

PMOC MONTHLY REPORT

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

September 1 to September 30, 2014



PMOC Contract No. DTFT60-09-D-00007

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

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Length of time on project: 4 years

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THIRD PARTY DISCLAIMER

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

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

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

REPORT FORMAT AND FOCUS

This monthly report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60-09-D-00007, Task Order No. 004. Its purpose is to provide information and data to assist the FTA as it continually monitors the grantee's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the grantee continues to be ready to receive federal funds for further project development.

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

MONITORING REPORT

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

EXECUTIVE SUMMARY

1. PROJECT DESCRIPTION

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

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

2. CHANGES DURING 3rd Quarter 2014

a. Engineering/Design Progress

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

b. New Contract Procurements

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

c. Construction Progress

All construction is approximately 69.8% complete (overall project completion is approximately (69.5%) as of September 30, 2014. Summary progress for each contract is as follows:

- The 96th Street Station Heavy Civil/Structural Contractor (Contract C2A) achieved Substantial Completion on November 5, 2013. Contract closeout is ongoing.
- The 96th Street Station Finishes, Mechanical, Electrical, and Plumbing Systems and Ancillary Building and Entrances (Contract C2B) is approximately 46.5% complete. Ongoing construction activity includes installation of concrete masonry walls, waterproofing in station areas and installation of cast-in-place walls at the mezzanine level. Shared access for the Track, Signal, Traction Power, and Communication Systems contractor (Contract C6) provide for delivery of equipment.
- At the 86th Street Station (Contract C5B), turnover of the North Cavern, Ancillary #2 and Entrance #1 to the C5C contractor has been achieved ahead of schedule. Work at Entrance #2 is ongoing and the erection of the elevator shaft walls continues.
- 86th Street Station Architectural and MEP (Contract C5C) Work in the east & west tunnels continues with lining of the South Cross Passage and construction of the benches. Placement of the Mezzanines slab continues from south to north.
- The 72nd Street Station Heavy Civil/Structural (Contract C4B) achieved Substantial Completion on January 14, 2014. Final inspection of the completed work is ongoing by Construction Management and New York City Transit personnel.
- The 72nd Street Station Finishes, MEP Systems, Ancillary Buildings and Entrances (Contract C4C). Construction of rooms is near complete in the north end of the mezzanine. Construction of concrete walls and slabs continues in Ancillaries #1 & #2/Entrance #2. Mining/excavation continues in the garage at Entrance #1 and waterproofing is ongoing in the incline.

- Rehabilitation of the 63rd Street Station (Contract C3). Continued setting traction elevator equipment in the Elevator Machine Rooms and the Elevator Shafts. Completed erection of the concrete structure for Ancillary# 2. Began installation trackwall tiles at G3 and resumed installation of platform pavers. Continued mini-piles in Entrance #1.
- The Track, Signal, Traction Power, and Communication Systems Contract (C6) have progressed to approximately 35.6% complete. Significant activity during this reporting period includes the installation of: LVTs and rail; wayside signal conducts, cable and equipment.

d. Continuing and Unresolved Issues

- Finalization of cost and schedule for the revised configuration of Entrance #1 at the 72nd Street Station. This major redesign was necessitated by stakeholder issues beyond the control of the SAS project team. An accelerated schedule to complete the work by September 2016 has been developed; it has yet to be included as part of the overall project IPS.
- Discretionary design changes requested by NYCT have added cost and schedule delays to several SAS construction packages. At this stage of the project, these change requests must be minimized to allow the project team to focus on executing the remainder of the project.
- Availability of NYCT resources to support testing, commissioning and acceptance activities. Based on resource requirements on other projects, SAS has been notified that NYCT cannot consider supporting SAS until January 2015. Availability beyond that time is a concern, especially in light of the excessive duration required for these activities on other MTA major projects.

e. New Cost and Schedule Issues

- “Buy America” investigation regarding the water mister system on contracts C4C and C5C may result in delay and additional cost.

3. PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

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

b. Real Estate Acquisition

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

c. Engineering/Design

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

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

d. Procurement

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

e. Railroad Force Account (Support and Construction)

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

f. Vehicles

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

g. Systems Testing and Start-Up

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

h. Project Schedule

During the 3rd Quarter 2014, significant progress was achieved in advancing the project to a timely completion. MTACC continues to forecast a Revenue Service Date (RSD) of December 30, 2016. In the opinion of the PMOC, this remains an achievable goal, however significant erosion in schedule contingency has occurred and there remain major risks to be mitigated in order to achieve this goal. The PMOC remains confident that all construction can be completed within the risk-adjusted RSD of February 2018.

Table 1: Summary of Critical Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	October 3, 2016	October 2017
Revenue Service	September 30, 2014	January 17, 2017	February 2018

i. Project Budget/Cost

The Current Working Budget (Estimate Revision 10) for the SAS Phase 1 Project is still \$4,451.000M (exclusive of \$816.614M financing cost). The MTA Board has approved Local Funds totaling \$3,509.000M. Total Federal participation in the SAS Phase 1 Project is \$1,350.693M of which \$1,250.508 has been obligated. See Table 2 below for additional details.

MTA's Estimate at Completion (EAC) and the PMOC's analysis currently indicate the project can be built within the limits of the Current Working Budget, assuming substantial completion of all construction in general conformance with the current IPS.

Table 2: Project Budget/Cost Table



	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of September 30, 2014	
	\$ Millions	% of Total	Obligated (\$ Millions)	TBD	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost:	4,866.614	100	4,572.942		5,267.614	100	3,092.812	58.71
Financing Cost	816.614	16.78			816.614	15.50		
Total Project Cost:	4,050.000	83.22	4,572.942		4,451.00	84.50	2,968.365	58.71
Total Federal:	1,350.693	27.75	1,250.508*		1,350.693	24.60	904.162	17.16
Total FTA share:	1,300.000	96.25	1,176.615*		1,300.000	23.68	830.269	15.76
5309 New Starts share	1,300.000	100	1,176.615		1,300.000	23.68	830.269	15.76
Total FHWA share:	50.693	3.75	73.893*		50.693	0.96	73.893	1.40
CMAQ	48.233	95.15	71.433		48.233	0.88	71.433	1.35
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	.05
Total Local share:	2,699.307	55.47	3,509.000**		**3,509.000	63.92	2188.650	41.54
State share	450.000	16.67	100.000		450.000	8.20		
Agency share	2,249.307	83.33	1,145.782		3,059.000	55.72		
City share	0	0			0	0		
<p>* Obligated amounts obtained from the Transportation Electronic Award Management (TEAM) system and MTACC's Grant Management Department.</p> <p>** Current MTA Board approved budget is \$3,509,000,000.</p>								

j. Project Risk

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

Decrease	Increase
<ul style="list-style-type: none">• Efforts to accelerate the fabrication of long-lead equipment appear to have been successful. Permanent power is now forecast to be available in time to support station startup and commissioning activities.	<ul style="list-style-type: none">• Due to resource conflicts with other MTACC projects, NYCT personnel are not expected to be available to participate in startup and commissioning planning for SAS until 1st Quarter 2015.

MONTHLY UPDATE

The information contained in the body of this report is limited, in accordance with Oversight Procedure 25, to “inform the FTA of the most critical project occurrences, issues, and next steps, as well as professional opinions and recommendations.” Where a section is included with no text, there are no new “critical project occurrences [or] issues” to report this month.

ELPEP SUMMARY

The 3rd Quarter 2014 meeting to review MTACC's compliance with ELPEP requirements is scheduled to be held on October 2, 2014. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** Update of the TCC Plan is not yet completed pending finalization of select roles, responsibilities and levels of authority. During Q3-2014 MTACC has focused on completing the current revisions to the SAS Project Management Plan. FTA/PMOC review and MTACC's issuance of the PMP is targeted for completion in Q4-2014.
- **Schedule Management Plan (SMP):** MTACC will focus on SMP updates during Q3-2014. MTACC's 2nd Quarter 2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its SMP.
- **Cost Management Plan (CMP):** MTACC will focused on SMP updates during Q3-2014. MTACC's Q3-2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its CMP.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** MTACC focused on RMCP updates during Q3-2014. MTACC's Q3- 2014 ELPEP Compliance Checklist indicates MTACC is "in compliance" with its RMP.

During the 3rd Quarter of 2013, MTACC indicated its intent to perform an internal audit of its SMP and CMP. Modifications to these plans would be based on the audit findings. To date, no documentation of these audits or revisions to these plans have been made public.

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

No significant changes noted.

Observation:

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

Concerns and Recommendations:

The PMOC recommends further enhancement of the project team's MEP and building system technical capability. The project team's current capability to respond to challenges in the installation of this type of work appears limited and is impacting the project team's ability to understand and resolve issues. This type of support is apparently unavailable from the Design Engineer.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

MTACC's review comments associated with PMP Update #9 were incorporated into PMP Update #10. A draft copy of PMP Update #10 was forwarded to the FTA/PMOC for review during this reporting period.

Observation:

PMP Draft Update #10 does not completely address the PMOC's comments associated with Update #9.

Concerns and Recommendations:

FTA/PMOC will schedule a meeting with MTACC to review each area of concern so that any misunderstandings are resolved.

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

Status:

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

Observation:

None.

Concerns and Recommendations:

None.

c) Grantee's Approach to Force Account Plan

Status:

As of September 30, 2014, New York City Transit (NYCT) Engineering Force account expenditures are \$42,868,339 of the \$95,400,000 budget. NYCT labor expenditures are \$9,448,111 of the \$25,600,000 budget.

Observation:

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

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

Concerns and Recommendations:

The ability of NYCT to supply force account personnel for the SAS project is of concern. There are three major capital projects currently vying for NYCT force account personnel. MTACC is currently assessing the force account manpower requirements. It is recommended that the assessment be expedited and personnel added if required in a timely manner to support the SAS project as it transition into the testing and commissioning phase.

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

The SAS Project Safety Team (CCM and OCIP representatives) continued its oversight of the construction contractors Safety, Security and Health Programs by performing daily/weekly inspection of work areas, investigation of incidents, and performing quarterly safety audits.

The Monthly Project Wide Safety Meeting continues to be held the first Friday of each month. Lessons learned from incidents/accidents are being shared such that the total project can benefit. OCIP observations are being trended to focus uniform corrective action across the project.

Observation:

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

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

Concerns and Recommendations:

None

e) Grantee's Approach to Asset Management

Status:

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

Observation:

The Station contractors and the Systems contractor are developing databases which will capture the identification, configuration, and installed location of the assets. NYCT will utilize the database as part of its asset management process.

Concerns and Recommendations:

None

f) Grantee's Approach to Community Relations

Status:

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

Observation:

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

Conclusions and Recommendations:

MTACC's approach to Community Outreach has been successful in addressing and mitigating the adverse impacts of the construction process on the adjacent community. The PMOC notes that the overall goals and approach involved in this effort have not been formally documented. The PMOC has recommended MTACC update its Project Management Plan with a more comprehensive plan for construction phase community relations going forward, including an overall execution plan and proposed scope of activities. [Ref: SAS-22-Jun 12].

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

a) Federal Requirements

During the 3rd Quarter 2014, MTA continued its grant management process by issuing monthly financial reports and updating the Transportation Electronic Award Management (TEAM) System to reflect disbursements from the active grants and status of pending grants.

b) Uniform Property Acquisition and Relocation Act of 1970

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

c) Local Funding Agreements

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

1.2 Project Controls

1.2.1 Scope Definition and Control

Status:

The scope of the SAS Project – Phase 1 is formally defined by the FEIS, ROD and the FFGA. Using these documents as guides, the scope was further detailed in ten construction packages (contracts). During the 3rd Quarter 2014, there has been no material change in the scope of the SAS Project.

Observation:

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

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

Concerns and Recommendations:

None

1.2.2 Quality

Status:

During September 2014, the Second Avenue Subway Quality Management team continued holding Quality Meetings and Quarterly Quality Oversight of the Contractor with CCM, MTACC, and PMOC participation. They participated in the job progress meetings, monitored quality matters in the field for each construction contract, reviewed and provided comments for

Quality Work Plans, and participated in Preparatory Phase Sessions for numerous construction processes.

Observation:

Major Issues

The major issues noted by the PMOC during September 2014 include:

➤ Nonconformance Reports (NCRs)

The C4C and C5B contractors are delinquent in issuing NCRs when the nonconformance occurred. The SAS Program Executive has directed that NCRs for concrete that is out of specification be generated each week. As of September 30, 2014, the C4C contractor is two months behind and the C5B contractor is five weeks behind. The C5B contractor is not documenting concrete failures on an NCR until concrete break results are obtained, months after the nonconformance occurs. When the C5B contractor does issue an NCR, it is for a three month period rather than for the required one NCR each week.

The C5C contractor’s Quality Manager has indicated that he will not prepare the required concrete statistical analysis until the end of the contract. Also, he has listed ten NCRs in the log but has not issued them even though NCRs must be issued when the nonconformance is identified.

➤ Inspection Daily Reports

At the end of September 2014, the C4C and C5C contractors are both four weeks behind in entering their Daily Inspection Reports into the Contractor Management System (CMS).

➤ Project Quality Manual

Revision 3 of the SAS Project Quality Manual (PQM) was issued in April 2009. The SAS Quality Manager prepared a draft of Revision 4 to reflect the new MTACC QQQ checklist requirements and other changes that have occurred since Revision 3 was issued. The PMOC received a draft of Revision 4 to review. Comments will be returned to the SAS Project Quality Manager in October 2014.

Contract Package C2B	
Status:	Through September 30, 2014, a total of 48 NCRs have been issued. 33 have been closed and 15 NCRs are still open. In September 2014, one new NCR was written and none were closed.
Observation:	Of the 15 open NCRs, 12 are for concrete that was out of specification. A concrete analysis was submitted and is awaiting approval from the designer of record. Entry of Inspection Daily Reports is current.
Concerns and Recommendations:	None.
Contract Package C3	

Status:	Through September 30, 2014, a total of 86 NCRs have been issued. 68 have been closed and 18 NCRs are still open. In September 2014, three new NCRs were written and none were closed.
Observation:	Of the 18 open NCR's, 7 were written by the contractor on one of their subcontractors. Four of these NCRs have been open 7 to 14 months. Entry of Inspection Daily Reports into CMS is current.
Concerns and Recommendations:	No NCRs have been closed in the past 3 ½ months. The PMOC is concerned that 9 of the 18 open NCRs have been open for 7 to 13 months. The SAS C3 Quality Manager had stated that he and the C3 Contractor's Quality Manager would try to close 5 of the 7 subcontractor NCRs in September 2014. This did not occur.
Contract Package C4C	
Status:	Through September 30, 2014, a total of 62 NCRs have been issued. Three have been closed and 59 NCRs are still open. In September 2014, no new NCRs were written and none were closed.
Observation:	53 of the 59 open NCRs are for concrete that was out of specification. The contractor has performed two concrete analyses, one for each of its suppliers. The concrete analyses are awaiting approval from the designer of record. Submittal of Inspection Daily Reports is four weeks behind.
Concerns and Recommendations:	The PMOC is concerned that the contractor did not generate the out of spec concrete NCRs that occurred in July until the end of August. Out of spec concrete NCRs have not been generated for August and September. The PMOC recommends that the NCRs be generated each week as directed by the SAS Program Executive. The PMOC is also concerned that submittal of Daily Reports is four weeks behind.
Contract Package C5B	
Status:	Through September 30, 2014, a total of 87 NCRs have been issued. Of the 87 that have been issued, 69 have been closed and 18 NCRs are still open. In September 2014, three new NCRs were written and none were closed.
Observation:	Of the 18 open NCRs, 12 are for concrete that was out of specification. One NCR was written for concrete that failed over a four month period, from February to May 2014 and a second for concrete that failed over a two month period, from June to July 2014. The contractor's corrective action statement on the NCRs that "No corrective actions required. All concrete cylinder test results met the compressive strength requirement" is unacceptable. Entry of Inspection Daily Reports into CMS is current.
Concerns and Recommendations:	The PMOC is concerned that the contractor is not documenting concrete failures each week as directed by the SAS Program Executive and that corrective action is inadequate. The corrective action statement on the

	NCRs is justification for an Accept As Is disposition and is not corrective action to preclude the nonconforming condition from occurring again. The PMOC recommends that MTACC Quality management resolve this issue.
Contract Package C5C	
Status:	Through September 30, 2014, 21 NCRs have been issued. . Of the 21 that have been issued, 3 have been closed and 18 NCRs are still open. In September 2014, 6 new NCRs were written and none were closed.
Observation:	The six NCRs written in September were all for concrete that was out of specification the previous week. This complies with the direction of the SAS Program Executive. The Contractor's Quality Manager has stated that he will not prepare the concrete statistical analysis until the end of the contract. The NCR log lists ten NCR numbers (16-21, 23, and 29-31) with a description and the comment "Not Issued". Submittal of Inspection Daily Reports is four weeks behind.
Concerns and Recommendations:	The PMOC was concerned that nonconformance reports for concrete that was out of specification in May, June, and July 2014 were not written until August 2014. The PMOC recommended that the contractor generate NCRs for out of specification concrete each week as directed by the SAS Program Executive. This recommendation has been followed and preparation of NCRs for out of specification concrete is now up to date. The PMOC had expressed its concern to the SAS C5C Quality Manager that the Contractor's Quality Manager will not prepare the concrete statistical analysis until the end of the contract. The Contractor's Quality Manager is the same person who prepared the original concrete statistical analysis on the C4B contract and it is surprising that he has taken this position. The PMOC is further concerned that ten NCRs are listed in the log but have not been issued. The PMOC recommends that when a nonconformance occurs, the NCR be documented and issued immediately. The PMOC is also concerned that submittal of Daily Reports is four weeks behind. Last month, submittal was current so the contractor submitted no Daily Reports in September.
Contract Package C6	
Status:	Through September 30, 2014, a total of nine NCRs have been issued. Six have been closed and three NCRs are still open. In September 2014, one new NCR was written and none were closed. None of the nine total NCRs were for concrete placement. Entry of Inspection Daily Reports into CMS is current.
Observation:	The contractor is managing their quality program satisfactorily.
Concerns and Recommendations:	None.

Concerns and Recommendations:

Refer to previous section.

1.2.3 Project Schedule

Status:

A summary of project schedule information is as follows:

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	October 3, 2016	October 2017
Revenue Service	September 30, 2014	January 17, 2016	February 2018

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

Observation/Concerns and Recommendations:

None

1.2.4 Project Budget and Cost

Status:

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

Table 1-1: Standard Cost Categories


Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (June 30, 2014)
10	Guideway & Track Elements	\$612,404,000	\$642,478,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,277,642,000
30	Support Facilities	0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$524,561,000
50	Systems	\$322,707,000	\$250,134,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$281,500,000*

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (June 30,, 2014)
70	Vehicles	\$152,999,000	0**
80	Professional Services	\$796,311,000	\$1,026,608,085
90	Unallocated Contingency	\$555,554,000	\$448,076,915
Subtotal		\$4,050,000,000	\$4,451,000,000
Financing Cost		\$816,614,000	\$816,614,000
Total Project		\$4,866,614,000	\$5,267,614,000

Table 1-2 lists the associated grants in the Transportation Electronic Award Management (TEAM) System with respective appropriated, obligated, and disbursed amounts as of June 30, 2014. During the 3rd Quarter 2014, grant amendment NY-03-0408-09 in the amount of \$186,566,000 was awarded by the FTA and executed by the MTA. Total Federal Funds obligated as of September 30, 2014 is \$1,250,508,200.

Table 1-2: Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru September 30, 2014
NY-03-0397	\$4,980,026	\$4,980,026	\$4,980,026
NY-03-0408	\$1,967,165	\$1,967,165	\$1,967,165
NY-03-0408-01	\$1,968,358	\$1,968,358	\$1,968,358
NY-03-0408-02	\$24,502,500	\$24,502,500	\$24,502,500
NY-03-0408-03	0	0	0
NY-03-0408-04	0	0	0
NY-03-0408-05	\$167,810,300	\$167,810,300	\$167,810,300
NY-03-0408-06	\$274,920,030	\$274,920,030	\$274,920,030
NY-03-0408-07	\$237,849,000	\$237,849,000	\$237,849,000
NY-03-0408-08	\$197,182,000	\$197,182,000	\$37,401,629
NY-03-0408-09	\$186,566,000	\$186,566,000	0
NY-03-0408-10**	\$123,384,621	0	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$1,373,892,821.00	\$1,250,508,200.00	\$904,161,829.00

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

A total of \$3,092,812,023 has been expended on the project through September 30, 2014, of which \$479,003,293 has been spent on design and \$1,916,224,390 on construction (MTACC's September 2014 Cost and Schedule Summary Input).

Observation:

Local funds totaling \$2,188,650,000 have been spent as of September 30, 2014.

Concerns and Recommendations:

None

1.2.5 Project Risk Monitoring and Mitigation

Status:

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

Observation:

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

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

Concerns and Recommendations:

None.

1.2.6 Project Safety and Security

Status:

Safety – The OSHA Lost Time Injury Rate and Recordable Injury Rate from the start of construction until August 30, 2014 are 1.79 and 514, respectively. Both rates are above the Bureau of Labor Statistics (BLS) national Lost Time Injury Rate of 1.7 and the Recordable Injury Rate of 3.2. The cumulative construction time worked since the project inception is 9,144,319 hours. Total lost time injuries since project inception is 82 and other recordable injuries are 153. The total number of recordable injuries is 235 (sum of the lost time injuries and the other recordable injuries).

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

Observation:

The high rate of recordable incidents is being driven by four contractors and the lost time rate is being driven by three contractors. Safety Managers for each of these contractors have held additional tool box meetings, increased training and increased monitoring of the tasks being performed.

Concerns and Recommendations: None

1.3 FTA Compliance

Status:

The PMOC and FTA review comments to the updated SAS Project Management Plan (Revision 9) have been transmitted to the MTACC. MTACC has responded with its proposed revisions. A meeting is will be scheduled to reconcile outstanding issues and produce an approved document.

Based on its internal compliance reviews, MTACC has generally complied with ELPEP and its associated sub-plans throughout the 3rd Quarter 2014. Any PMOC issues are specifically discussed in Section 4.4 (Compliance With Schedule Management Plan), Section 5.4 (Project Cost and Contingency) and Section 6.3 (Risk Management Status) of this report.

Observation:

MTACC has previously discussed updating major sub-plans to the PMP, specifically the Schedule Management Plan, Project Cost and Contingency Management Plan and Risk Management Plan, based upon the results of its internal audit. No findings or results from this audit have been presented to date.

Concerns and Recommendations:

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

1.3.1 FTA Milestones Achieved

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

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

1.3.2 Readiness for Revenue Operations

Status:

No change this period.

2.0 PROJECT SCOPE

2.1 Status & Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

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

Observation:

The primary role of the design team currently includes:

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

Concerns and Recommendations:

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

2.1.2 Procurement

Status:

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

Observations:

None

Concerns and Recommendations:

None

2.1.3 Construction

Status:

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

Observations:

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

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

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

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

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

- Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
- Area 5
 - Area 5 is the focus of the work effort along with progress at Entrance #1.
 - Continued setting traction elevator equipment in the Elevator Machine Rooms and the Elevator Shafts.
 - Began running power connections to the elevators.
 - Continued installation of power & communication conduits throughout.
 - Continued erecting CMU walls on the 6th Mezzanine.
- Entrance #1
 - Continuing with excavation and the installation of micro-piles.
- Ancillary #2
 - Completed the cast-in-place ancillary structure.
- Platforms
 - Continuing installation of platform pavers at the G4 (lower platform).
 - Continuing with wall tile framing on the G3 platforms and began installation on track wall tiles on the G4 platform.
 - Continuing with carriers, duct work, conduits to light fixtures, support brackets and ceiling panel framing at the G3 (upper) platform.

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

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

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

- Ancillary 2/ Entrance 2

- Continuing with the placement of Sub-Basement walls, MEP & CMU in the egress passageway at Ancillary #2.
- Continuing with rebar cages installation for the incline.
- G3/G4 Tunnel:
 - Continued with handrail installation.
- Ancillary #1
 - Continued placing Upper Mezzanine slab.
- Mezzanine
 - Continued work on the Upper Mezzanine.
 - Continuing to install MEP & finishes in the Traction Power Rooms 3136 & 3137 (Milestone #10) in the North Mezzanine.
 - Continuing with installation of conduit and placement of concrete floor topping in the Public Mezzanine.
 - Erecting CMU walls and installing conduit & smoke exhaust ducts in the South Mezzanine.
- Entrance #3
 - At Entrance #3 continued with removal of the temporary structural shotcrete in the upper shaft.
- Entrance #1
 - Rock excavation and mining continues in the garage. Waterproofing continued along the incline from the mezzanine. Began building the bulkhead to separate the mining work down from the garage from the clean work along the incline.
 - Starting relocation of the gas line the week of October 11, 2014.
- Platform Level
 - Precast panel installation is complete and low wall precast panels are approximately 80% complete.
 - Approximately 100lf of platform remains to be erected with completion forecast in November 2014.
 - Continuing with CMU walls erection.

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

- Main Cavern (North)
 - During September 2014 this contractor demobilized in the North Cavern, Ancillary #2 and Entrance #1 allowing full access (except Entrance #2) to the C5C contractor, ahead of schedule.
- Entrance #2
 - Continuing with concrete placement of Entrance #2 slabs & walls.
 - Continuing with placement of Elevator walls to sidewalk level.
 - Continuing with sidewalk and curb restoration along E. 86th St.
 - Continuing with Cavern punchlist items.

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

- Tunnels (east & west)
 - Continuing with both the low & high benches/embedded ducts in the West Tunnel. The forecast is to complete the benches by the end of October 2014.
 - The North & Mid Cross Passageways are complete. Continuing with the South Cross Passage and it is approximately 60% complete.
- Ancillary #1
 - Continuing with the erection of walls.
- Mezzanine
 - Continuing with Mezzanine slab placement, with 15 slab sections completed, past Entrance #1. The erection of formwork is ongoing.
- Platform Level
 - Continued the architectural precast panel installation at the Platform Level where space is available.

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

Coordination:

- Ongoing review of 63rd St., 72nd St., 86th, and 96th St. Station contractors' shop drawings (approximately 6,850 reviewed to date) for work coordination and to avoid conflicts during field installation.

Track:

- All major procurements are completed.
- LVT and rail installation ongoing throughout the work zones.

Communications/Signals:

- Electrical 63rd Street Communication and Signal Rooms: WAN fiber optic cable pulling between the communication rooms was completed on 6/21/14 with the exception of Room 1399. Work has resumed in Room 1399 on 9/8/2014.
- Testing of LAN/WAN (Milestone 5A/B) will commence on 9/24/2014 and be completed by the end of 2014.
- Electrical 96th Street Tunnel Work (Zone 1): Completed all fiber, communication, power and signal cable pulling.
- Electrical 96th Street Tunnel Work (Zone 2): Completed all fiber, communication, power and signal cable pulling.
- Electrical 72nd Street Tunnel Work (Zone 3): Completed all fiber, communication, power and signal cable pulling.
- Civil (North of 63rd Street Station (Zone 3 and 4): Running rail for Zone 3 was delivered. Chopping operations for Zone 3 is still delayed because of the Station Contractor. Contractor has requested an AWO to capture the cost associated with

addition relocation of the running rail.

- Civil 96th Street South Tubes (Zone 2): The approval of Zone 2 was issued by MTA on 9/3/2014. Contractor rescheduled the Zone 2 (S2) track concrete placement to commence on 9/9/2014 with subsequent placements on 9/11/2014 and 9/17/2014.
- Civil 96th Street (Zone 1): Tracks S1 and S2 are now complete. Contractor plans to install cover board by mid-October 2014.

Concerns and Recommendations:

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

2.1.4 Force Account (FA) Contracts

Status:

As of September 30, 2014, New York City Transit (NYCT) Engineering Force account expenditures are \$42,868,339 of the \$95,400,000 budget. NYCT labor expenditures are \$9,448,111 of the \$25,600,000 budget.

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

Concerns and Recommendations:

The ability of NYCT to supply force account personnel for the SAS project is of concern. There are three major capital projects currently vying for NYCT force account personnel. MTACC is currently assessing the force account manpower requirements. It is recommended that the assessment be expedited and personnel added if required in a timely manner to support the SAS project as it transition into the testing and commissioning phase.

2.1.5 Operational Readiness

Status:

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

Observation:

Customer Service Centers are being deleted at various stations. Completion of the Safety and Security Certification Program is a major activity prior to Revenue Service. Coordination of this effort needs greater attention. At present this effort appears to be disjointed.

Concerns and Recommendation:

The SAS Project Team has committed to update the Concept of Operations Plan to reflect how the stations will function with the deletion of the Customer Service Centers. SAS Project team needs to assure all parts clearly understand their roles and responsibilities related to the Safety

and Security Certification Program. Process for verification of requirements, change control, and acceptance of completed action must be documented and delineated.

2.2 Third-Party Agreement

Status:

During the 3rd Quarter 2014, the SAS Project Team continued its Interagency Coordination as defined in Section 12 of the SAS PMP. MTACC, PB/CCM and contractors met with Con Edison representatives to discuss and resolve permanent power issues. Through September 30, 2014, \$47,825,459 of the \$91,586,000 Third-Party reimbursement budget (Rev. 10 Current Working Budget) has been spent.

Observation:

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

Concerns and Recommendation:

None

2.3 Contract Packages and Delivery Methods

Phase 1 of the Second Avenue Subway is being delivered via ten separate construction packages. Each construction contract package utilizes the design-bid-build process based upon a fixed price construction contract. Competitive procurements are based on NYCT standard procedures. There was no change to the procurement or delivery method for any of the construction packages during the 3rd Quarter of 2014.

2.4 Vehicles

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

2.5 Property Acquisition and Real Estate

Status:

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

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

Observation:

None

Conclusions and Recommendations:

None

2.6 Community Relations

Status:

During the 3rd Quarter 2014, Community Outreach activities included the following:

- Production of a monthly newsletter updating residents and business owners on construction progress, major milestones achieved, and providing a forward looking schedule so the community will know what to expect as the project progresses. These newsletters are available in electronic and hard copy formats.
- Continued meeting with area stakeholders at quarterly Construction Advisory Committee (CAC) meetings. Station area issues and project wide updates are discussed. Follow up reports are provide for stakeholders to share with their tenants/members.
- The Community Information Center hosts school groups interested in learning more about the Second Avenue Subway Project and the construction process.
- The Community Outreach staff continues to meet with local elected officials to discuss constituent issues.
- Coordinate and facilitate interagency meeting with representatives from each station area to address concerns with members of the NYPD, FDNY, DSNY, DOT, BIC, and DOH.
- Prepare and deliver interactive presentations to elementary school students living and going to school along the project alignment.

Observation:

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

Conclusions and Recommendations:

None

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

MTACC's review comments associated with PMP Update #9 were incorporated into PMP Update #10. A draft copy of PMP Update #10 was forwarded to the FTA/PMOC for review during this reporting period.

Observation:

PMP Draft Update #10 does not completely address the PMOC's comments associated with Update #9.

Concerns and Recommendations:

FTA/PMOC will schedule a meeting with MTACC to review each area of concern so that any misunderstandings are resolved.

3.2 PMP Sub Plans

Status:

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

Observations:

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

Concerns and Recommendations:

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

3.3 Project Procedures

Status:

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

Observations:

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

Concerns and Recommendations:

None

4.0 PROJECT SCHEDULE STATUS

4.1 Integrated Project Schedule

Status:

The Integrated Project Schedule (IPS) is a management level schedule that integrates all ten construction packages along with design, procurement, startup and other support activities. IPS Update #98 was received on October 14, 2014 and is based on a Data Date of September 1, 2014. This update contained the “.XER” schedule file for the IPS. Consistent with recent updates, there was no narrative report included and the PMOC had to specifically request copies of the schedule update files for each construction contract. Surprisingly, the IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities by October 3, 2016. The previously utilized contingency of 102 calendar days (CD) or 73 work days (WD) is then added, resulting in a forecast completion date of January 12, 2017. Table 4-1 presents a summary of schedule dates based on IPS Update #98.

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	October 3, 2016	October 2017
Revenue Service	September 30, 2014	January 12, 2017	February 2018

The application of the same contingency (102 CD) despite the updated completion date for construction and testing activities (October 3, 2016) suggests a lack of diligence and quality control in the preparation of this update.

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. #95 Forecast S/C	Upd. #98 Forecast S/C	Schedule Duration	Quarterly Change
			Time %	\$ %	Δ Time v. Money				
C1	3/20/07	3/20/12	100%	100.0%	0.0%	3/20/12A	3/20/12A	609 CD	0 CD
C2A	5/28/09	4/17/13	114%	99.8%	14.4%	11/5/13A	11/5/13A	202 CD	34 CD
C2B	6/22/12	12/22/15	55%	47.2%	8.3%	6/20/16	8/23/16	245 CD	64 CD
C3	1/13/11	5/13/14	102%	81.6%	20.0%	9/24/15	10/1/15	506 CD	7 CD
C4B	10/1/10	1/14/14	111%	99.9%	11.6%	1/14/14A	1/14/14A	42 CD	0 CD
C4C	2/14/13	6/17/16	39%	26.5%	12.2%	5/27/16	6/17/16	0 CD	21 CD

Pkg	Award Date	Contract S/C	% Complete			Upd. #95 Forecast S/C	Upd. #98 Forecast S/C	Schedule Duration	Quarterly Change
			Time %	\$ %	Δ Time v. Money				
C5A	7/9/09	11/16/11	100%	100.0%	0.0%	11/16/11A	11/16/11A	313 CD	0 CD
C5B	8/4/11	9/4/14	92%	97.7%	-6.1%	12/16/14	1/15/15	133 CD	30 CD
C5C	6/12/13	11/13/15	40%	11.9%	28.1%	5/31/16	5/31/16	200 CD	0 CD
C6	1/18/12	8/18/16	52%	36.1%	15.6%	8/18/16	8/18/16	0 CD	0 CD

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

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

Observations and Analysis:

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

- Contracts C1, C2A, C4B and C5A have all achieved Substantial Completion. Schedule dates and variances indicated for these contracts are “final”.
- The “Time v. Money” variance for the C3 Contract is reflective of the forecast 506 CD delay in Substantial Completion.
- The “Time v. Money” variances for the C5C is significantly more than expected and suggests this contract will experience substantial delay.
- The forecast Substantial Completion date for Contract C4C includes all work at Entrance #1 and includes the implementation of the schedule acceleration initiative for work in that area.
- The forecast Substantial Completion date for Contract C5B includes all work at Entrance #2 and includes the implementation of the schedule acceleration initiative for work in that area.

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

Table 4-3: Schedule Milestone Performance

Pkg	MS	Description	Dates				Variance		Sch. Float
			Contract	Adjusted	Ud #97	Ud #98	Contract = (2) - (4)	Month = (3) - (4)	
			(1)	(2)	(3)	(4)			
C2B	MS #2	Shared site access @ 93rd Street shaft	03/22/14	03/22/14	10/29/14	10/27/14	-219	2	376

C2B	MS #4	Shared access in East & West track-ways thru Sta (1238+50 ->1225+25); 97th -> 99th St Tunnel in 99th to 105th St Tunnels	09/21/14	09/21/14	01/28/15	01/29/15	-130	-1	308
C2B	MS#5A	Shared Access E & W Track to grid 11			08/01/14		0		
C2B	MS #6	Full access to Comms Rooms & Closets	08/21/14	08/21/14	12/26/14	12/26/14	-127	0	34
C2B	MS #7	Full access to Signals Rooms	08/21/14	08/21/14	12/26/14	12/26/14	-127	0	34
C2B	MS #8	Full access to Traction Power Rooms:	08/21/14	08/21/14	12/26/14	12/26/14	-127	0	34
C2B	MS #9	Full access to Station Service Centers	11/21/14	11/21/14	07/14/15	07/28/15	-249	-14	87
C2B	MS #10	Complete all remaining Comms, Signal , & Traction Power work	09/21/14	09/21/14	06/01/15	06/01/15	-253	0	167
C2B	SS	Substantial Completion	12/21/15	12/21/15	08/24/16	08/23/16	-246	1	20
C3	#3d	Mezz 6 & Platform Level Conduit & Station Fare Array			12/31/14	12/30/14	-42003	1	269
C3	#4b	Compl Lwr/Uppr Platforms & Signal Rms		10/14/13	12/12/14	01/28/15	-471	-47	311
C3	SS	Substantial Completion	05/13/14	05/13/14	01/08/16	10/01/15	-506	99	254
C4C	MS #3	Shared access thru 72nd Street Station 1172+40 ->1163+00	11/17/14	11/27/14	11/26/14	11/26/14	1	0	96
C4C	MS #7	Turnover of Communications Rooms to Systems Contractor	8/15/14	8/28/14	01/30/15	01/15/15	-140	15	216
C4C	MS#7A	Complete Work in all Comm Rooms			12/30/14	03/21/16	-42450	-447	128
C4C	MS #8	Turnover of Signal Rooms South of station to C6	7/4/14	7/15/14	10/09/14	01/15/15	-184	-98	11
C4C	MS #9	Complete all Signal Roms except M8	9/15/14	9/29/14	01/09/15	01/09/15	-102	0	166
C4C	MS #10	Complete north power rooms	10/15/14	2/25/15	03/24/15	11/26/14	91	118	154
C4C	MS #11	Complete south power rooms	11/17/14	03/24/15	11/26/14	02/18/15	34	-84	103
C4C	MS #12	Full access @ Station Service Center(s)	08/15/14	08/28/14	01/15/15	01/09/15	-134	6	221
C4C	MS #13	Full access @ Lubrication Room(s)	08/15/14	08/28/14	12/24/14	8/29/2014 A	-1	117	X
C4C	MS #14	Complete all remaining Comm, Signal & Traction Power Rooms	08/15/14	08/28/14	01/09/15	01/09/15	-134	0	426
C4C	SS	<i>Substantial Completion w/o Ent. #1</i>		11/13/15	05/28/16	06/17/16	-217	-20	96
C4C	SS	<i>Substantial Completion - Ent. #1</i>		-	09/16/16	09/16/16		0	2
C5B	SS	<i>Substantial Compl/All Work w/o Ent. #2</i>		09/04/14	09/12/14	09/12/14	-8	0	32

C5B	SS	Substantial Compl/All Work incl. Ent. #2		-	01/15/15	01/15/15		0	82
C5C	MS #1	Vehicle access thru 86th Street Station 1209+00 -> 1198+00	10/17/14	10/23/14	10/29/14	10/31/14	-8	-2	85
C5C	MS #2	Limited Access; Sta. 1209+00->1198+00		01/22/15	01/29/15	12/31/14	22	29	129
C5C	MS #3	Shared Access; Sta. 1209+00->1198+00		05/22/15	03/12/15	03/20/15	63	-8	73
C5C	MS #4	Shared Access; Sta. 1198+00->1172+00		10/23/14	12/09/14	01/09/15	-78	-31	36
C5C	MS #5	Turnover of Comm. Rooms		09/23/14	10/16/14	11/07/14	-45	-22	84
C5C	MS #6	Turnover of Comm. Rooms		03/24/15	03/27/15	03/19/15	5	8	75
C5C	MS #7	Turnover of Signal Rooms		02/25/15	02/04/15	02/10/15	15	-6	16
C5C	MS #8	Turnover of Signal Rooms		02/25/15	02/04/15	02/10/15	15	-6	16
C5C	MS #9	Turnover Traction Power Rooms		02/26/15	02/23/15	02/27/15	-1	-4	28
C5C	MS #10	Turnover Traction Power Rooms		02/25/15	02/27/15	03/13/15	-16	-14	211
C5C	MS #11	Full access @ Station Service Center(s)	03/18/15	03/24/15	03/23/15	02/27/15	25	24	28
C5C	MS #14a	Complete all remaining Comm, Signal & Traction Power Rooms	09/17/14	09/23/14	10/13/14	11/04/14	-42	-22	477
C5C	MS#14b	Limited Access all locations		09/23/14	02/25/15	02/27/15	-157	-2	397
C5C	MS#15	Comp. Permanent Power				09/09/15			192
C5C		Substantial Completion		05/31/16	05/31/16	05/31/16	0	0	78
C6	#2A	Complete LAN - 96th St. Station	05/18/15	05/18/15	09/17/15	12/22/15	-218	-96	109
C6	#2B	Complete WAN - 96th St. Station	05/18/15	05/18/15	09/17/15	12/22/15	-218	-96	109
C6	#3A	Complete LAN - 86th St. Station	07/18/15	07/18/15	07/17/15	12/08/15	-143	-144	90
C6	#3B	Complete WAN - 86th St. Station	07/18/15	07/18/15	07/17/15	12/08/15	-143	-144	90
C6	#4A	Complete LAN - 72nd St. Station	02/18/15	02/18/15	10/09/15	11/17/15	-272	-39	220
C6	#4B	Complete WAN - 72nd St. Station	02/18/15	02/18/15	10/09/15	11/17/15	-272	-39	220
C6	#5A	Complete LAN - 63rd St. Station	04/18/14	04/18/14	10/29/15	12/08/14	-234	325	418
C6	#5B	Complete WAN - 63rd St. Station	04/18/14	04/18/14	10/29/15	12/08/14	-234	325	418
C6	#5C	Complete all 63rd St. Station work	04/18/14	04/18/14	12/07/15	07/09/15	-447	151	291
C6	SS	Substantial Completion	08/18/16	08/18/16	08/18/16	08/22/16	-4	-4	

- Notes: 1. All schedule dates based upon September 1, 2014 update (IPS Update #98)
2. Contract packages 1, 2A, 4B 5A have completed all work.
3. Milestones not shown have been completed

Observations and Analysis:

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

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#98 (DD=9/01/14), major activities that can be anticipated to either start or complete over the upcoming 90 days include the following:

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

Activity ID	Start	Finish
C2B – 96th Street Station Concrete, Finishes & Utilities		
MS#2 – Shared Site Access at 93rd St Shaft		10/27/14
Perform Factory Acceptance Test (FAT) Escalator (E06)-Entrance 1		10/14/14
Perform Factory Acceptance Testing (FAT) - Esc E10,E11-Entrance 3		11/12/14
Excavate Con Edison Test pits - Project wide-Mobilization and Permits		9/26/14
Manufacture/Fabricate/FAT/Deliver Medium Voltage Switchgear Package (North)		11/18/14
C3 – 63rd Street Station Rehab		
Testing & Commissioning HVAC (Chillers, Cooling Towers, Pumps, AHUs, etc.)	9/9/14	
Structural Work – Entrance #3		10/21/14
C4C—72nd Street Station Finishes		
MS#3 - Complete Work to Allow Shared Access STA 1172+40 & STA 1163+00		11/26/14
MS#10 - Complete Work in All Traction Power Rooms at North End of Sta.		11/26/14
Station Elevator - ELEV #1 - Set frame - wire & Terminate	9/2/14	
Station Escalators - ESC #1 - Set frame - wire & Terminate	9/26/14	
C5B – 86th St. Station Mining & Lining		

Activity ID	Start	Finish
MS#2 - C5B Substantial Completion for Hand-off to C5C (w/out Entrance #2)		9/12/14
C5C – 86th St. Station Finishes & MEP		
MS #1 - Vehicle Access for C-26009 Contractor		10/31/14
MS #5 - Complete Work Comm Rooms South End of Station for Full Access		11/7/14
MS #14A - Provide Limited Access to Area South of Gridline 15		11/4/14
C6 – Systems		
Access to Traction Power Rooms North End of 72nd Station		11/27/14
Access to Shared Tracks Thru 72nd Station		11/27/14
Access to Comm Rooms South @ 86th Station		11/10/14
<u>Access to Mezzanine, Platform, Ancillary Areas @ 86th station</u>		11/10/14
<u>Way Side @ 96th - MTA inspect and provide Punch List , Perform Punchlist Work</u>		9/28/14

Observations and Analysis:

There are numerous turnovers between the heavy civil to architectural packages and from the architectural packages to the systems packages over the remainder of 2014. MTACC is focusing on the turnover of equipment rooms and work areas to the systems contractor from the respective general contractors.

Concerns and Recommendations:

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

4.3 Critical Path Activities

Status:

Based on Update #98 of the IPS, the calculated date for completion of all SAS Phase 1 activities is October 3, 2016. For this update, the same 73 work day (WD) or 102 calendar days (CD) of contingency that has been used in previous updates was utilized, resulting in a forecast RSD of January 12, 2017.

Dramatic changes were observed in Update #98. These changes are reportedly the result of further enhancements of the C6 Contractor’s installation and testing plans.

Observations and Analysis:

In addition to the quality control issue noted above, the PMOC is extremely concerned about the dramatic changes to this update. It is common for schedule detail to be enhanced as installation plans are refined, however the extent to which this is currently occurring on the SAS project suggests a lack of diligence or understanding in the original development of the schedule and raises significant credibility questions regarding the process.

Critical Path: Involves the installation and testing of signal equipment within the signal rooms at the 86th Street Station. Last period, this chain of activities had 77 WD of schedule float. It became critical (-9 WD) because the duration of breakdown testing in the relay rooms was

increased by 109 WD (700%). This was partially offset by the cumulative reduction of installation activities in these rooms from 225 WD to 175 WD. Changes of this magnitude to the schedule do not represent “refinement”.

The PMOC considers further evaluation of critical or near-critical paths in Update #98 to be an unproductive and potentially misleading effort. The PMOC has no confidence in the information and forecasts presented within Update #98.

Observation:

Major risks previously identified in the construction contractor schedules and not represented in the IPS have been reconciled. As such, the current risk-mitigated forecast and a risk-realized forecast are equivalent. As noted, IPS Update #98 erroneously forecasts January 17, 2017 as the new RSD. Correcting this error results in the following tabulation:

IPS #98	RSD	Construction Complete	Contingency (measured against)	
			Dec. 30, 2016	Feb. 28, 2018
Risk-Mitigated (MTACC)	Dec. 30, 2016	Sept. 21, 2016	102 CD	526 CD
Risk-Realized (PMOC)	Dec. 30, 2016	Oct. 3, 2016	85 CD	509 CD

Concerns and Recommendations:

The PMOC is concerned about the accuracy and consistency of the transfer and summarization of information between contractor schedule updates and the IPS. The time required for MTACC to generate an IPS update suggests that excessive time is dedicated to the “mechanics” of the schedule; consequently insufficient time may then available for critical review and evaluation.

The scope and magnitude of changes made to the IPS Update #98 cannot be discounted as simply “enhancements” of the schedule. Significant changes to the IPS are being made that impact the fundamental understanding of what is “critical” to the schedule to complete the project.

4.4 Compliance with Schedule Management Plan

Status:

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

Observations and Analysis:

- Forecast Revenue Service Date (RSD) and minimum schedule contingency:
 - ELPEP Requirement: February 28, 2018 (RSD)
 - ELPEP Requirement: 240 CD (measured against February 28, 2018)
- Minimum Allowable Float; Real Estate Acquisition

- ELPEP Requirement: 60 CD
 - Current Forecast: All Real Estate takings are complete as of November 1, 2011 with the last “Title Vesting” occurring on October 25, 2011.
- Minimum Allowable Secondary Float Path
 - ELPEP Requirement: 25 Calendar Days (approximately 18 WD).
 - Secondary float paths with Total Float (TF) =3 WD (approximately 4 CD), 3 WD (approximately 4 CD) and 21 WD (approximately 29 CD).
- Secondary Schedule Mitigation (critical path compression)
 - ELPEP Requirement: 125 CD
 - Mitigation opportunities will be pursued as they are identified.
 - Evaluation of the C6 Contractor’s comprehensive schedule acceleration/proposal is currently on hold.

Observation:

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

Concerns and Recommendations:

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

5.0 BUDGET/COST

Status:

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

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

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (June 30, 2013)
10	Guideway & Track Elements	\$612,404,000	\$642,478,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,277,642,000
30	Support Facilities	\$0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$524,561,000
50	Systems	\$322,707,000	\$250,134,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$281,500,000
70	Vehicles	\$152,999,000	\$0
80	Professional Services	\$796,311,000	\$1,026,608,085
90	Unallocated Contingency	\$555,554,000	\$448,076,915
Subtotal		\$4,050,000,000	\$4,451,000,000
Financing Cost		\$816,614,000	\$816,614,000
Total Project		\$4,866,614,000	\$5,267,614,000

Observation and Analysis:

Table 5-1 represents MTACC's most recent update March 31, 2014 of its CWB into the FTA Standard Cost Categories. Revisions to the SCC allocations incorporate the Revision 10 modifications to the MTACC's CWB. MTACC converts the CWB to the SCC format quarterly.

Conclusions and Recommendations:

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

5.1 Project Cost Management and Control

Status:

The SAS Project Team accumulates and reports actual cost expenditures against MTACC's established cost categories on a monthly basis. The aggregate budget value of the cost

categories equals the CWB of \$4.451B. In general, MTACC cost categories correspond to individual contracts or groups of contracts for products or services supplied by a 3rd party vendor. Values within the MTACC Cost Categories are mapped to the FTA Standardized Cost Categories on a Quarterly basis.

Observation:

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

Concerns and Recommendations:

None

5.2 Project Expenditures and Commitments:

Status:

As of September 30, 2014, a summary comparison of the SAS Current Working Budget (Estimate Revision #10) and expenditures is as follows:

Description	CWB	Expended	%
Total Construction (1)	\$2,674,814,299	\$2,039,796,082	69.8%
Total Soft Cost	\$1,308,108,085	\$1,053,015,944	80.5%
Contingency	\$468,077,616	(Included above)	
Subtotal	\$4,451,000,000	\$3,092,812,026	69.5%

(1) % complete includes AWOs executed to date.

Observations:

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

Based upon financial expenditures reported by the MTACC during June 2014, SAS Phase 1 is approximately 69.5% complete. The completion status of the active construction contracts through June 30, 2014, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100%
- C26005 (96th Street Station) – 99.8%
- C26010 (96th Street Station) – 47.2%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 97.7%
- C26012 (86th Street Station) – 11.9%
- C26006 (63rd Street Station) – 81.6%

- C26007 (72nd Street Station) – 99.9%
- C26011 (72nd Street Station – 26.5%
- C26009 (Systems) – 36.1%

Aggregate Construction % Completion:

- 100% of all construction work is under contract
- 69.8% of all construction is complete

Based upon cost data received from MTACC for September 2014:

- Value of construction in place this period = \$24,096,800
- Estimated value of construction remaining = \$635,018,217
- Target construction completion = September 20, 2016
- # Months remaining = 23.7

Conclusions and Recommendations:

The estimated average rate of construction required to achieve target completion date = \$26,774,693/MO. The average progress (payments) achieved over the most recent six month period is \$35,841,994/MO. At a summary level, it appears adequate progress continues to be made to support project schedule goals.

Professional Services (as generally defined by SCC Category 80) during September 2014 totaled approximately \$7.1M. This rate of expenditure is somewhat higher than that experienced during recent periods. This rate of expenditure is slightly higher than established via Revision 10 to the RSD.

5.3 Change Orders

Status:

As of September 30, 2014, the status of Additional Work Orders (AWOs) on Phase 1 of the Second Avenue Subway Project is summarized as follows:

Table 5-2: AWO Summary

Contract / (Package)	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26002 (1)	100.00%	\$337,025,000	\$41,086,647	12.19%	\$41,086,647	12.19%
C26005 (2A)	99.84%	\$325,000,000	\$47,356,321	14.57%	\$42,867,392	13.19%
C26010 (2B)	47.20%	\$324,600,000	\$34,463,481	10.62%	\$13,639,646	4.20%
C26006 (3)	81.62%	\$176,450,000	\$13,188,233	7.47%	\$10,498,485	5.95%
C26007 (4B)	99.94%	\$447,180,260	\$1,325,639	0.30%	\$1,375,444	0.31%
C26011 (4C)	26.47%	\$258,353,000	\$21,682,780	8.39%	\$1,313,368	0.51%
C26013 (5A)	100.00%	\$34,070,039	\$6,525,471	19.15%	\$6,525,471	19.15%
C26008 (5B)	97.70%	\$301,860,000	\$21,215,478	7.03%	\$15,590,272	5.16%

C26012 (5C)	11.85%	\$208,376,000	\$1,677,689	0.81%	\$235,000	0.11%
C26009(6)	36.11%	\$261,900,000	\$6,051,762	2.31%	\$3,721,131	1.42%
TOTAL TO DATE		\$2,674,814,299	\$194,573,501	7.27%	\$136,852,856	5.12%

Bold type indicates completed contracts

To date, approximately \$1,916,224,390 (71.6%) of all base contract construction work has been completed. As a % of work completed, the AWO exposure for these contracts = 10.15% and the executed AWO % = 7.14%. Based on performance to date, a forecast of total AWO expenditure for all base contract work in the range of \$240M to \$250M appears reasonable.

Observation and Analysis:

If the AWO Exposure continues to increase in a manner similar to what has been experienced throughout 2014, the existing budget of \$229M may not be adequate.

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

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
September 2014	\$136,852,856	\$194,573,001
August 2014	\$133,248,078	\$198,039,518
Δ	\$3,604,778	\$(3,466,017)
Δ	2.71%	-1.75%

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

Const. Pkg.	AWO Exposure			
	14-Sep	14-Aug	Period Δ	Changes this Period
Completed Packages	\$ 47,612,118	\$ 47,612,118	\$ -	Final values for Packages C1 and C5A as reported by MTACC.
C2A	\$ 47,356,321	\$ 54,112,659	\$ (6,756,338)	Decrease is based on revised estimates for AWO # 94 and 161.
C2B	\$ 34,463,481	\$ 31,356,234	\$ 3,107,247	Net increase is based on revised estimates for AWO # 84, 85 and 98 as well as initial estimates for AWO # 77, 89, 92, 98, 105 and 108.
C3	\$ 13,188,233	\$ 13,173,661	\$ 14,572	Net increase is based on revised estimates for AWO # 42, 92, 101, 132, 135, 139, 140, 141, 144, 145, 147, 148, 149, 153, 156, 158, 160 and initial estimates for AWO # 164, 165 and 166.

Const. Pkg.	AWO Exposure			
	14-Sep	14-Aug	Period Δ	Changes this Period
C4B	\$ 1,325,639	\$ 1,422,944	\$ (97,305)	Decrease is based on initial estimates for AWO # 88 and 102.
C4C	\$ 21,682,780	\$ 21,952,859	\$ (270,079)	Net decrease is based on revised estimates for AWO # 29, 35, 61, 66, 67 and initial estimates for AWO # 78 and 79.
C5B	\$ 21,215,478	\$ 20,579,489	\$ 635,989	Net increase is based on revised estimates for AWO # 50 and 62, as well as initial estimates for AWO # 42, 77, 91, 92, 94, 96 and 100.
C5C	\$ 1,677,689	\$ 1,677,689	\$ -	No change this period.
C6	\$ 6,051,762	\$ 6,151,864	\$ (100,102)	Net decrease is based on revised estimates for AWO # 35, 39, 40, 44 and 45 as well as initial estimates for AWO # 41, 46, 51, 53, 54 and 55.
	\$ 194,573,501	\$ 198,039,518	\$ (3,466,017)	

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

Const. Pkg.	Executed AWOs			
	14-Sep	14-Aug	Period Δ	Changes this Period
Completed Packages	\$ 47,612,118	\$ 47,612,118	\$ -	Final values for Packages C1 and C5A as reported by MTACC.
C2A	\$ 42,867,392	\$ 43,054,872	\$ (187,480)	Decrease is based on execution of AWO # 177.
C2B	\$ 13,639,646	\$ 10,998,515	\$ 2,641,131	Increase is based on execution of AWO # 45, 54, 72, 87, 96, 98 and 105.
C3	\$ 10,498,485	\$ 10,156,585	\$ 341,900	Increase is based on execution of AWO # 103, 107, 119, 134, 149 and 156.
C4B	\$ 1,375,444	\$ 1,422,944	\$ (47,500)	Decrease is based on execution of AWO # 102.
C4C	\$ 1,313,368	\$ 972,140	\$ 341,228	Increase is based on execution of AWO # 42, 47, 59, 65, 72 and 78.
C5B	\$ 15,590,272	\$ 15,590,272	\$ -	No change this period.
C5C	\$ 235,000	\$ 235,000	\$ -	No change this period.

Const. Pkg.	Executed AWOs			
	14-Sep	14-Aug	Period Δ	Changes this Period
C6	\$ 3,721,131	\$ 3,205,631	\$ 515,500	Increase is based on execution of AWO # 40, 41, 44, 45, 46, 50, 51, 52, 53, 54 and 55.
	\$ 136,852,856	\$ 133,248,078	\$ 3,604,778	

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

Concerns and Recommendations: None at this time.


5.4 Project Funding

Status:

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

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

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru September 30, 2014
NY-03-0397	\$4,980,026	\$4,980,026	\$4,980,026
NY-03-0408	\$1,967,165	\$1,967,165	\$1,967,165
NY-03-0408-01	\$1,968,358	\$1,968,358	\$1,968,358
NY-03-0408-02	\$24,502,500	\$24,502,500	\$24,502,500
NY-03-0408-03	0	0	0
NY-03-0408-04	0	0	0
NY-03-0408-05	\$167,810,300	\$167,810,300	\$167,810,300
NY-03-0408-06	\$274,920,030	\$274,920,030	\$274,920,030
NY-03-0408-07	\$237,849,000	\$237,849,000	\$237,849,000
NY-03-0408-08	\$197,182,000	\$197,182,000	\$37,401,629
NY-03-0408-09	\$186,566,000	\$186,566,000	0
NY-03-0408-10**	\$123,384,621	0	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$1,373,892,821.00	\$1,250,508,200.00	\$904,161,829.00

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

A total of \$3,092,812,023 has been expended on the project through September 30, 2014, of which \$479,003,293 has been spent on design and \$1,916,224,390 on construction (MTACC's September 2014 Cost and Schedule Summary Input).

Observation and Analysis:

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

Concerns and Recommendations: None

5.4.1 Overall Project Funding

Refer to Section 5.2 of this Report.

5.4.2 Local Funding

Refer to Section 5.2 of this Report.

5.5 Cost Variance Analysis

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

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

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

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

Table 5-4: CWB vs. EAC

Category	Current Working Budget	EAC Forecast
Total Construction	\$2,674,814,299	\$ 2,946,415,050
Engineering Services Subtotal	\$622,862,000	\$655,000,000
Third Party Expenses	\$554,086,273	\$557,500,000
TA Expenses	\$131,160,085	\$130,775,000
Contingency	\$308,077,343	
Executive Reserve	\$160,000,000	
Subtotal	\$4,451,000,000	\$4,289,690,050

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

Conclusions and Recommendations:

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

5.6 Project Contingency

Status:

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

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

The independent analysis of contingency drawdown maintained by the PMO is generally consistent with that maintained by the SAS Project team and confirms it to be in compliance with the estimated minimum contingency balance of \$176,923,077.

Observations and Analysis:

During 2nd Quarter 2014, contingency changes included routine incorporation of AWOs into the individual project and overall program reporting systems. Cost models maintained by both the PMOC and the SAS Project Team verify that the current contingency balance is greater than the Planned Balance and exceeds the ELPEP Required Balance.

Contingency Analysis

	<u>Current</u>	<u>@ Completion</u>	
Phase 1 Budget	\$ 4,451,000,000	\$ 4,451,000,000	
Construction Awards	\$ 2,674,814,299	\$ 2,674,814,299	
Soft Cost Expended	\$ 1,053,015,944	\$ 1,053,015,944	
Soft Cost Forecast to Complete	\$ 255,092,141	\$ 292,092,141	
AWO Exposure	\$ 194,573,501	\$ 271,600,751	
Total Contingency	\$ 273,504,115	\$ 159,476,865	(1)
Reserved Contingency	\$ 160,000,000	\$ 159,476,865	(2)
Available Contingency	\$ 113,504,115	\$ -	

Notes:

(1) Total Contingency = budget balance after forecast expenditures.

(2) Reflects \$523,135 transfer from “Reserved Contingency”.

Conclusions based upon this analysis include:

- The project can be completed within the current MTACC CWB of \$4.451B.
- It will be necessary to transfer funds from the “Executive” or “Reserved” Contingency in order to cover forecast project costs.

Concerns and Recommendations:

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

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period.

6.2 Risk Updates

Status:

There was no change in status during this period.

Observation and Analysis:

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

- MTACC has identified the supply of permanent power for station facilities at 96th, 86th, and 72nd Street Stations to be a significant risk. MTACC has worked aggressively to expedite the design and review of contractor submittals with ConEd. MTACC generally believes this risk has been mitigated. The IPS currently forecasts permanent power will be available in time to support the startup and commissioning of station MEP systems.
- MTACC has jointly developed an accelerated schedule for construction of Entrance #1 at 72nd Street Station with the construction schedule that will not impact the overall project RSD. However, this schedule does involve significant risk and continual monitoring is required. To date, the updated schedule for Entrance #1 has not been “cut-in” to the IPS.
- On December 23, 2013, FTA received a request to investigate the C4C and C5C contract compliance with “Buy America” provisions involving the water mister fire suppression system. Consequently, the respective contractors have been issued “stop work” orders by MTACC and await a decision on the matter by FTA. As with other issues of this nature, a risk of delay and additional costs incurred by the project is present.
- MTACC has modified its short-term approach to schedule improvement and delay mitigation. The “all-in-one” systems installation and testing acceleration approach will be temporarily tables until such time as specific status and issues at each station location can be better forecast. Until then, the focus will be on immediate opportunities to improve the schedule and expedite construction in key project locations.
- The risk of late design changes by user departments, specifically communications, has been mitigated over recent months. However, this issue is identified as a significant risk for C2B, C4C and C5C as well as C6 and should be periodically reviewed.

Conclusions and Recommendations:

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

6.3 Risk Management Status

Status:

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

Observation and Analysis:

The risk management process generally includes:

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

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

Conclusions and Recommendations:

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

6.4 Risk Mitigation

Status:

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

Observation and Analysis:

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

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

<u>Risk Description</u>	<u>Mitigation Summary</u>	
Risk CNS 4 (C6): Delay resulting from management of contractual interfaces during construction.	Risk Type	
	Cost	Schedule
Mitigation Strategy: 1. The mitigation strategy has been implemented and is being continuously	Current Status: 1. The current initiative to pro-actively manage the interfaces between prime contracts has had a positive effect on contractors' achievement	

<u>Risk Description</u>	<u>Mitigation Summary</u>			
monitored and enhanced as needed.	of milestone goals and turnover to a subsequent contractor. 2. Ongoing monitoring of this effort is needed to assist in resolving specific issues and implementing minor process improvements.			
Risk C3, C2B, C4C, C5C and C6 Schedules:		Risk Type		
Construction contract delays that will extend Project Completion beyond the current RSD.		<table border="1"> <tr> <td data-bbox="1133 531 1253 621">Cost</td> <td data-bbox="1253 531 1458 621">Schedule</td> </tr> </table>	Cost	Schedule
Cost	Schedule			
Mitigation Strategy: 1. Ongoing schedule improvement and delay mitigation will focus on “targets of opportunity” where specific action directed to critical or near-critical work tasks will result in measurable schedule improvement.	Current Status: 1. Acceleration of specific “targets of opportunity” will be detailed as they are identified.			
Permanent (Station) Power:		Risk Type		
Permanent facility power to 72nd, 86th, and 96th Street Stations may be delayed and result in subsequent delays to equipment testing and commissioning.		<table border="1"> <tr> <td data-bbox="1133 930 1253 1056">Cost</td> <td data-bbox="1253 930 1458 1056">Schedule</td> </tr> </table>	Cost	Schedule
Cost	Schedule			
Mitigation Strategy: 1. The mitigation strategy has been implemented.	Current Status: 1. Based on current schedule forecasts, equipment will be delivered and installation advanced sufficiently to support permanent power requirements. 2. Refinement of fabrication, installation schedules and ConEd coordination is ongoing.			
Risk C4C Entrance 1 (301 E 69th Street):		Risk Type		
Work on Entrance 1 will be delayed due to delays in obtaining design approval from Owner for utility relocation in the building.		<table border="1"> <tr> <td data-bbox="1133 1402 1253 1493">Cost</td> <td data-bbox="1253 1402 1458 1493">Schedule</td> </tr> </table>	Cost	Schedule
Cost	Schedule			
Mitigation Strategy: 1. The mitigation strategy has been implemented.	Current Status: 1. MTACC and the Contractor have jointly developed a construction schedule for Entrance #1 that will support the current RSD. 2. There is significant risk in this schedule and continuous monitoring and prompt action regarding unanticipated conditions is required.			

<u>Risk Description</u>	<u>Mitigation Summary</u>	
Risk COM 2 (C6): Frequent late changes to the design of station and rail systems could delay C6 and the RSD.	Risk Type	
	Cost	Schedule
Mitigation Strategy: <ol style="list-style-type: none"> 1. The current CCG/ CCB approval process has been helpful in limiting discretionary design changes. 2. MTACC has indicated significant concern regarding this issue over the remaining duration of the project. 	Current Status: <ol style="list-style-type: none"> 1. Monitoring of the effectiveness of the risk mitigation strategy is ongoing. 2. This risk is applicable to all major operating systems. 	

Concerns and Recommendations:

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

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status: Refer to Section 5.4 of this report.

6.5.2 Schedule Contingency

Status:

Via IPS Update #98, MTACC continues to forecast all Phase 1 construction and pre-revenue testing to be complete on October 3, 2016. This results in 85 CD (60 WD) of contingency when measured against the MTACC’s target RSD of December 30, 2016 and a 509 CD contingency when measured against the FTA Risk-Informed RSD of February 28, 2018. As previously noted, the PMOC considers the reliability of this schedule update to be marginal.

Observations:

Major risks previously identified in the construction contractor schedules and not represented in the IPS have been reconciled. As such, the current risk-mitigated forecast and a risk-realized forecast are equivalent. The RSD forecast by IPS #98 results in the following contingencies:

Table 6-1: Schedule Contingency

IPS Update #	90	92	95	97	98
Data Date	01/1/14	03/1/14	6/1/14	8/1/14	9/1/14
	Contingency (CD)				
RSD=12/31/2016					
Risk Mitigated	102	102	102	102	85
Risk Realized	20	44	52	102	85
RSD=02/28/2018					
Risk Mitigated	526	526	526	526	509
Risk Realized	446	446	478	526	509

Concerns and Recommendations:

The PMOC concerns regarding schedule are enumerated in Section 4 of this report.

7.0 LIST OF ISSUES AND RECOMMENDATIONS

Priority in Criticality column 1 – Critical 2– Near Critical

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-09- Jan10	3.0 PMP	<p>The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP.</p> <p><u>PMOC Recommendation:</u> Update the PMP and its sub-plans within the timeframes established in the ELPEP.</p> <p><u>Update (December 2013):</u> PMOC’s review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC when available. MTACC intends to revise the SMP, CMP and RMP sub-plans based upon the results of its internal audit.</p> <p><u>Update (June 2014):</u> MTACC is addressing FTA/PMOC review comments.</p> <p><u>Update (September 2014):</u> MTACC’s review comments associated with PMP Update #9 were incorporated into PMP Update #10. A draft copy of PMP Update #10 was forwarded to the FTA/PMOC for review during this reporting period. PMP Draft Update #10 does not adequately address the PMOC’s comments associated with Update #9. FTA/PMOC will schedule a meeting with MTACC to review each area of concern so that any misunderstandings are resolved.</p>	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 2013):</u> Processing durations continue to exceed the period specified by MTACC procedure. To date, no adverse impacts related to excessive processing duration have been observed. PMOC will continue to monitor AWO processing.</p> <p><u>Update (March 2014):</u> PMOC monitoring of AWO process is ongoing. No adverse</p>	1

Number with Date Initiated	Section	Issues/Recommendations	Criticality
		<p>impacts related to the duration required to process an AWO has been noted.</p> <p><u>Update (June 2014):</u> PMOC monitoring of AWO process is ongoing.</p> <p><u>Update (September 2014):</u> PMOC monitoring of AWO process is ongoing.</p>	
SAS-22-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 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> <p><u>Update (December 2013):</u> Revision to SAS PMP is anticipated in the 1st Quarter 2014.</p> <p><u>Update (June 2014):</u> Revision of the SAS PMP will be coordinated with the Amendment of the FFGA. Efforts are ongoing.</p> <p><u>Update (September 2014):</u> SAS-09-Jan10 above.</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-27- Jun 12	3.2 PMP Sub Plans	<p>The PMOC has noted that community relations activities continue to be a very significant element of the overall management of this project. However, neither the PMP nor any applicable sub plan identify this work, the manner by which it will be managed or executed, the scope of the work or any budgetary or financial controls.</p> <p>The PMOC recommends the development or update of applicable plans and procedures governing such work during the next PMP update period.</p> <ul style="list-style-type: none"> ▪ <u>Update (December) 2012:</u> PMOC will coordinate with the MTACC to issued Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is forecasted for mid-2013. ▪ <u>Update (September) 2013:</u> A draft of PMP Rev. 9 for was provided to the FTA/PMOC for review. PMOC’s review of SAS PMP (Update #9) was completed and discussed with FTA Region II staff. Review comments will be forwarded to MTACC in October 2013. ▪ <u>Update (December) 2013:</u> Revision to SAS PMP is anticipated in the 1st Quarter 2014. ▪ <u>Update (June 2014):</u> Revision of the SAS PMP will be coordinated with the Amendment of the FFGA. Efforts are ongoing. ▪ <u>Update (September 2014):</u> SAS-09-Jan10 above. 	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
GC	General Contractor
HASP	Health and Safety Plan
HLRP	Housing of Last Resort Plan
IFP	Invitation for Proposal
IFB	Invitation to Bid
IPS	Integrated Project Schedule
LF	Linear Feet
MEP	Mechanical, Electrical, Plumbing
MTACC	Metropolitan Transportation Authority – Capital Construction
N/A	Not Applicable
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
NYCDEP	New York City Department of Environmental Protection
NYCT	New York City Transit
OCIP	Owner Controlled Insurance Program
PE	Preliminary Engineering
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PQM	Project Quality Manual
RAMP	Real Estate Acquisition Management Plan
RFMP	Rail Fleet Management Plan
RFP	Request for Proposal

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

APPENDIX B-- PROJECT OVERVIEW AND MAP

Project Overview and Map – Second Avenue Subway



Scope

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

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

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

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

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

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

Schedule

12/20/01	Approval Entry to PE	06/12	Estimated Rev Ops at Entry to PE
04/18/06	Approval Entry to FD	03/14	Estimated Rev Ops at Entry to FD
11/19/07	FFGA Signed	06/30/14	Estimated Rev Ops at FFGA
12/30/16	Revenue Operations Date at date of this report (MTACC schedule)		
69.8%	Percent Complete Construction at September 30, 2014		
75.3%	Percent Complete Time based on Rev Ops Date of December 30, 2016		

Cost (\$)

3,839 M	Total Project Cost (\$YOE) at Approval Entry to PE (w/o Financing Costs)
3,880 M	Total Project Cost (\$YOE) at Approval Entry to FD (w/o Financing Costs)
4,866 M	Total Project Cost (\$YOE) at FFGA signed (w/ \$816 M Financing Costs)
4,451 M	Total Project Cost (\$YOE) at Revenue Operations (w/o Financing Costs)
5,267 M	Total Project Cost (\$YOE) at date of this report including \$816 M in Finance Charges
3,093M	Amount of Expenditures at date of this report from Total Project Budget of \$4,451M
69.8%	Percent Complete based on Expenditures at date of this report
273M	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 3rd Quarter for 2014

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

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

APPENDIX E – SAFETY AND SECURITY CHECKLIST

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

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

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

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

Project Overview		
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: Activation Plan and Procedures Integrated Test Plan and Procedures Operations and Maintenance Plan Emergency Operations Plan	Y	Referenced plans are being developed as part of the Systems Contract (C6).
Has the grantee issued final safety and security certification?	N	To be covered as part of the testing in Systems Contract (C6)
Has the grantee issued the final safety and security verification report?	N	To be covered as part of the testing in Contract 6
Construction Safety		
Does the grantee have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	
Does the grantee's contractor(s) have a documented companywide safety and security program plan?	Y	
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	Reference sections 011150 Safety Requirements and 011160 Security Requirements of the Contract Terms and Conditions
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	Safety – The OSHA Lost Time Injury Rate and Recordable Injury Rate from the start of construction until August 31, 2014 are 1.79 and 5.14, respectively. Both rates are still above the Bureau of Labor Statistics (BLS) national Lost Time Injury Rate of 1.7 and the Recordable Injury Rate of	BLS National Lost Time Rate for Heavy and Civil Construction is 1.7 and for Recordable Injury is 3.2

Project Overview		
	<p>3.2. The cumulative construction time worked since the project inception is 9,144,319 hours. Total lost time injuries since project inception is 82 and other recordable injuries are 153. The total number of recordable injuries is 235 (sum of the lost time injuries and the other recordable injuries).</p>	
<p>If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?</p>	<p>MTACC has expanded its safety program to include a monthly walk-thru of the various work zones by the SAS Project Management Team. In addition the SAS Project Safety Manager holds a monthly meeting with the Contractor's Project Managers and Safety Managers, OCIP Representative, insurance carrier representative, MTACC Construction Managers and PMOC representative in order to make all aware of the safety concerns on the project and to exchange lessons learned. Each contractor is also holding its own "tool box" meetings focusing on various safety topics. Corrective Action Plans have been requested from contractors with high safety incident rates.</p>	
<p>Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?</p>	<p>Y</p>	
<p>Federal Railroad Administration</p>		

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

APPENDIX F – ON-SITE PICTURES
(to be transmitted in a separate file)

Appendix G -- Core Accountability Items				
Project Status:		Original at FFGA	Current*	ELPEP**
Cost	Cost Estimate	\$4,050M	\$4,451M	\$4,980M
Contingency	Unallocated Contingency	\$555.554M	\$0M	\$0M
	Total Contingency (Allocated plus Unallocated)	\$555.554M	\$273M (Sept. 2014)	\$168M
Schedule	Revenue Service Date	September 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	66.7%		
	Based on Earned Value	N/A		
Major Issue				
Major Issue		Status	Comments	
Safety and Security Certification		Open	The C6 Contractor is now staff with a Systems Integration Manager (SIM) supported by Systems Engineering Specialists (SES) to coordinate its efforts with the Stations MEP Contractors in the preparation of their Systems Commissioning and Integration Testing (SCIT) Plans.	
Date of Next Quarterly Meeting:		TBD		

* MTACC's Current Working Budget

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

All data based on September 30, 2014 reporting.