013.
- Area 5
 - Erection of CMU walls at all mezzanine levels continues. Floor topping at the 1st, 6th and 4th Lower Mezzanines is continuing. Priming of CMU walls continues throughout.
 - Installing column clips for the permanent column cladding continues at 6th Mezzanine
 - Continued installing electric conduits throughout.
- Entrance #1
 - Continued with construction of new Gas Meter Room.
 - Continued with disconnection/connection of utility service.
- Ancillary #1
 - The work is complete. Turnover back to the garage owner is pending resolution of owner claims to MTA.
- Ancillary #2

- Began drilling and setting micro-piles.
- Platforms
 - Continued with conduit installation at the G3 & G4 platforms.
 - Continued with installation of platform to platform stairs.
 - Completed mock-up installation for light fixtures and track perforated ceilings and began light fixture installation on the G4 platform.
 - Continued with installation of service carriers on the G3 platform.
- Fan Plants
 - Continued fans installation in East & West Fan Rooms.
 - Began installing Durasteel duct in the air shaft at the East Fan Room.
 - Installing damping and sound attenuators in the West Fan Room.

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

- Placement of concrete final liner is ongoing throughout the caverns and tunnels and is approximately 91.0%.
- Rebar installation and permanent concrete placement for the arch in the Main Cavern and the G4/S2 Cavern is ongoing.
- Permanent concrete placement for the low and high benches in the G3/S1 Cavern is ongoing.
- Low bench installation in the Horseshoe Tunnel is ongoing.
- Installation of gas and steam lines at 72nd Street is ongoing.
- The muck house at 72nd Street has been removed.

Contract C-26011 (C4C) 72nd Street Station Excavation, Utility Relocation and Road Decking

- Ancillary2/ Entrance 2 – Mobilization of the site, creating access for manpower & material; monitoring of geotechnical instrumentation, arrival of equipment.
- Entrance 3 – Mobilization of the site, installation of pressure relief drainage, waterproofing.
- Street/Utility Work: Visual inspection and cleaning of sewers on site (72nd and 2nd Ave); reorganization of water treatment plant layout; set up MEP for gas/water main installation adjacent to manhole 72-1; sawcut and excavate for installation of gas and water mains (72nd and 2nd Ave.); install gas main.

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

- Work continues with 2 shifts. All surface operations end at 10:00PM daily.
- MPT
 - MTACC and the contractor continue to work on the plan of using the elevator shaft for material extraction from the Entrance #2 rock excavation. This will require approval from NYDOT for a revised MPT Plan and permit.

- Cavern
 - Trenching, laying of drainage pipe and placement of invert slab continues at the north end of the cavern.
 - Waterproofing of the walls and erection of steel rebar cages continues. Waterproofing of the arch will follow.
 - The first concrete wall placements in the Cavern were completed at section #3, east and west sides. #2 and #1 will follow, going south and then resume at #4, proceeding north. Following placement of Segments #4 east and west, the arch forms will be brought on site.
- Southeast Tunnel (Option #1)
 - The invert slab was completed.
 - Waterproofing south of the Pump Room was completed and the Arch Forms were set in place for the first concrete placement, scheduled for October 7, 2013.
 - Work continued with placement of structural slabs in the Pump Room.
- Ancillary #1 & Ancillary #2
 - Continuing to be used as support zones/laydown areas.
- Entrance #1
 - Continuing encasement of existing concrete columns.
 - Placement of invert slab continued.
- Entrance #2
 - Rock excavation continued to an elevation approximately 30' below street level. Blasting continues intermittently. The contractor has achieved good production with mechanical excavation and only blasts on an as-needed basis. This ability to reduce the amount of blasting helps with community relations in this area of the site.

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

- The contractor is continuing with submittals. Submittals under review during this period include:
 - Quality Plan
 - Cost Breakdown
 - Mechanical Equipment cut sheets
 - Baseline Schedule
- Pre-construction mobilization activities will be the primary activity on this contract pending site access in accordance with the following milestone dates:
 - Limited Access to the site – April 2014
 - Full Access to the site (except Entrance #2) – October 27, 2014

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

- **Electrical:** Contractor currently have 9 craft electricians (includes 4 supervisors and 1 warehouseman) on the job. Contractor completed all available work in the three (3) communications rooms (2161, 2446 and 2653) at the 63rd Street Station and have subsequently de-mobilized out of all three rooms as September 6, 2013. Electrical crew currently working in warehouse preparing the EA Alarms at 96th Street and getting ready to install CSJV conduits and cables for “Negative” work at 96th Street as well as fiber optic cables, communication cables and signal cables.
- **Civil (Yard Work):** Contractor completed the welding operation at Linden Yard for the running rail (63rd Street Station through 86th Street Station). The welding equipment and running rail was subsequently lower into the launch box area on September 23, 2013 at the 92nd Street “Access Hatch”. Welding of the section of rail from the north of 86th Street Station to south end of the 96th Street Station should be completed by October 4, 2013. CSJV will then mobilize on October 18, 2013 at the 97th Street “Access Hatch” and begin its welding operation for the northern part of the project (96th Street to 102nd Street).
- **Coordination:** Contractor continued submission and review of submittals under contract and coordination of shop drawings by stations contractors to avoid conflict during installation.
- **Material Procurement:** Continue the manufacture of communications, SCADA and traction power equipment.

Concerns and Recommendations:

The SAS Project Team continues to identify, prioritize and address construction problems which have the potential to delay the project. There are no new concerns or recommendations at this time.

2.1.4 Force Account (FA) Contracts

Status:

As of September 30, 2013, force account expenditures are \$30,545,200 of the \$95,400,000 budget.

Observation:

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

Concerns and Recommendation:

None

2.1.5 Operational Readiness

Status:

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

Observation:

The IPS will be updated to reflect any adjustments or changes in pre revenue service activities.

Concerns and Recommendation:

None

2.2 Third-Party Agreement

Status:

During the 3rd Quarter 2013, 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 and ECS representatives bi-weekly to discuss and resolve utility related issues. Third-Party reimbursement as of September 30, 2013 is \$43,480,925.

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. Revision 10 of MTA's Current Working Budget increased the Third-Party Agreement budget to \$91,586,000.

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 3rd Quarter of 2013.

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:

Acquisition of easements associated with the revised design of Entrance #1 at the 72nd Street Station is underway.

Conclusions and Recommendations:

None

2.6 Community Relations

Status:

On July 29, 2013, Congresswoman Carolyn Maloney (NY-12) issued a report card -- the fourth in a series - to evaluate the MTACC's progress on the project. In recognition of the significant progress that has occurred on the project, the MTACC has earned an overall B+, up from a B on Congresswoman Maloney's last report card released in 2011. Improvement is documented in seven of eleven categories, with only two categories identified as areas of concern.

Observation:

Congresswoman Maloney cites communication with the public, construction management, planning, schedule and budget performance as improvements while mitigation of construction impacts continues to be the most negative aspect of the project. This report concludes that MTACC has been "admirably open in its outreach to the community", but that solutions to problems sometime appear arbitrary and require too much time to implement.

Conclusions and Recommendations:

Stakeholder feedback such as Congresswoman Maloney's Report Card provides valuable input and guidance to the MTACC regarding aspects of its outreach program that can be improved. The PMOC recommends the MTACC carefully consider the results of this Report Card and develop strategies to address the areas identified as needing improvement.

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

MTACC issued draft Update #9 of the PMP for review. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013 and will address this concern

Observation:

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

Concerns and Recommendations:

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

3.2 PMP Sub Plans

Status:

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

Observations:

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

MTACC is currently conducting an audit of 21 of the total of 79 project procedures that are referenced by the SAS PMP or its sub-plans (particularly the CMP and SMP) and the ELPEP.

Observations:

Results of this audit should be available by October 2013. This audit may initiate additional revisions to the PMP and/or its major sub-plans.

Concerns and Recommendations:

The PMOC recommends formal training is provided for new and current employees to ensure familiarization with the recently issued MTACC procedures.

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 #86 was received on October 3, 2013 and is based on a Data Date of September 1, 2013. This update contained “.PDF” schedule reports for all remaining work, the critical/longest path, variance tabulation between Updates # 85 and 86; summary schedule and the “.XER” schedule file for the IPS. The IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities by September 20, 2016, with approximately 102 calendar days (CD) or 73 work days (WD) of contingency when measured against MTACC’s target Revenue Service Date (RSD) of December 30, 2016.

Table 4-1: Summary of Schedule Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	Sept. 16, 2016	October 2017
Revenue Service	September 30, 2014	December 30, 2016	February 2018

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

Table 4-2: Summary Schedule Performance by Construction Package

Pkg.	Award Date	Contract S/C	% Complete			Upd. #83 Forecast S/C	Upd. #86 Forecast S/C	Schedule Duration (CD)	Quarterly Change (CD)
			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	0
C2A	5/28/09	4/17/13	105%	98.5%	6.7%	9/24/13	10/2/13	168	8
C2B	6/22/12	11/25/15	30%	20.1%	9.7%	12/21/15	3/10/16	106	80
C3	1/13/11	5/13/14	74%	58.3%	15.6%	1/15/15	1/15/15	247	0
C4B	10/1/10	12/3/13	87%	92.3%	-5.8%	12/30/13	1/2/14	30	3
C4C	2/14/13	11/13/15	14%	1.8%	11.8%	11/11/15	11/11/15	-2	0
C5A	7/9/09	11/16/11	100%	100.0%	0.0%	11/16/11A	11/16/11A	313	0
C5B	8/4/11	9/4/14	62%	66.0%	-4.3%	1/27/15	2/6/15	155	10
C5C	5/25/16	5/25/16	0%	0.0%	0.0%	5/25/16	5/25/16	0	0
C6	1/18/12	8/18/16	32%	14.9%	16.7%	7/29/16	8/18/16	0	20

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 calculates schedule slippage for the 3rd Quarter of 2013 and time overrun/underrun for each contract. It also compares the percentage contract time elapsed to date and the estimated percentage of work complete based upon payments to the contractor. These metrics result in the following observations:

- There is no Quarterly Change calculated for the C3 construction contract. Throughout the 3rd Quarter, MTACC contract and milestone reporting has noted that MTACC disagrees with forecasts provided by the C3 Contractor and that negotiations to resolve schedule issues are underway. Contract 3 continues to demonstrate a large variance between elapsed contract time and work completed of 15.6%. This is consistent with the 247 CD delay to Substantial Completion currently forecast.
- There is no Quarterly Change calculated for the C4C or C5C construction contracts. Construction schedules for these two contracts have not been incorporated in the IPS, which reflects contract milestone dates for these two contracts.
- Quarterly Change indicated for the C4C and C5C construction contracts are nominal and generally within the margin of error associated with CPM scheduling. Progress on both of these contracts has generally been good.

- For the 3rd Quarter 2013, the C2B construction contract shows the largest Quarterly Change of 80 CD. The loss of 80 CD in a 92 CD update period is significant. Some of the delays are due to the late achievement of Contract 2A “handoff milestones” and some are based on C2B AWOs. On 9/20/2013, the Contractor submitted a mitigation schedule which is under review by MTACC.
- Contract C4C exhibits a variance of 11.8% between percentage of work completed and the percentage of contract time elapsed to date. This variance is the result of access restraints from predecessor contracts and was anticipated based upon the overall requirements of that contract.
- MTACC has noted that the level of schedule detail within the IPS for communications work will be enhanced for several reporting periods. To date, this enhancement has not occurred.

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			Affected Pkg.	Variance		Sch. Float
			Adjusted (2)	Ud #85 (3)	Ud #86 (4)		Contract = (2) - (4)	Month = (3) - (4)	
C2A	#1	96 th Tunnel Exc Inv. 97-99, Anc. #2	07/15/13	09/09/13	09/23/13	C2B	-70	-14	58
C2A	#2	96 th Tunnel Inv. 92-95, Anc. #1	07/15/13	09/24/13	09/10/13	C2B	-57	14	48
C2A	#2	96 th Tunnel Inv. 92-95, Ent #1	07/15/13	09/24/13	10/02/13	C2B	-79	-8	31
C2A	#2	96th Tunnel Inv. 92-95, Ent #2	07/15/13	7/15/13A	7/15/13A	C2B	0		-
C2A	SS	Completion of all work, including Entrance #3.	07/15/13	09/09/13	10/02/13	C2B	-79	-23	119
C2B	MS #1	Complete work 99th to 105th Streets; provide shared access at 102nd St access shaft	09/21/13	9/20/13	9/20/13	C6	1	0	200
C2B	MS #2	Complete work & provide shared site access @ 93rd Street shaft	03/22/14	3/21/14	3/21/14	C6	1	0	363
C2B	MS #3	Complete work & provide limited access @ E&W Trackway thru Sta. (1238+50 and 1225+25), & 99th to 105th St Tunnel and 'Exclusive Access @ Rail Shaft	10/21/13	10/21/13	10/21/13	C6	0	0	202
C2B	MS #4	Complete work & provide 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	9/25/14	10/2/14	C6	-11	-7	135

Pkg	MS	Description	Dates			Affected	Variance		Sch.
			Adjusted	Ud #85	Ud #86	Pkg.	Contract	Month	Float
			(2)	(3)	(4)		= (2) - (4)	= (3) - (4)	
C2B	MS #5	Complete work & provide shared access @ East & West Tunnels South of 96th St Station (1225+25 and STA. 1209+00)	02/20/14	2/26/14	2/21/14	C6	-1	5	92
C2B	MS #6	Complete work & provide full access to Comm. Rooms & Closets	08/21/14	8/21/14	8/21/14	C6	0	0	248
C2B	MS #7	Complete work & provide full access to Signals Rooms	08/21/14	8/21/14	8/21/14	C6	0	0	89
C2B	MS #8	Complete work & provide full access to Traction Power Rooms:	08/21/14	8/21/14	8/21/14	C6	0	0	165
C2B	MS #9	Complete work & provide full access to Station Service Centers	11/21/14	11/21/14	11/21/14	C6	0	0	208
C2B	MS #10	Complete all Comm., Signal , & Traction Power work in remaining areas not identified in Milestones 1 through 9	09/21/14	1/26/15	1/28/15	C6	-129	-2	31
C2B	SS	Substantial Completion	12/21/15	4/28/16	3/10/16		-80	49	85
C3	#3a	Compl Mezz Levels Comm. Rms/Sta. Service Center	04/15/13	7/22/13A	7/22/13A	C6	-98		-
C3	#3b	Conduits @ Mezzanine Level	04/15/13	10/11/13	10/11/13	C6	-179	0	185
C3	#3c	Compl Mezz Levels Comm. Rms/Sta. Service Center	04/15/13	01/31/14	02/04/14	C6	-295	-4	109
C3	#4	Compl Lwr/Uppr Platforms & Signal Rms	10/14/13	12/05/13	01/09/14	C6	-87	-35	218
C3	#4b	Compl Lwr/Uppr Platforms & Signal Rms	10/14/13	03/11/14	04/02/14	C6	-170	-22	153
C3	#5	Compl All work Anc. #2 in Parking Garage	08/30/13	11/04/13	11/25/13		-87	-21	314
C3	#6	Complete work @ Ancillary #1	07/09/12	09/20/13	09/20/13		-438	0	352
C3	SS	Substantial Completion	05/13/14	12/29/14	01/15/15	C6	-247	-17	33
C4B	#1	Compl All work North of Grid Line 17	06/25/13	8/7/13A	8/09/13A	C4C	-43		-
C4B	SS	Substantial Compl/All work South GL 17	12/03/13	01/03/14	01/02/14	C4C	-30	1	24
C5B	#1	Compl All work South of Grid Line 15	03/04/14	04/01/14	03/27/14	C5C	-23	5	32

Pkg	MS	Description	Dates			Affected Pkg.	Variance		Sch. Float
			Adjusted (2)	Ud #85 (3)	Ud #86 (4)		Contract = (2) - (4)	Month = (3) - (4)	
C5B	SS	Substantial Compl/All Work North GL 15 (w/0 Ent. #2)	09/04/14	10/02/14	08/29/14	C5C	6	34	28
C5B	SS	Substantial Compl/All Work incl. Ent. #2	-	02/25/15	02/06/15	C5C	#VALUE!	19	66
C6	#1	Completion of Signal Block Design	08/18/12	9/10/12A	9/04/12A	C6	-23		
C6	#2A	Complete LAN - 96th St. Station	05/18/15	05/18/15	05/18/15	C2B	0	0	124
C6	#2B	Complete WAN - 96th St. Station	05/18/15	05/18/15	05/18/15	C2B	0	0	124
C6	#3A	Complete LAN - 86th St. Station	07/18/15	07/17/15	07/17/15	C5C	1	0	0
C6	#3B	Complete WAN - 86th St. Station	07/18/15	07/17/15	07/17/15	C5C	1	0	0
C6	#4A	Complete LAN - 72nd St. Station	02/18/15	03/27/15	02/18/15	C4C	0	37	0
C6	#4B	Complete WAN - 72nd St. Station	02/18/15	03/27/15	02/18/15	C4C	0	37	0
C6	#5A	Complete LAN - 63rd St. Station	04/18/14	06/10/14	09/05/14	C3	-140	-87	64
C6	#5B	Complete WAN - 63rd St. Station	04/18/14	06/10/14	09/05/14	C3	-140	-87	64
C6	#5C	Complete all 63rd St. Station work	04/18/14	06/10/14	09/05/14	C3	-140	-87	64
C6	SS	Substantial Completion	08/18/16	08/18/16	08/18/16		0	0	0

Delays to C6 milestones #5A, 5B and 5C appear to be the result of delays to C6. At this time, it is unknown whether extensive delay to systems installation, startup and testing at the 63rd Street Station will result in further delay to systems installation at other locations on the project.

At the 63rd Street Station (C3), Milestones #3 and #4 have been divided into “sub-milestones” to better represent the scope of work involved and reasonable schedule goals for their completion. At this time, these “sub-milestones” are not supported by schedule logic supported by the C3 contractor.

A complete evaluation of contract milestones is dependent on incorporation of the C4C and C5C construction schedules in the IPS.

Concerns and Recommendations:

MTACC continues to evaluate the C6 schedule acceleration proposal. The PMOC has expressed concern about this effort due to the following:

- Without the C4C and C5C construction schedules incorporated into the IPS, the current schedule status of the project is not completely clear. The risks involving these aggressive construction schedules for both of these contracts need to be completely evaluated prior to determining if acceleration of systems work is the appropriate method of schedule mitigation.
- The C6 Contractor has reportedly been less than completely cooperative in updating and maintaining the current schedule.

- Any schedule acceleration proposal should include resource-loaded schedules depicting both the current schedule and proposed acceleration schedule. The interrelationship of work locations, crew sequencing and installation logic necessary to support the follow-on testing activities should be completely demonstrated and understood.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#86 (DD=9/01/13), 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
C2A – 96th Street Station Sitework& Heavy Civil		
Final cleanup/prepare area for turnover (MS#1)		9/23/13
Final cleanup/prepare area for turnover (S/C)		10/2/13
C2B – 96th Street Station Concrete, Finishes & Utilities		
Build (& pour) Mezzanine 95 th to 92 nd Streets		11/27/13
Pour Mezzanine 97 th to 95 th Streets		11/1/13
Pour Mezzanine 99 th to 97 th Streets		11/12/13
C3 – 63rd Street Station Rehab		
Fabricate Escalators to Site		10/21/13
Procure/Fabricate Elevators		10/28/13
Perform Utility Relocation – Entrance #1		12/20/13
Structural Work – Entrance #2		11/8/13
C4B – 72nd Street Station Mining & Lining		
72 nd Street – Restore Shaft		9/24/13
G4/S2 Cavern 1 Arch F/R/P/S		11/20/13
Main Cavern South Station Arch F/R/P/S		12/12/13
South Crossover Arch F/R/P/S		9/4/13
C4C—72nd Street Station Finishes		
On-Site Mobilization	9/23/13	
Construct Ancillary 2 Structure/Arch (below ground)		12/24/13
Station Duct Bench Concrete		10/15/13
Mezzanine Deck Concrete (NE)		10/14/13
C5B – 86th St. Station Mining & Lining		
Entrance #1 – 83 rd Street Tunnel Work Complete		11/25/13

Activity ID	Start	Finish
South Cavern Concrete - Invert		10/17/13
South Cavern Wall Concrete Work		10/30/13
North Cavern Invert Waterproofing		10/30/13
C5C – 86th St. Station Finishes & MEP		
Mobilization		8/23/13
C6 – Systems		
Track Work – Deliver Track via 92 nd Street Access		11/25/13
Install balance of Comm. Equip & Wire MR-223C,D,E (63 rd Street Station)		11/7/13
Circuit Design – 1200 CIR		9/13/13
Approve HT SWGR Wiring – 86 th Street SS		12/20/13

Observations and Analysis:

During the next 90-day period, two construction contracts (C2A, C4B) will achieve or be very close to achieving substantial completion. Timely completion of these contract and availability of unrestricted site access for their respective follow-on contracts (C2B, C4C) is “critical” to achieving the currently forecast RSD of December 30, 2016.

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

The IPS contains numerous contractual milestones and schedule constraints which support modeling the interaction of the construction packages. Accurate modeling of the interaction of the active construction packages complicates the identification and interpretation of the overall project critical path. Due to the inherent limits in the accuracy of CPM methodology and the information developed in a complicated project of this nature, the schedule model can never be a 100% accurate representation of the project. As such, the PMOC monitors and evaluates all “near-critical” paths with a schedule float value of 60 work days or less.

The PMOC notes that MTACC has made significant progress in cleaning up activity status information for the systems contract. It is also understood a major reformation of the IPS is underway and that some of the information and results derived from Update #86 may change somewhat.

Based on an analysis of the critical path(s), the PMOC considers the primary “critical” or “near-critical” schedule drivers of the project to be:

1. Completion of heavy civil and architectural/MEP construction (Contracts C5B and C5C) at the 86th Street Station.
2. Installation of traction power systems at the 96th and 86th Street Stations.
3. Design, manufacture and installation of signal system equipment at 96th and 63rd Street Stations.
4. Construction of heavy civil and architectural/MEP construction (Contracts C4B and C4C) at the 72nd Street Station
5. Signal system installation at the 72nd Street Station
6. Reconstruction of Entrance #1 at 63rd Street Station and follow-on signal system installation.

Observations:

Project Critical Path: Significant changes to the most “critical” schedule paths occurred in Update #86 of the IPS. There are now three (3) independent “zero float” paths that span a significant portion of the remaining project duration. The complex interaction of the independent construction contracts and the various schedule obligations (milestones) within these contracts significantly increases the complexity of the SAS schedule. The most critical schedule elements of SAS Phase 1 have consistently involved construction of the 86th Street Station. Two of the three critical paths involve work at the 86th Street Station.

“Critical Path #1”: The initial path involves installation and testing of traction power systems at the 86th Street Station. This path has been discussed previously in this report. There are several independent float paths which precede the actual “critical” (TF=0) path, which is currently constrained to start no earlier than March 15, 2015. Upon formal incorporation of the C5C construction schedule, this constraint will be removed, which should result in a more continuous path. The following discussion focuses on the “most critical” path that precedes the traction power work with TF=0. This path consists of three distinct elements:

1. C5B, South Cavern Construction: This path originates with construction of South Cavern concrete inverts and walls, which are both currently underway. This work currently has 32 and 41 WD of schedule float respectively. This work is closely followed by concrete arch construction (South Cavern), which is forecast to complete on February 28, 2014. At this point in the schedule, the main cavern area south of Grid Line #15 is turned over to the C5C Contractor.
2. The IPS forecasts the C5C Contractor gaining access to the south cavern area on April 22, 2014. This date reflects a 17 WD buffer in the schedule between C5B completion and C5C commencing work. As a consequence of this buffer, schedule float for the C5C portion of this work is reduced to 15 WD. This value will be adjusted based on the actual turnover date. Upon gaining access to the south cavern area the C5C Contractor has until February 24, 2015 to complete construction of all traction power rooms and provide shared access to the C6 Contractor (MS #9 and #10).
3. The TF=0 portion of this path starts with C6 Systems installation work in the 86th Street Station Traction Power Substation Room (TPSS). This change in float is the result of another schedule buffer between C5C MS #9 and #10 on February 24, 2015 and the actual handoff to C6, forecast for March 18, 2015. As previously noted, this will be

adjusted based on achievement of the actual access date. Work within the TPSS continues through January 21, 2016 where once completed is followed by Local Testing of the Traction Power System at 86th Street Station. From that time, Traction Power Integrated Testing is estimated to require approximately six months through July 28, 2016, at which point the critical activities become the “Dispatch Tower Tests at 96th Street Station,” “Traction Power Operational Test” and “Route Familiarization and Equipment Training,” resulting in a forecast Revenue Service Date (RSD) of September 20th, 2016.

“Critical Path #2”: This path involves installation and testing of communications systems at the 86th Street Station. The actual “critical” (TF=0) path, is currently constrained to start no earlier than October 9, 2014. Upon formal incorporation of the C5C construction schedule, this constraint will be removed, which should result in a more continuous path. The following discussion focuses on the “most critical” path that precedes the traction power work with TF=0. This path consists of three distinct elements:

1. C5B, North Cavern Construction: This path involves the construction of concrete inverts, walls and arches in the north cavern. This work currently has 28 WD of schedule float. Invert drainage is currently being installed. All work in this area is forecast for completion on August 20, 2014. This work is followed by final cleanup activities and Contract 5B Substantial Completion (w/o Entrance #2) August 29, 2014 and forecast start of work by C5C on October 8, 2014. Approximately 15 WD of schedule float is embedded in the schedule between the C5B and C5C turnover.
2. C5C, Mezzanine Construction: The IPS forecasts the C5C Contractor gaining access to the north cavern area on October 9, 2014. This date reflects a 28 day buffer in the schedule between C5B completion and C5C commencing work. As a consequence of this buffer, the schedule float for the C5C construction of the north mezzanine is reduced to 0 WD. This value will be adjusted based on the actual turnover date. Upon gaining access to the north cavern area the C5C Contractor has until January 27, 2015 to complete sufficient work in the upper mezzanine to allow the start of communication system installation. The C5C work is critical due to a logical tie with an internal milestone denoting that all general construction work on Room 4117 is complete no later than May 8, 2015. It must be remembered that the C5C schedule does not yet reflect the actual construction logic and these relationships may be revised, altering the criticality of this work.
3. C6, Communications System: Installation and local testing of the communication system is forecast for completion on July 17, 2015 as required by C6 Milestone #3A/3B, Complete LAN/WAN at 86th Street Station.

“Critical Path #3”: This path involves the procurement, manufacture and installation of communication equipment at the 72nd Street Station. The “critical” (TF=0) path originates at the data date (September 1, 2013) with concurrent design and manufacture activities that end on November 7, 2014. Installation and field acceptance testing extend through the milestone turnover of the communications system for Simulated Integrated System Tests on February 17, 2015. .

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

+4 WD: This path is initiated by the “design” of the communications system at the 86th Street Station (Act #C6C 215, Communications Design – 86th Street) , which is reportedly underway. The original duration of the “design” activity exceeds two years and the concurrent “manufacture/deliver” activity (C6C 230) has a duration of 396 WD. Completion of hardware and software installation is currently forecast for June 12, 2015, followed by field installation, and integrated systems testing.

Due to the excessive duration and lack of activity definition, it is not possible to verify status of the design or manufacture activities on this path. MTACC has previously committed to providing a better breakdown of communication activities. The PMOC considers this breakdown a high priority for activities on “near-critical” paths such as this.

+9 WD: This path originates with the C4C contractor gaining access to the site via the Milestone #1 “handoff” from C4B for the northern portion of the main cavern. This path follows the construction of Ancillary #2 from structural work through finishes and MEP installation. Included in this path are activities representing the C4C Contractor’s portion of the work required to establish permanent station power. This schedule path ends with the establishment of permanent power, which is considered a necessary predecessor to C6 MS # 4A/4B, Station LAN/WAN Complete @ 72nd Street Station.

The PMOC notes the C4B MS #1 was achieved on August 9, 2013. Formal turnover of the area and acceptance by the C4C Contractor was executed on September 23, 2013. The PMOC notes that the IPS has not been updated to reflect the actual turnover date.

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

+30/35 WD: The +30 WD float path is initiated by Activity C6AR63-4: G3/G4 Track through 63rd Street “Shared Access” and is currently constrained in the schedule to start on June 18, 2014. This path involves signal system installation and testing throughout the 63rd Street Station area and is currently forecast to complete on February 23, 2016. The start of this work is preceded by the substantial completion of C3. This restraint is based on each contractor having exclusive access to the work area.

C3 substantial completion is currently controlled by the work at Entrance #1, which is currently underway. This work currently has +30 WD of schedule float and MTACC is forecasting contract substantial completion on January 15, 2015. As previously reported, a negative schedule lag allows the start of system installation work to supersede the schedule logic and start before the Substantial Completion of the C3 contract.

The PMOC recognizes that MTACC does not agree with the C3 Contractor’s schedule and its forecast substantial completion date of June 9, 2015. The PMOC also recognizes that the “access restraint” between C3 and the start of signal system installation may not be a “true” access restraint to the work area

involved Irrespective of responsibility, the delays experienced on the C3 Contract and specifically those experienced at Entrance #1 will almost certainly extend substantial completion beyond the May 13, 2014 contract date. As such, the PMOC

However, the “negative lag” approach for adjusting the schedule model to conform to MTACC’s current opinion of what the schedule should look like merely adds another layer of confusion and potential distortion to the IPS. The PMOC continues to recommend the MTACC clarify the relationship involving Entrance #1/C3 Substantial Completion and the start of signal installation with the affected contractors and utilize more conventional schedule logic to model the activities and relationships in that area at that time.

+31 WD: This path is initiated by Act # C2A E115 Demolish Rainbow Hardware, which is forecast to complete on September 23, 2013. After C2A Substantial Completion and handoff to C2B, the path follows Act #C2B S170, Build Mezzanine 95th to 92nd Streets. This path tracks construction of the 96th Street Station structure between 95th and 92nd Streets through May 7, 2014, at which time MEP system installation is forecast to commence. Architectural and MEP construction in this portion of the station is forecast to complete on January 28, 2015, at which time Ancillary #1 is made available to the C6 Contractor for signal system installation and testing, which is forecast for completion on May 19, 2016.

+38 WD: This path originates via Activity C6AR71-11 Signal Rooms [@ 72nd Street Station] on October 20, 2014. The path follows signal equipment installation in the 72nd Street Relay Room and wayside equipment installation in the immediate area of the 72nd Street Station. Installation work for both locations is forecast to be complete in December 2015. Local and operational testing is forecast to complete on June 6, 2016, at which time the system is transferred to NYCT for pre-revenue operations testing.

In this update, the start of signal installation is preceded by a schedule lag from the award of the C4C contract package. Formal incorporation of the C4C construction contract schedule and the release of the schedule constraint which prevents this work from starting until October 14, 2014 is necessary to develop a realistic understanding of the relative schedule criticality of the activities on this path.

+48 WD: This path involves the shop drawing development, manufacture, and installation and testing of signal equipment at the 96th Street Station. This work (Act # C6S 96 40, Circuit Design – 96th St. RR) is now reported to have started on June 17, 2013 and forecast to complete on September 5, 2013. This path represents a major chain of work activity at the 96th Street Station extending continuously from equipment procurement through completion of Operational Testing in June 2016.

IPS update #85 reported this path to have +32 WD of schedule float. Reported progress appears responsible for the float improvement this period.

+50 WD: This path represents traction power system installation in both the 96th Street Station TPSS and wayside work in the 96th Street Station area. The work is constrained from starting until January 29, 2015, which is consistent with the latest schedule update for C2B MS #10, Complete all Work in Remaining Locations for Comm./Signal Installation. Installation activity is forecast to complete on November 15, 2015 with integrated test activity schedule to complete on May 19, 2016.

+52 WD: This path is initiated by the “design” of the communications system at the 96th Street Station (Act #C6C 150, Communications Design – 96th Street) , which is reportedly underway. The original duration of the “design” activity exceeds two years and the successor “installation” activity has a duration of 235 WD. MTACC has previously committed to providing a better breakdown of communication activities. Following design and installation of hardware and software, local and integrated testing is scheduled to start on November 4, 2015 and is forecast to complete in approximately 18 months, completing on May 17, 2016, followed by integrated system and proof of operation testing.

Schedule float for the work represented by this schedule path improved this period from +44 WD to +52 WD.

+54 WD: This path involves the shop drawing development, manufacture, and installation and testing of signal equipment at the 86th Street Station. This work (ACT # C6S 86 50, Circuit Design – 1200 CIR) is now reported to have started on November 1, 2012 with approximately 10 WD remaining duration. This path represents a major chain of work activity at the 86th Street Station extending continuously from equipment procurement through completion of Signal System Testing in May 2016. IPS update #85 reported +43 WD of schedule float for this path.

The six month lag between completion of manufacture of room equipment and start of manufacture of wayside equipment suggests substantial capacity to resequence and “accelerate” work on this path if required.

The PMOC recognizes that many activities on this path represent summaries of a number of individual activities. If one activity is incomplete, the summary activity remains incomplete and the true schedule criticality of the path may be over emphasized. Supplemental reporting of long-lead procurement that is summarized by IPS schedule activity will assist in providing a realistic assessment of the significance of this and similar schedule paths.

Other Float Paths: The following list summarizes the schedule float currently available for project elements where time-of-performance has been a concern.

Schedule Float		
Upd. #86	Upd. #85	Description
	+35	Entrance #1 Complete – 63 rd Street Station
	+124	Deliver Concrete Ties (including LVT) and Track
	+53	Handoff C5B→C5C @ Entrance #2
	+186	C4C – Entrance #1 Design & Construction

Concerns and Recommendations:

The PMOC notes that significant progress appears to have been made in accurately updating schedule information for the C6 construction contract. Hopefully this effort will continue and yield a more accurate view of the schedule paths and issues that are of primary importance in achieving timely completion of the project.

1. The “design” of the communication system at the 86th Street Station continues to occupy a near-critical path of +4 WD schedule float. Reasons for the apparent lack of progress to activities along this path remain unclear. User-requested design changes or other unrelated delays to shop drawing approval could be causing some of the delay, however the summary nature of the pre-construction activities does not currently facilitate the identification of any delay. The PMOC considers the enhancement of detail and better understanding of the activities in this path and any potential delays they may be experiencing to be an extremely high priority.
2. Although currently not as “critical”, the “design” of the communication system at the 96th Street Station, (TF=+52 WD) should receive similar attention.
3. Incorporation of the C4C and C5C construction schedules is clearly a major priority in order to gain the best possible understanding of the actual construction schedule moving forward.
4. The PMOC continues to recommend a clarification of the access situation at Entrance #1 of the 63rd Street Station.
5. The PMOC recommends that the narrative report accompanying the IPS update contain a more complete discussion of schedule revisions made during the update period as well as a discussion of any problems or questionable data associated with the update.

4.4 Compliance with Schedule Management Plan

Status:

Since August 2010, the PMOC has monitored and evaluated the SAS Project Team’s compliance with its Schedule Management Plan, developed as part of the overall ELPEP process.

Observations and Analysis:

In the opinion of the PMOC, SAS Phase 1 remains in substantial compliance 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).

Management of a schedule of this scope and complexity involves numerous technical and managerial challenges, most of which add to the difficulty of providing a meaningful schedule forecast. SAS Senior Management has recognized that corrective action is occasionally required and has effectively implemented such action when required. MTACC is addressing previously expressed PMOC concerns relative to the IPS. The PMOC is confident that when completed, these actions will support and enhance the overall schedule management effort.

The current status of schedule metrics identified by the ELPEP includes:

- Forecast Revenue Service Date
 - ELPEP Requirement: February 28, 2018
 - Current Forecast: December 30, 2016
- Minimum schedule contingency (measured against February 28, 2018 RSD)
 - ELPEP Requirement: 240 CD
 - Current Forecast: 530 CD.
- Minimum Allowable Float; Real Estate Acquisition
 - ELPEP Requirement: 60 CD
 - Current Forecast:
 - C4C, Entrance #1: Condemnation period for new easement (Act # C4C ENT1REL) = 189 WD (approx. 260 CD)
- Minimum Allowable Secondary Float Path
 - ELPEP Requirement: 25 CD
 - Current Forecast: Independent “near critical” paths @ +4 WD (6 CD), +9 WD (13 CD). It does not appear to be economically reasonable to mitigate (accelerate) work on these paths to achieve full ELPEP compliance.
- Secondary Schedule Mitigation (critical path compression)
 - ELPEP Requirement: 125 CD
 - Current Forecast: Not Available.

The SAS Management Team has demonstrated that it is using the IPS to actively plan, organize, direct and control individual packages and the overall project, and to provide reliable forecasts of the SAS revenue service date (RSD) and other major accomplishments.

Concerns and Recommendations:

With respect to project schedule management, the MTACC has realized the beneficial outcomes envisioned by the ELPEP on SAS. MTACC has generally been in compliance with its Schedule Management Plan; however, the current effort to “refresh” the IPS must be completed and maintained in order to assure continued compliance with its SMP.

The PMOC is concerned about the significant reduction in schedule float for the cost-to-cure work at Entrance #1 of the 72nd Street Station. This change in schedule status should receive greater attention in the monthly schedule narrative.

No further concerns or recommendations in this section.

5.0 PROJECT COST STATUS

5.1 Budget/Cost

Status:

The FFGA baseline budget and current working budget are broken down into Standard Cost Categories in year of expenditure dollars as follows:

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

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (June 30, 2013)
10	Guideway & Track Elements	\$612,404,000	\$638,107,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,294,629,000
30	Support Facilities	0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$534,865,000
50	Systems	\$322,707,000	\$265,792,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$281,500,000*
70	Vehicles	\$152,999,000	0**
80	Professional Services	\$796,311,000	\$973,000,000
90	Unallocated Contingency	\$555,554,000	\$463,107,000
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

* Includes \$36.5M Cost-to-Cure

** FTA Region II has accepted MTACC/NYCT's assertion that recent services reductions will provide ample spare vehicles for the SAS Phase 1 Project.

Observation and Analysis:

Table 5-1 represents MTACC's most recent update (June 30, 2013) of its CWB into the FTA Standard Cost Categories. This update does not include modifications made as a result of Revision 10 to the project Cost Estimate/Current Working Budget. Revisions to the SCC allocations which incorporate the Revision 10 modifications to the MTACC's CWB will be presented when they are available.

Conclusions and Recommendations:

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

5.1.1 Project Cost Management and Control

Status:

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

Observation:

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

Concerns and Recommendations:

None.

5.1.2 Project Expenditures and Commitments:

Status:

As of September 30, 2013, 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	\$1,610,741,906	56.0%
Total Soft Cost	\$1,307,907,045	\$960,628,346	73.5%
Contingency	\$468,278,656	(Included above)	
Subtotal	\$4,451,000,000	\$2,571,370,252	57.8%

(1) % complete includes AWOs executed to date.

Observations:

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

Based upon financial expenditures reported by the MTACC during September 2013, SAS Phase 1 is approximately 57.8% complete. The completion status of the active construction contracts through September 2013, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100%
- C26005 (96th Street Station) – 98.5%
- C26010 (96th Street Station) – 20.1%

- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 66%
- C26012 (86th Street Station) – 0%
- C26006 (63rd Street Station) – 58.3%
- C26007 (72nd Street Station) – 92.3%
- C26011 (72nd Street Station) – 1.8%
- C26009 (Systems) – 14.9%

Aggregate Construction % Completion:

- 100% of all construction work is under contract
- 56.0% of all construction is complete

Based upon cost data received from MTACC for September 2013:

- Value of construction in place this period = \$32,236,887
- Estimated value of construction remaining = \$1,064,072,393
- Target construction completion = August 18, 2016
- # Months remaining = 36.7

Conclusions and Recommendations:

The estimated average rate of construction required to achieve target completion date = \$30,589,100/MO. The average progress (payments) achieved over the most recent six month period is \$45,040,009/MO. Based on a review of cost data for September 2013, it appears that adequate overall progress was made on the project to achieve the RSD of December 30, 2016.

Soft Cost expenditures (not including real estate, OCIP, etc.) during September 2013 totaled approximately \$5.1M. This expenditure is higher than that experienced in recent months and reflects an increase in design, construction administration and construction management expenses. At this rate, the PMOC estimates there is adequate soft cost budget remaining to complete the project.

5.1.3 Change Orders

Status:

As of September 30, 2013, the status of Additional Work Orders (AWOs) on Phase 1 of the Second Avenue Subway Project is summarized as follows:

Table 5-2: AWO Summary

Contract / (Package)	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26002 (1)	100.00%	\$337,025,000	\$41,184,443	12.22%	\$41,184,443	12.22%
C26005 (2A)	98.50%	\$325,000,000	\$50,347,699	15.49%	\$40,724,479	12.53%
C26010 (2B)	20.10%	\$324,600,000	\$14,474,582	4.46%	\$4,811,943	1.48%
C26006 (3)	58.30%	\$176,450,000	\$10,075,943	5.71%	\$6,476,232	3.67%
C26007 (4B)	92.30%	\$447,180,260	\$2,665,231	0.60%	\$4,413,862	0.99%
C26011 (4C)	1.80%	\$258,353,000	\$117,263	0.05%	\$19,788	0.01%
C26013 (5A)	100.00%	\$34,070,039	\$6,525,471	19.15%	\$6,525,471	19.15%
C26008 (5B)	66.04%	\$301,860,000	\$9,917,605	3.29%	\$7,814,276	2.59%
C26012 (5C)	0.00%	\$208,376,000	\$0	0.00%	\$0	0.00%
C26009(6)	14.90%	\$261,900,000	\$10,659,096	4.07%	\$1,316,941	0.50%
TOTAL		\$2,674,814,299	\$145,967,333	5.46%	\$113,287,435	4.24%

To date, approximately \$1,509,208,556 (56.4%) of all base contract construction work has been completed. As a % of work completed, the AWO exposure for these contracts = 9.67% and the executed AWO % = 7.51%. Based on performance to date, a forecast of total AWO expenditure of approximately \$200M appears reasonable. This compares favorably with the \$229M AWO contingency contained in the MTACC CWB. The PMOC notes that AWO expenditures for certain construction contract packages are trending above established budget values and industry “standards”. The PMOC continues to recommend that all AWOs be critically reviewed, evaluated and documented on a contemporaneous basis to determine if compensable responsibility exists for some of these expenditures.

Observation and Analysis:

The value of AWOs reported by MTACC/NYCT in September 2013 is summarized as follows:

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
September 2013	\$113,287,435	\$145,967,333
August 2013	\$107,273,026	\$135,826,243
Change	\$6,014,409	\$10,141,090
Change	5.61%	7.47%

The change in AWO Exposure during September 2013 for each construction contract is summarized as follows:

Const. Pkg.	AWO Exposure \$			Changes this Period
	Sept.-13	August-13	Period Δ	
C1	\$41,184,443	\$41,184,443	\$0	Final value as reported by MTACC.
C2A	\$50,347,699	\$50,500,953	\$(153,254)	Net decrease in exposure due to the revised valuation of AWOs #125 and 158. Two AWOs were added this period, neither of which has an exposure estimate.
C2B	\$14,474,582	\$11,830,514	\$2,644,068	Net increase is based on revised estimates for AWO # 2, 18, 29, 30, 32, 40, 43, 46 and 47.
C3	\$10,075,943	\$10,342,864	\$(266,921)	Net increase is based on revised estimates for AWOs # 47, 57, 58, 59, 62, 63, 64, 68, 74 76, 77, 79, 80, 86, 87, 88 and 89 as well as initial estimates for AWOs #, 91, 92, 93, 94 and 95.
C4B	\$2,665,231	\$2,652,966	\$12,265	Net increase is based on revised estimates for AWOs # 72and 81 as well as initial estimates for AWOs # 82 and 83.
C4C	\$117,263	\$38,204	\$79,059	Net increase is based on revised estimates for AWOs # 4 and 5 and initial estimates for AWOs # 11 and 12.
C5A	\$6,525,471	\$6,525,471	\$0	Final value as reported by MTACC.
C5B	\$9,917,605	\$9,869,605	\$71,000	Increase is based on the initial estimate for AWO # 66. Six AWOs were added this period, none of which have an estimated value.
C5C	\$0	\$0	\$0	No change this period.
C6	\$10,659,096	\$2,881,223	\$7,777,873	Increase is based on a revised estimate for AWO # 19 and an initial estimate for AWO # 22. Three AWOs were added this period, none of which have an estimated value.
	\$145,967,333	\$135,826,243	\$10,141,090	

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

Const. Pkg.	Executed AWO \$			Changes this Period
	Sept.-13	August-13	Period Δ	
C1	\$41,184,443	\$41,184,443	\$0	Final value as reported by MTACC.
C2A	\$40,724,479	\$40,111,589	\$612,890	Increase is based on the resolution of AWOs # 118, 125, 127 and 135
C2B	\$4,811,943	\$1,738,543	\$3,073,400	Increase based on resolution of AWOs # 7, 29, 30, 31, 39, 41, 43 and 46.
C3	\$6,476,232	\$4,643,934	\$1,832,298	Increase is based on the resolution of AWOs #30 and 61
C4B	\$4,413,862	\$4,413,862	\$0	No change this period.
C4C	\$19,788	\$(1,212)	\$21,000	Increase is based on the resolution of AWO # 12.
C5A	\$6,525,471	\$6,525,471	\$0	Final value as reported by MTACC.
C5B	\$7,814,276	\$7,572,388	\$241,888	Increase is based on the resolution of AWOs # 57, 58 and 62.
C5C	\$0	\$0	\$0	No change this period.
C6	\$1,316,941	\$1,084,008	\$232,933	Increase is based on the resolution of AWOs # 18 and 19.
	\$113,287,435	\$107,273,026	\$6,014,409	

The four stations that are part of SAS share many common features, characteristics and specifications. On C4C many of the AWOs that are included in the AWO log or under discussion at the project meeting will be required at the other stations on the project. These changes include:

- Door Intrusion Details – Lock Changes
- Change Battery Design From Radial To Parallel
- Delete SSC From Secondary Entrances
- Replace All Atlas Speakers With JBL Backboxes
- Delete TMS Requirement (Traffic Monitoring System)
- Replace HEETs with Low Turnstiles
- Halon Fire Suppression for Token Booths (in lieu of Inergen)
- Add Connection-Oriented-Ethernet
- Change MTA Signs from Stainless Steel to Porcelain
- High Pressure Crimps in Lieu of Mechanical Connectors
- Backbox Changes

- Use galvanized in lieu of stainless steel
- Change Architectural Concrete Specifications

The AWO log for C5C currently contains no entries and a total \$0 exposure value. This is one example of the PMOC observation that knowledge and experience gained on one contract is not being effectively shared among the construction management organization within SAS.

Concerns and Recommendations:

MTACC, with support from NYCT, has 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.

5.2 Project Funding

Status:

Total Federal participation is currently \$1,350,692,821. Appropriated, obligated and disbursed totals are shown in Table 5-3 below.

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

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru September 30, 2013
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	\$144,212,017
NY-03-0408-08	\$197,182,000	\$197,182,000	0
NY-03-0408-09	\$186,566,000	Pending	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$1,250,508,200.00	\$1,063,942,200.00	\$773,123,217.00



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

A total of \$2,571,370,232 has been expended on the project through September 30, 2013, of which \$497,544,512 has been spent on design and \$1,509,208,556 on construction (MTACC's September 2013 Cost and Schedule Summary Input).

Observation and Analysis:

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

Concerns and Recommendations:

None

5.2.1 Overall Project Funding

Refer to Section 5.2 of this Report.

5.2.2 Local Funding

Refer to Section 5.2 of this Report.

5.3 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

Cost 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. This analysis includes MTACC's Revision 10 to the SAS Phase 1 Cost Estimate.

Observation and Analysis: Each milestone has been matched to the revised SAS Phase 1 Cost Estimate that was "current" at that time. In several instances, information from these estimates was used to support development of key agreements or documents. Cost information is based upon MTACC documentation and has been summarized into the categories previously used by the PMOC to report cost variances and EAC updates.

Milestone	FFGA	ELPEP	CWB	CWB	Variance
Estimate	Rev. 5d	Rev. 7	Rev. 9	Rev. 10	FFGA→
Date	Jun-07	Oct-09	Jun-11	Aug-13	CWB Rev.10
Construction	\$2,692,000,000	\$3,177,079,000	\$3,000,000,000	\$ 2,869,845,011	\$ 177,845,011
		18.02%	-9.67%	-3.93%	6.61%
Eng./Prof. Services	\$491,000,000	\$ 541,000,000	\$ 592,000,000	\$ 622,862,000	\$ 131,862,000
		9.24%	13.83%	5.30%	26.86%
3rd Party Expenses	\$626,000,000	\$ 747,000,000	\$ 535,000,000	\$ 554,086,000	\$ (71,914,000)
		16.20%	-36.06%	3.61%	-11.49%
TA Expenses	\$ 75,000,000	\$ 103,000,000	\$ 124,000,000	\$ 131,160,085	\$ 56,160,085

		27.18%	22.71%	2.34%	74.88%
EAC	\$ 3,884,000,000	\$4,568,079,000	\$4,251,000,000	\$4,177,953,096	\$293,953,096
Contingency	\$166,000,000	\$ 104,921,000	\$ 200,000,000	\$ 273,046,904	
Budget Total	\$4,050,000,000	\$4,673,000,000	\$4,451,000,000	\$4,451,000,000	

Period	EAC Variance	Comments
CWB R.9→CWB R.10	-1.72%	1. Net decrease in project EAC driven by a reduction in construction cost (-3.93%) somewhat offset by increases in all soft cost categories.
FFGA→CWB R.10	7.57%	2. Net reduction of 11.49% in 3rd Party Expenses is primarily the result of MTACC's ability to provide additional railcars from existing fleet. 3. Net increase of 26.86% in Eng. & Prof. Services primarily the result of increases in design/construction administration services, which have been consistently increasing over the FFGA→CWB Rev 10 time period. 4. TA expenses have experienced the highest percentage increase; however represent a minimal impact, as they represent approximately 3% of the total EAC.

Based on the PMOC's review of Revision 10, the proposed increase in soft costs (basically professional services as defined by Section 8.0 of the FTA SCC) is primarily driven design and CCM cost increases. Using the Rev. 10 numbers, soft costs are approximately 20.8% of the project budget (\$4.45B) and 22% of the EAC (approx. \$4.2B). These percentages compare favorably to FTA documented averages (Reference TCRP 31, Managing Capital Costs of Major Federally Funded Transportation Projects) of about 24%. These estimates appear to include adequate contingency to ensure these elements will complete the project within these budgetary limits.

The Revision 10 update to the Project cost Estimate is a forecast of all cost known at this time that are necessary for completion of the project. As such, it represents the Estimate at Completion (EAC). Using the MTACC financial reporting format contained in its Capital Construction Reports, the PMOC maintains an independent Estimate-At-Completion (EAC) report for Phase 1 of the Second Avenue Subway Project. This estimate will be updated as new cost factors are identified.

Table 5-4: Estimate @ Completion

	CWB	EAC
Total Construction	\$2,710,354,299	\$2,869,845,011
Engineering Services	\$591,298,960	\$622,862,000
Third Party Expenses	\$536,268,950	\$554,086,000
TA Expenses	\$128,160,085	\$131,160,085
Contingency	\$324,917,706	
Executive Reserve	\$160,000,000	
TOTAL	\$4,451,000,000	\$4,177,953,096

Conclusions and Recommendations:

Based on the information available, the PMOC's EAC validates the reasonableness of the MTACC's Current Working Budget of \$4.451B. Based upon current information, this effort suggests the project can be built within the limits of the Current Working Budget. This effort will be revisited periodically, to incorporate updated information and evaluate its effect on the overall EAC.

5.4 Project Contingency

Status:

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

- \$220 million through 90% Bid and 50% Construction
- \$140 million through 100% Bid and 85% Construction
- \$45 million 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 \$161,660,000.

Observations and Analysis:

During September 2013, contingency changes included routine incorporation of AWOs into the individual project and overall program reporting systems. In addition, final adjustments resulting from the Revision 10 update to the Project Cost Estimate were incorporated. 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.

	August 2013	September 2013
Required Balance (ELPEP):	\$171,400,000	\$161,660,000
Planned Contingency Balance:	\$238,100,000	\$234,892,919
Actual Contingency Balance (PMOC):	\$324,000,000	\$314,900,000
Actual Contingency Balance (MTACC):	\$352, 804,000	TBD

During March 2013, based upon the actual physical % completion of the work, it was agreed that MTACC had achieved the initial “hold point” on the contingency drawdown curve. From that point forward, the ELPEP required minimum contingency balance will be reduced monthly.

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.

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period.

6.2 Risk Updates

Status:

During the 3rd Quarter 2013, MTACC update the Risk Registers for all active construction contracts. The results of this update will be incorporated into the overall project risk-based forecast of EAC.

Observation and Analysis:

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

- During this period, the work at the C3 contract Ancillary #1 building was completed. However, MTACC will not closeout this portion of the contract due to a claim filed by the building owner for contractor-caused damages to the owner's freight elevator. As compensation the building owner wants the freight elevator replaced. The C3 Contractor disagrees. Optimistically, closeout of C3 may begin in late 2014, allowing no less than a year for the contractor and garage owner to resolve this matter.
- While MTACC should not have to become directly involved, the garage owner will not reopen its business until the matter is resolved. As such, MTACC access fees to the garage owner will continue until this matter is resolved and the garage reopens.
- Although this event has an extremely low probability of affecting C3 contract completion or the overall project RSD, the PMOC recommends it be included in the C3 Risk Register and periodically be monitored to verify that progress toward resolution is being made. If the parties are unable to resolve the matter, MTACC may be drawn into it via lawsuit or out of necessity in order to close out the project.
- At the C5B site the contractor has encountered deviations in the southeast tunnel shotcrete surface caused by the installation of steel ribs that were installed by the C1 contractor, to support unstable rock. These ribs were encased in the shotcrete lining, resulting in a thicker than designed layer of shotcrete. In order to maintain the track alignment and dynamic clearance envelope, changes may be required in thickness of the final tunnel lining. Alternatively, if the tunnel lining thickness is maintained, track alignment changes may be required.
- Resolution of this issue requires review, analysis, concurrence and direction by AAJV and NYCT. As of this report NYCT has directed that tunnel lining can proceed from the south cavern to the new Pump Room. However, options involving the remaining tunnel south to the bulkhead at the north C4B cavern site are still under review. Resolution of similar issues have required significant time to resolve and the PMOC is concerned this issue may follow the same path. The PMOC recommends this issue be added to the C5B Risk Register and tracked continuously through its resolution.

Conclusions and Recommendations:

The results of the C4C Risk Analysis are similar (five month extended time of performance) to C5C. The PMOC is concerned about the potential “cumulative effect” on the schedule of both projects experiencing delays of this magnitude and the further delay of the RSD. The PMOC recommends revisiting the C4C and C5C packages in a “value engineering/risk assessment” workshop format in an effort to identify and assess the potential merit of additional schedule acceleration and risk mitigation strategies that will enhance the probability of achieving the scheduled handoffs to the systems contractor.

6.3 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:

Risk management activities observed by the PMOC over the recent reporting period include:

1. Contract Risk Registers are maintained and will be completely updated in July 2013.
2. Updating of the cost and schedule drawdown curves to provide risk-informed cost and schedule forecasts
3. Formal risk mitigation meetings on a monthly basis.
4. 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. Mitigation measures include an interface organization, bi-weekly meetings and a detailed “to do” list for each interface to assure that the interface milestones can be achieved as planned.
5. Continued issuance of the Monthly Risk Report.

Conclusions and Recommendations:

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

6.4 Risk Mitigation

Status:

Risk Mitigation Meeting No. 29 was held on September 27, 2013. Risk registers for all active construction contracts is underway.

Observation and Analysis:

Risks reviewed during this period include:

<u>Risk</u>	<u>Discussion Summary</u>
Risk CNS 4 (C6) Problems related to managing the contractual interfaces during construction may result in delays and related claims.	An enhanced interface management plan has been issued and will be implemented. Supplemental staff dedicated to this effort are being considered.
Risk COM 2 (C6) Continuous and potentially late changes to the communications systems could delay C6 and the RSD.	<p>The strategy for managing this risk is unchanged. These mitigation strategies are being monitored continuously as an aid to effective implementation. Recent problems include:</p> <ul style="list-style-type: none"> • An ongoing lack of clarity regarding agreed-upon design changes incorporated to date. • Extended review time required by NYCT reviewers. • NYCT reviewers making design changes via the shop drawing review process. <p>It was noted there may be an NYCT procedure regarding incorporation of design changes during construction. This will be investigated.</p>
Risk C5B, C2B, C4C, C5C and C6 Schedules There is the risk that the Project schedule will be delayed beyond the present revenue service date.	<p>The SAS project team is actively reviewing the C6 Contractor's proposal for schedule acceleration. It is understood that any acceleration agreement must involve an equitable distribution of risk between contractor and MTACC. The ability to achieve the handoff milestones between finish contractor and the systems contractor are the key element in this effort.</p>
Risk CNS 8 (C6) Delayed Safety Certification delays RSD	<p>The NYS Public Transportation Safety Board has confirmed their role to be one of oversight and verification of the MTACC/NYCT certification process. Their role will not impact the RSD.</p>
Buy America – LVT Low-Vibration Track (LVT) pedestal conformance with "Buy America" requirements has been challenged and requires a ruling from FTA.	<p>There are risks associated with the resolution of the LVT Block issue that may cause significant delay to the project. MTACC's waiver request has been submitted. Risks identified include:</p> <ul style="list-style-type: none"> • Extended delay in evaluation and granting of the waiver • Rejection of the waiver request.
Permanent Power (Station)	<p>Establishment of permanent power at the stations could involve both schedule delay and significant additional cost. Several critical items need to be completed to get permanent power connected including:</p>

<u>Risk</u>	<u>Discussion Summary</u>
	<ul style="list-style-type: none"> • Con Ed comments on the design of facility permanent power need to be addressed. • Con Ed's acceptance of contractor's plan. <p>The project has committed to hire an individual to act as liaison between the project designer and ConEd as a means of expediting preconstruction activities. Some acceleration of street-level restoration work may also be needed to facilitate Con Ed's work.</p>

The Risk Register will be updated during the 3rd Quarter, 2013. Prior to the next Risk Mitigation Meeting, the Risk Manager will meet with project CMs in an effort to solicit their input and ensure their concerns are represented at the Risk Mitigation Meeting.

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. MTACC is in the process of refining and enhancing its risk mitigation process in response to changing project conditions and challenges.

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status: Refer to Section 5.4 of this report.

6.5.2 Schedule Contingency

Status:

Schedule contingency reported by MTACC, based upon Update #86 of the SAS IPS, conforms to schedule contingency threshold limits established by the ELPEP. Based on this update, schedule contingency measured against MTACC's RSD commitment date of December 30, 2016 is 102 CD. When measured against the FTA/PMOC RSD estimate of February 28, 2018, the contingency is currently 537 CD vs. the 240 CD stipulated by ELPEP.

Observations: Tracking available schedule contingency over recent schedule updates is summarized below:

Table 6-1: Schedule Contingency

IPS Update #	71	74	77	80	83	86
Data Date	06/01/12	09/01/12	12/01/12	3/1/13	6/1/13	9/1/13
Contingency (CD)						
RSD=12/31/2016	90	No	90	90	109	102
RSD=02/28/2018	513	Report	513	513	530	537

Concerns and Recommendations: None

7.0 LIST OF ISSUES AND RECOMMENDATIONS

Priority in Criticality column 1 – Critical 2– Near Critical

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-09-Jan10	3.0 PMP	<p>The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP.</p> <p><u>PMOC Recommendation:</u> Update the PMP and its sub-plans within the timeframes established in the ELPEP.</p> <p><u>Update (March 2013):</u> PMP Revision 9.0 is still anticipated for mid-2013.</p> <p><u>Update (September 2013):</u> MTACC issued draft Update #9 of the PMP for review. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013. Update of the various Sub-Plans will be addressed once comments associated with the review of the PMP are resolved.</p>	2
SAS-20-Dec10	5.1.3 Change Orders	<p>Processing duration for AWOs is excessive. The average processing duration currently equals the published MTA maximum duration of 90 days. Improvement is required to facilitate contractor cooperation and reduce risk of "backlash" through perceived unfair treatment.</p> <p><u>Update (December 2012):</u> PMOC monitoring of the AWO process is on-going. PMOC audit of selected AWO files will be performed when authorized by FTA Region II.</p> <p><u>Update (March 2013):</u> PMOC monitoring of the AWO process is on-going</p> <p><u>Update (September 2013):</u> PMOC's monitoring of the high dollar AWOs is ongoing. An in-depth review of the AWO procedure will be performed once authorized by FTA RII.</p>	1
SAS-22-Jun 12	1.1.2 f Community	<p>MTACC's community outreach efforts have had a positive impact on relations with the affected community. Many of the specific issues and resulting actions may have been</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
	Relations	<p>beyond contemplation prior to the start of construction. Based upon the “lessons learned” to date, the PMOC recommends the MTACC develop a more comprehensive plan for construction phase community relations going forward, including an overall execution plan and proposed scope of activities</p> <p><u>Update (December 2012):</u> PMOC will coordinate with the MTACC to issued Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is forecasted for mid-2013.</p> <p><u>Update (March 2013):</u> PMP Revision 9.0 is still anticipated for mid-2013.</p> <p><u>Update (September 2013):</u> MTACC issued draft Update #9 of the PMP for review. PMOC’s review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013 and will address this concern.</p>	
SAS-24-Jun 12	2.3 Contract Packages and Delivery Method	<p>Despite the delays experienced to date, the SAS Project Team does not consider it worthwhile to accelerate the procurement schedule of either of the remaining finish packages (C4C, C5C). Each of these packages have several months of “preconstruction time” built into their schedules where access to work areas is not available due to the work of predecessor contracts. This “preconstruction time” is necessary for purchase and fabrication of long lead items, etc. Delays that absorb some of this “preconstruction time” have the potential to delay completion of these packages.</p> <p>The PMOC recommends the SAS Project Team reconsider acceleration of the procurement schedule for one or both of the remaining construction packages.</p> <p><u>Update (December 2012):</u> By including several weeks of schedule float to the procurement schedule for the 72nd Street Station (C4C) finishes package. The SAS Project Team has significantly reduces the risk of delaying the contract award date of February 4, 2013. A similar approach has been implemented for the C5C package. This item is</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
		<p>considered closed.</p> <p><u>Update March 2013:</u> Procurement for Package C4C was executed on schedule and procurement of package C5C should be completed during 2nd Qtr 2013. This item will be closed unless delays unforeseen at this time are encountered.</p> <p><u>Update September 2013:</u> The 86th Street Station Finishes & MEP Package, C-26012 (C5C) was awarded on September 12, 2013. This is the final construction package to be procured as part of SAS, Phase 1. This item has been adequately addressed and is considered closed.</p>	
SAS-26-Jun 12	2.6 Community Relations	<p>The community relations effort has proven to be an important element of the management of this project. It is the recommendation of the PMOC that the community relations effort be fully incorporated into the mainstream of project scope, budget and risk management activities to support the goals of cost-effective and transparent decision making and the related goals of the ELPEP</p> <p><u>Update (December) 2012:</u> PMOC will coordinate with the MTACC to issued Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is forecasted for mid-2013.</p> <p><u>Update March 2013:</u> No update this period.</p> <p><u>Update September 2013:</u> MTACC issued draft Update #9 of the PMP for review. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013 which will also address this concern.</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-27- Jun 12	3.2	<p>The PMOC has noted that community relations activities continue to be a very significant element of the overall management of this project. However, neither the PMP nor any applicable sub plan identify this work, the manner by which it will be managed or executed, the scope of the work or any budgetary or financial controls.</p> <p>The PMOC recommends the development or update of applicable plans and procedures governing such work during the next PMP update period.</p> <ul style="list-style-type: none"> ▪ <u>Update (December) 2012:</u> PMOC will coordinate with the MTACC to issued Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is forecasted for mid-2013. ▪ <u>Update (September) 2013:</u> A draft of PMP Rev. 9 for was provided to the FTA/PMOC for review. PMOC's review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013. 	2

8.0 GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS

Priority in Criticality column

1 – Critical

2 – Near Critical

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

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

APPENDIX A -- LIST OF ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
AWO	Additional Work Order
BCE	Baseline Cost Estimate
BFMP	Bus Fleet Management Plan
CCM	Consultant Construction Manager
CD	Calendar Day
CMAQ	Congestion Mitigation and Air Quality
CPM	Critical Path Method
CPRB	Capital Program Review Board
CR	Candidate Revision
CSJV	Comstock Skanska Joint Venture
CWB	Current Working budget
DC	Design Consultant
DOB	New York City Department of Buildings
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
FAT	Factory Acceptance Testing
FD	Final Design
FEIS	Final Environmental Impact Statement
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
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
ROD	Record of Decision

ROD	Revenue Operations Date
RSD	Revenue Service Date
S3	Skanska, Schiavone and Shea, JV
SAS	Second Avenue Subway
SCC	Standard Cost Categories
SSCP	Safety and Security Certification Plan
SOE	Support of Excavation
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)		
56.0%	Percent Complete Construction at September 30, 2013		
79.4%	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)
4,673 M	Total Project Cost (\$YOE) at Revenue Operations (w/o Financing Costs)
5,489 M	Total Project Cost (\$YOE) at date of this report including \$ 816 M in Finance Charges
\$2,571M	Amount of Expenditures at date of this report from Total Project Budget of \$4,451M
57.8%	Percent Complete based on Expenditures at date of this report
\$314M	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 1st Quarter for 2013

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

APPENDIX D – PMOC STATUS REPORT
(Transmitted separately in Final)

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 will continue with the procurement of equipment during the Station contracts (C2B, C4B, and C5B).
Has the grantee verified construction specification conformance?	Y	Reference Section D3.4 Construction Criteria Conformance of the SSMP
Has the grantee identified safety and security critical tests to be performed prior to passenger operations?	Y	Reference Section D3.2 Certification Items List of SSMP
Has the grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	Y	Certifiable elements have been identified and are currently being verified during equipment factory acceptance testing. Effort is ongoing.
Does the grantee evaluated change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	Y	Part of formal configuration control process. Efforts are ongoing.
Has the grantee ensured the performance of safety and security analyses for proposed work-arounds?	NA	
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: Activation Plan and Procedures Integrated Test Plan and Procedures Operations and Maintenance Plan Emergency Operations Plan	Y	Referenced plans are being developed as part of the Systems Contract (C6).
Has the grantee issued final safety and security certification?	N	To be covered as part of the testing in

Project Overview		
		Contract 6
Has the grantee issued the final safety and security verification report?	N	To be covered as part of the testing in Contract 6
Construction Safety		
Does the grantee have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	
Does the grantee's contractor(s) have a documented companywide safety and security program plan?	Y	
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	Reference sections 011150 Safety Requirements and 011160 Security Requirements of the Contract Terms and Conditions
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	The OSHA Lost Time Accident Rate and Recordable Accident Rate from the start of construction until August 31, 2013 are 1.90 and 5.51, respectively. The Lost Time Accident rate is below the national average of 2.0 and the Recordable Accident Rate is significantly above the national average of 3.5. The cumulative construction time worked since the project inception is 6,719,286 hours. Total lost time injuries since project inception is 64 and other recordable injuries are 121. The total number of recordable injuries is 185 (sum of the lost time injuries and the	National Average 2.0 and 3.5 respectively

Project Overview		
	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 all Contractor Safety Managers, OCIP Representative, and the insurance carrier representative in order to make all aware of the safety concerns on the project and to exchange lessons learned. Each contractor is also holding its own “tool box” meetings focusing on various safety topics. Corrective Action Plans have been requested from contractors with high safety incident rates.	
Does the grantee conduct site audits of the contractor’s performance versus required safety/security procedures?	Y	
Federal Railroad Administration		
If shared track: has grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	NA	
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	NA	
Is the Collision Hazard Analysis underway?	NA	
Other FRA required Hazard Analysis	NA	

Project Overview		
– Fencing, etc.?		
Does the project have Quiet Zones?	NA	
Does FRA attend the Quarterly Review Meetings?	NA	

APPENDIX F – ON-SITE PICTURES
(Transmitted separately in Final)

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	\$314M (Sep. 2013)	\$161M
Schedule	Revenue Service Date	September 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	57.8%		
	Based on Earned Value	N/A		
Major Issue		Status	Comments	
Buy America		Open	Verbal guidance has been provided, however written confirmation is pending.	
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 September 30, 2013 reporting.