

PMOC MONTHLY REPORT

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

December 1 to December 31, 2012



PMOC Contract No. D1FT60-09-D00007

Task Order No. 2, Project No. DC-27-5115, Work Order No. 02

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Length of time on project: 2 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. D1FT60-09-D-00007, Task Order No. 003. 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 MTAACC (Capital Construction) Second Avenue Subway (SAS) Mega-Project managed by MTAACC 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 will include 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 4th QUARTER 2012

a. Engineering/ Design Progress

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

b. New Contract Procurements

- *Bids were received for the 72nd Street Station Finishes & MEP Package, C26011 (C4C) on December 18, 2012.*
- *The 86th Street Station Finishes & MEP Package, C26012 (C5C) is scheduled for advertisement for construction bids on January 4, 2013, bid opening on April 29, 2013 and contract award on May 24, 2013.*
- *Award of these packages will complete construction procurement for Phase 1 of the Second Avenue Subway project.*

c. Construction Progress

All construction is approximately 42.7 % complete as of December 31, 2012. Summary progress for each contract is as follows:

- *At the 86th Street Station, excavation of the main cavern is underway at both the north and the south shafts. As of December 14, 2012, 66,414 CY (43%) of the total 154,623 CY had been excavated.*
- *The 96th Street Station Heavy Civil/Structural Contractor (Contract C2A) is approximately 38% complete with all mass excavation. Installation of additional excavation support continues as required. Installation of reinforced concrete invert slabs is the other major activity.*
- *The 72nd Street Station Heavy Civil/Structural Contractor (Contract C4B) has excavated 173,394 Bank Cubic Yards (BCY) of the total 184,657 BCY (93.9%) for the project. Concrete work (invert and walls) continues at Main Cavern, North/South Crossover, G3/ G4 Caverns, 63rd St Stub, G3/ G4 TBM Tunnels and Horseshoe.*
- *At the 63rd Street Station, Area 5 structural steel installation failed to maintain the previously published "recovery schedule". Area 5 steel erection is now forecast to complete on or about February 16, 2013. Work at Ancillary #1 has started.*
- *The Systems contractor (C6) continued surveying for track, traction power, signals and communications work and developing engineering submittals for fabricated equipment and field installations.*

d. Continuing and Unresolved Issues

- *Closeout of construction contracts C1 and C5A. Substantial completion was achieved on November 16, 2011 and March 20, 2012 respectively. The time required to closeout these contracts has been excessive.*
- *Delays to structural steel fabrication and erection at the 63rd Street Station (C3) have been identified. The impact of C3 delays are extending to other areas of the project and are no longer confined solely to the C3 package.*

e. New Cost and Schedule Issues

- *None.*

3. PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

During the 4th Quarter 2012, MTA continued to demonstrate that it possessed the technical capacity and capability to execute the project through:

- *Implementing fundamentally sound decisions based upon a set of integrated project controls and a complete consideration of applicable risks and impacts.*
- *Adding and adjusting personnel assignments to address project staffing requirements.*
- *Effective management of project scope, schedule, budget and product quality.*
- *General compliance with policies, plans and procedures which govern and guide the execution of the project.*
- *Documentation of all relevant activities and actions.*

The SAS Project Team continues to operate as an integrated project organization. Personnel from MTA, NYCT, the Consultant Construction Management and Design Consultant are utilized throughout the five (5) functional groups in an efficient and cohesive manner that facilitates overall project execution.

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. During the 4th Quarter 2012, engineering support continued with:

- *Technical support during the bid phase for the 72nd Street Station Concrete, MEP/ Finishes, Utilities, and Restoration Contract G26011 (C4C).*
- *Updating of the design package for the 86th Street Station Concrete, MEP/ Finishes, Utilities, and Restoration Contract G26012 (C5C).*

- *Review and approval of construction contract or technical submittals for six (6) active contract packages.*
- *Assistance in evaluating and resolving contract or requests for additional compensation (AWOs).*

d. Procurement

Procurement activity during the 4th Quarter 2012 included the advertisement and receipt of construction bids for the 72nd Street Station Finishes & MEP Package, Contract G26011 (C4C). Eight of the ten construction packages (C1, C2A, C2B, C3, C4B, C5A, C5B, C6) for SAS Phase 1 Project have been awarded to date. Contracts C1 and C5A are in the close-out phase and are expected to be closed in the 1st Quarter 2013.

While delays in construction procurement have been experienced, they can generally be attributed to the size, scope and complexity of SAS contract packages. NYCT Procurement has supported the SAS Project throughout the construction procurement process.

e. Railroad Force Account (Support and Construction)

Force Account labor on the SAS Phase 1 Project is being provided by NYCT employees and is budgeted at \$43,000,000. *During the 4th Quarter 2012, force account expenditure reached \$3,598,522. The majority of the expenditure, \$3,227,494, is associated with 63rd Street/Lexington Avenue Station Restoration Contract G26006 (C3).*

f. Vehicles

No additional vehicles will be procured for the SAS Phase 1 Project. MFACC has confirmed that spare vehicles resulting from service reductions within the NYCT system will be utilized to meet the SAS Phase 1 Project Concept of Operation.

g. Systems Testing and Start-Up

Responsibility for Systems testing and start-up is allocated to the Track, Power, Signals and Communications Systems Contract G26009 (C6). The scope of the contract calls for the hiring of a Systems Integration Manager (SIM) supported by Systems Engineering Specialists (SES) to coordinate the efforts of the Systems Contractor and the Stations MEP Contractors in the preparation of their Systems Commissioning and Integration Testing (SIT) Plans. The SIT Plan provides the roadmap for the way forward for systems integration to ensure that the systems elements are integrated and tested in a structured, managed, comprehensive manner that enables MFACC/ NYCT to confirm that the SAS system installation is “built-up” on a segment-by-segment basis and is compliant with the SAS plans and specifications. The plans will be developed based on the MTA Capital Construction Guidelines for a Systems Commissioning and Integrated Test Plan.

During the 4th Quarter 2012, field surveys for Signals, Track and Traction Power continue in the existing 63rd Street, 72nd Street, and 96th Street Station areas.

h. Project Schedule

Completion of construction activities during the 4th Quarter 2012 continues to support MFACC's forecasted Revenue Service Date of December 30, 2016 (see Table 1 below).

Table 1: Summary of Critical Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007 A	March 20, 2007 A
Construction Complete	December 31, 2013	October 25, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

i. Project Budget/ Cost

No additional Federal Funds were obligated to the MTA for the SAS Phase 1 Project during the 4th Quarter 2012. Total Federal Funds obligated to date is \$1,063,942,000.

Table 2: Project Budget/Cost Table 

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of December 31, 2012	
	\$ Millions	% of Total	Obligated (\$ Millions)	TBD	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost:	4,866,614	100	4,572,942		5,267,614	100	2,088,248	39.64
Financing Cost	816,614	16.78			816,614	15.50		
Total Project Cost:	4,050,000	83.22	4,572,942		4,451,000	84.50	2,088,248	39.64
Total Federal:	1,350,693	27.75	1,063,942		1,350,693	24.60	651,989	12.38
Total FTA share:	1,300,000	96.25	990,049		1,300,000	23.68	587,737	11.16
5309 New Starts share	1,300,000	100	990,049		1,300,000	23.68	587,737	11.16
Total FHWA share:	50,693	3.75	73,893		50,693	0.96	64,252	1.22
CMAQ	48,233	95.15	71,433		48,233	0.88	61,792	1.17
Special Highway Appropriation	2,460	4.85	2,460		2,460	0.04	2,460	0.05
Total Local share:	2,699,307	55.47	3,509,000**		**3,509,000	63.92	1,436,259	27.26
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 MTA'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 4th Quarter 2012 have been summarized as follows:

<i>Decrease</i>	<i>Increase</i>
<ul style="list-style-type: none">• <i>Received favorable bids for the C4C construction package.</i>	<ul style="list-style-type: none">▪ <i>Unresolved delay to structural steel erection at the 63rd Street Station (C3) as well as other apparently unrelated delays to construction</i>

MONTHLY UPDATE

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

ELPEP SUMMARY

Status:

With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCO):** The PMOC completed its review of the SAS PMP. MIACC has addressed all FTA/PMOC comments and reissued the PMP as Revision 8.1. Candidate Revisions for the next PMP update are being developed with an updated PMP anticipated by early 2013.
- **Schedule Management Plan (SMP):** The PMOC continues to monitor and verify SAS substantial compliance with the SMP.
- **Cost Management Plan (CMP):** The PMOC continues to monitor and verify SAS substantial compliance with the CMP.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** *On February 2, 2012, the FTA/PMOC consolidated comments on the SAS Risk Management Plan were forwarded to the MIACC. PMOC recommendations regarding approval were forwarded to FTA.*
- **Conformance and Compliance Demonstration:** *A Compliance Checklist was distributed and reviewed at the ELPEP Meeting of September 12, 2012.*

Observation:

The SAS Project Team has implemented the majority of the principles and requirements embodied in the ELPEP. The procedural changes initiated by the ELPEP have become an integral part of the management of the project.

Specific observations with respect to compliance of one or more of these plans are discussed in the appropriate section of this report.

Concerns and Recommendations:

Development of formal implementation verification and reporting process for each of these ELPEP elements should be given priority. The verification process will ensure that all benefits associated with the ELPEP are realized to the greatest extent possible.

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

During the 4th Quarter 2012, MFACC continued to demonstrate that it possessed the technical capacity and capability to execute the project through:

- *Implementing fundamentally sound decisions based upon a set of integrated project controls and a complete consideration of applicable risks and impacts.*
- *Effective management of project scope, schedule, budget and product quality.*
- *General compliance with policies, plans and procedures which govern and guide the execution of the project.*
- *Documentation of all relevant activities and actions.*

Observation:

Positions which must be filled in the immediate future include:

- *Field construction staff for C4C and C5C*
- *Replacement for the C3 Construction Manager*

There were no significant changes during the 4th Quarter 2012 which materially affected the SAS Project Team or its ability to execute this project.

Concerns and Recommendations:

None.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

During the 3rd Quarter 2012 Revision 8.1 of the SAS PMP was issued to address FTA/PMOC review comments associated with Revision 8. Any additional enhancements to the PMP will be per the Candidate Revision process and is anticipated to occur in the summer of 2013.

Observation:

The SAS PMP and its sub-plans are a comprehensive set of documents which provides an effective process in managing the SAS Project.

Concerns and Recommendations:

None

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

Status:

MFACC continues to utilize the ELPEP and its various sub-plans in management of the FFGA

Observation:

Because the baseline cost and schedule have been exceeded, FTA and MTAACC have started the process of amending the FFGA. Various documents have been submitted to FTA Region II for review.

Concerns and Recommendations:

None

c) Grantee's Approach to Force Account Plan

Status:

Expenditure through the 4th Quarter 2012 is \$3,598,552 of the \$43,000,000 budget. The majority of the expenditure, \$3,227,494 is still associated with the 63rd Street/Lexington Avenue Station Restoration Contract (C3).

Observation:

The Force Account requirements are documented in the SAS Force Account Plan. The plan gives a description and a cost estimate of the NYCT services required for the design of the track and signal elements of the system and to support construction activities for each individual contract. The Force Account budget will be reviewed and updated as required as part of Revision 10 to the SAS Cost Estimate.

Concerns and Recommendations:

None

d) Grantee's Approach to Safety and Security Plan

Status:

Each construction contractor continued implementation of its Safety, Security and Health Programs during the 4th Quarter 2012. First aid, recordable and lost time incidents were reported and corrective action taken to address deficiencies and negative trends.

The SAS Project Safety Team (CCM and OCI P 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 cost associated with implementing FTA's Drug and Alcohol Regulation (49 CFR 655.40) is being finalized. Additional Work Orders (AWOs) which address the scope of the regulation are being negotiated with each construction contractor.

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 requirements for the contractor's security program are delineated. The section 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). The Monthly Project Wide Safety Meeting is a good forum in providing "Lessons Learned" in order to benefit the entire project.

Concerns and Recommendations:

None

e) Grantee's Approach to Asset Management

Status:

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

Observation:

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

Concerns and Recommendations:

None

f) Grantee's Approach to Community Relations

Status:

During the 4th Quarter of 2012, Community Liaisons held monthly Construction Advisory Committee meetings and continue to follow up on issues raised by resident stakeholders. Distribution of outreach materials such as monthly newsletters, website updates, and brochures are ongoing. The 96th Street Station Area material is also being translated into Spanish since 60% of the residents in that part of the SAS corridor primarily speak Spanish at home. The MFAACC's development of a Community Information Center at 1628 Second Avenue is ongoing

Observation:

The MFAACC'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:

The PMOC recommends MFAACC update its Project Management Plan (Revision 9) with a more comprehensive plan for construction phase community relations going forward, including an overall execution plan and proposed scope of activities. This update is forecast for mid-2013. [Ref: SAS-22-Jun 12].

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

a) Federal Requirements

Status:

During the 4th Quarter 2012, MTA continued its grant management process by issuing monthly financial reports and updating the Transportation Electronic Award Management System (TEAM)

Observations:

None

Concerns and Recommendations:

None

b) Uniform Property Acquisition and Relocation Act of 1970

Status:

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

Observation:

None

Concerns and Recommendations:

None

c) Local Funding Agreements

Status:

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

Observation:

None

Concerns and Recommendations:

None

1.2 Project Controls

1.2.1 Scope Definition and Control

Status:

During the 4th Quarter 2012, there has been no material change in the scope of the SAS Project. Specific elements of the project have been transferred among construction packages to avoid delay and minimize additional cost to the project. The scope of the SAS Project is defined by the FEIS, ROD and the FFGA. The project scope will be delivered via ten (10) construction packages, with support from NYCT for rail systems engineering installation and overall operating systems inspection and testing.

Observation:

None

Concerns and Recommendations:

None

1.2.2 Quality

Status:

Implementation of the Quality Management System as defined in the contract specification is ongoing. Quality control activities are being performed by the contractors per their Contractor's Quality Plans (CQP). The MFACC's SAS Quality Managers and Project Quality Managers are performing quality assurance activities. *The next meeting with the SAS Quality Manager, his four Project Quality Managers, and the PMOC will be held on February 8, 2013. The purpose of this meeting is to determine if there are any trends with quality issues within each contract and/or among the C2A, C2B, C3, C4B, C5B, and C6 contracts. Among the topics to be discussed at the February 8, 2013 meeting will be updates to the following two issues that were identified during the first meeting that was held on November 16, 2012:*

- **C2B:** *Familiarity with the quality requirements of the specification is a concern. In some instances Quality Work Plans (QWPs) are being submitted by the contractor's quality manager after the work has started. To address this concern, quality requirements will be stressed during the Job Progress meeting and the Monthly Quality Management meeting that will be held on January 16, 2013. Submittal of Quality Work Plans will be scheduled as part of the contractor's six-week look-ahead.*
- **C4B:** *MFACC inspectors were not notified by the contractor to witness the waterproofing application in a timely manner. This issue was discussed at the December 18, 2012 Monthly Quality Management meeting and the SAS C4B Quality Manager reports that the situation has improved.*

Observation:

Resolution of NCRs is an ongoing process on all active construction projects, albeit, with varying levels of achievement. Updating the status of Packages C1 and C4B includes:

Contract Package C1	
Status:	<p>There were 40 NCRs written on the C1 contract. 16 of the involved concrete installation involving the following structural elements:</p> <ul style="list-style-type: none">• Invert Slab – seven NCRs• Slurry wall – five NCRs• Concrete Tunnel Liner Arch – four NCRs
Observation:	<p>Of the 40 NCRs written on the C1 contract, four are still open. <i>For two of the NCRs, the C1 contractor has to coordinate with the C5B contractor. They are using a new grout that was approved by the designer, AA. Repair is expected to be completed by January 18, 2013. All four NCRs should be closed by the end of January 2013.</i></p>

Contract Package C1	
	<p>The status of the 16 involving concrete installation is as follows:</p> <ul style="list-style-type: none"> • Invert Slab – None of the seven NCRs are still open • Slurry wall – Two of the five NCRs are still open • Concrete Tunnel Liner Arch – None of the four NCRs are still open
Concerns and Recommendations:	<p>Contract C1 has been Substantially Complete since March 2012. The Contractor has demobilized and has a limited presence on site. The SAS Project Team continues to emphasize the closure of the remaining NCRs and has reduced the number of open NCRs to four. The PMOC recommends that the SAS Project Team continue their efforts to close these remaining four NCRs.</p>
Contract Package C4B	
Status:	<p>The independent test lab for the C4B contractor did not follow the ASTM reporting format when submitting concrete break reports, e.g., the reports did not identify concrete mix identification and failures after seven days.</p>
Observation:	<p>To assure consistency in reporting, the SAS CCM requested at the August 28, 2012 Monthly Quality Management Meeting that the C4B contractor invite a representative from the independent test lab to the next monthly meeting. There was no representative from the independent test lab at the September 25, 2012 meeting. The October 30, 2012 Monthly Quality Management Meeting was postponed until November due to Hurricane Sandy. At the November 27, 2012 Monthly Quality Management Meeting the SAS C4B Quality Manager again requested that a representative from the C4B's independent test lab be invited to the next monthly meeting. <i>The contractor agreed and will invite a representative to the next meeting on January 29, 2013.</i></p>
Concerns and Recommendations:	<p>The PMOC is concerned that a representative from the C4B's independent test lab has not yet attended a Monthly Quality Management Meeting and will continue to keep this issue open until it is resolved.</p>

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, 2007 A	March 20, 2007 A
Construction Complete	December 31, 2013	October 4, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

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

Observation:

The Revenue Service Date (RSD), as forecast by Update #77 of the MIACC's Integrated Project Schedule (IPS), has remained December 30, 2016. For the 4th Quarter 2012, the calculated completion of Phase 1 construction and testing is October 4, 2016, with 90 calendar days (CD) of schedule contingency when measured against the MIACC's target RSD of December 30, 2016.

MIACC continues to review, refine and adjust the IPS based upon receipt of contract or construction schedules and in response to the impact of construction delays and interaction with external stakeholders.

Concerns and Recommendations:

The SAS Project Team continues to demonstrate its capability and capacity to actively manage the project schedule. No concerns were identified this period.

1.2.4 Project Budget and Cost

Status:

Total project cost in the approved FFGA is \$4,866,614,000 and is allocated into the Standard Cost Categories (SCC) as shown below in Table 1-1.

Table 1-1: Standard Cost Categories


Standard Cost Category (SCC) #	Description	Year of Expenditure \$000
10	Guideway & Track Elements	612,404
20	Stations, Stops, Terminals, Intermodal	1,092,836
30	Support Facilities: Yards, Shops, Admin Bldgs.	0

Standard Cost Category (SCC) #	Description	Year of Expenditure \$000
40	Site Work & Special Conditions	276,229
50	Systems	322,707
60	ROW Land, Existing Improvements	240,960
70	Vehicles	152,999
80	Professional Services	796,311
90	Unallocated Contingency	555,554
Subtotal		4,050,000
Financing Cost		816,614
Total Project		4,866,614

Table 1-2 lists the associated grants in the Transportation Electronic Award Management (TEAM) System with respective appropriated, obligated, and disbursed amounts as of December 31, 2012. No additional Federal Funds were obligated to the MTA for the SAS Phase 1 Project during the 4th Quarter 2012. Total Federal Funds obligated to date is \$1,063,942,000.

Table 1-2: Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru December 31, 2012
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	\$27,789,674
NY-03-0408-08	\$197,182,000	\$197,182,000	0
NY-03-0408-09	\$186,566,000	Pending	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$41,088,058
Total	\$1,250,508,200.00	\$1,063,942,200.00	\$651,988,932.00

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

A total of \$2,088,248,072 has been expended on the project through December 31, 2012, of which \$436,360,581 has been spent on design and \$1,107,322,000 on construction (MIAACC's December 2012 Cost and Schedule Summary Input).

Observation:

Local funds totaling \$1,436,259,140 (\$2,088,248,072 – \$651,988,932) have been spent as of December 31, 2012.

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.

Active risks are reviewed at the monthly Risk Management Meeting. The risk register is updated quarterly. Risks that have been realized or that do not pose a short-term threat to project cost or schedule may be deferred for future consideration. There is no established methodology for selecting risks from the register for more detailed review at the monthly Risk Management Meeting.

Concerns and Recommendations:

The PMOC recommends selection criteria be developed and used to choose a subset of “major” risks from the register for review at the monthly Risk Management Meeting. Use of objective selection criteria would ensure all risks exceeding specified limits would be periodically reviewed.

1.2.6 Project Safety and Security

Status:

Safety – The OSHA Lost Time Accident Rate and Recordable Accident Rate from the start of construction until November 30, 2012 are 2.17 and 5.50, respectively. Both rates showed an improvement from the previous reporting period. The Lost Time Accident rate is below the national average of 2.2 and the Recordable Accident Rate is above the national average of 3.8. The cumulative construction time worked since the project inception is 4,797,455 hours. Total lost time injuries since project inception is 52 and other recordable injuries are 80.

Security – Implementation of the Contractor's Site Security Plans are ongoing. During the 4th Quarter 2012, no security incidents were noted.

Observation:

The Recordable Accident Rate for the 72nd Street Station Cavern Mining Contract G 26007 (C4B) is 8.56 and is driving the project rate above the National Average. Although the November 2012 rate is above the National Average it has shown a decline over the last four reporting periods. The decline suggests the corrective action plan implemented by the contractor is starting to work.

Concerns and Recommendations:

None

1.3 FTA Compliance

On September 27, 2012, MTA ACC transmitted SAS PMP Revision 8.1, which incorporates all FTA/PMOC comments to date. A log of “Candidate Revisions” for PMP Revision 9, is being maintained.

The SAS Project Team has substantially complied with ELPEP and its associated sub-plans throughout the 4th Quarter 2012. Any non-compliance issues are specifically discussed in Section 4.4 (Schedule), Section 5.4 (Cost Contingency) and Section 6.3 (Risk Management Status) of this report.

1.3.1 FTA Milestones Achieved

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

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.

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:

None.

2.1.2 Procurement

Status:

Updated procurement status includes:

- *C26011 (C4C): 72nd Street Station Finishes & MEP Package – Construction bids for this package were received by MTAACC on December 18, 2012, at 2:00 PM*
- *C-26012 (C5C): 86th Street Station Finishes & MEP Package – advertisement for construction bids was scheduled for December 27, 2012, with contract award targeted for a date not later than May 24, 2013. As of the writing of this report, this bid document had not been made available.*

Observations and Analysis:

The C4C bid package requested that contractors provide pricing for a base bid and a total of four (4) options. Bids received for Construction Package C4C (base bid plus all four options) are summarized as follows:

1. Judlau Contracting Inc.	\$258,353,000 (APPARENT LOW BIDDER)
2. Skanska USA Civil NE/Rail Works JV	\$268,880,000
3. 72 nd Street Constructors, JV	\$274,056,167
4. Tutor Perini/Gtndta	\$285,427,000
5. Kiewit Infrastructure	\$315,795,000

The apparent low bid compares favorably to the MTAACC Engineer's Estimate of \$271,838,619. MTAACC has established a target date of February 4, 2013 for the award of this contract package.

Concerns and Recommendations:

Contemporaneous reporting by the SAS Project Team indicates that the 86th Street Finishes and MEP Package (C5C) was advertised on December 27, 2012. It should be noted that this did not represent the date when drawings and specifications were made available to construction contractors. As of the writing of this report (January 11, 2013) the C5C construction package was not listed under "Current Procurement Opportunities" on the MTA Capital Construction Procurement (MTAACC) web site. IPS Update #77 suggests that drawings and specifications would be available to contractors on January 4, 2013.

Although there is schedule contingency built into the C5C procurement, the PMOC is concerned about any delays to the procurement of this package due to its proximity to the project critical path

2.1.3 Construction

Status:

Eight (8) of the 10 construction contracts for the SAS Phase 1 Project have been awarded. Construction progress on the active contracts through December 31, 2012 includes:

Contract G-26002 (C1) – TBM Tunnels from 92nd Street to 63rd Street

- *Substantial Completion was achieved on March 30, 2012 and contract closeout is ongoing*
- *Time Impact Cost for two additional work orders are being finalized with the contractor.*
- *Final As-Built Drawings have been submitted and are being reviewed by Construction Manager's office.*
- *Contractor is currently re-surveying the tunnel in order to revise the previously submitted tunnel alignment as-built drawings.*
- *Acceptance by the User Group (NYCT) is pending resolution of Non Conformance Reports and a final walkthrough in the tunnel.*
- *Final Acceptance letters are awaited from third-party agencies.*

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

- *Completed approximately 35% of the mass excavation, which includes spoils disposal from the main station box, Entrance #1, 2, and 3 and Ancillary 1 and 2*
- *Excavation in the zone identified as containing contaminated material from a former Manufactured Gas Plant (MGP) started on November 5, 2012. Completed approximately 40% of the MGP spoils excavation beneath the 2nd Avenue decking at the Metropolitan Hospital Center north entrance between 97th and 99th Street.*
- *Concrete for the structural base of the station is 19% overall complete (7 of 37 invert slab pours inside the former TBMLaunch box are complete).*
- *Thirteen (13) of 17 jet grout columns at Entrance #1 were completed*

- Completed 100% of the cap beam, deck beam and deck panel installation on the East side of 2nd Avenue between 95th and 99th Streets.
- Completed 7 of 20 micro-piles at Entrance #1.
- Continued to install water main hangers under the 2nd Avenue deck beams between 95th Street and 98th Street.
- Completed W27 and W28 slurry wall panel repairs with temporary shoring of the steel girders that spans these panels.
- Completed installation of the diaphragm slab at Ancillary #1.
- Completed tier 1 and 2 steel Support of Excavation (SOE) bracing at Ancillary #2.
- Continued to apply shotcrete to the secant pile steel SOE within the former TBML launch box south of 94th Street.
- Continued to prepare for the demolition of the bulkhead at 95th Street.
- Time Impact Analysis (TIA) is being developed that addresses the difference in time between the adjusted Contract date of April 22, 2013 and the forecast date of July 2, 2013 date, the Contractor will be put on notice to recover all non-excusable time. It should be noted that the delays above have no impact to the SAS program schedule.

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

- The Contractor completed lead abatement along the column bays between 99th and 105th streets inside the existing SAS tunnel. Continued to perform lead abatement on the steel columns and girders within the 105th Street substation area.
- Completed installation the secant piles (8) and concrete piers (10) at Entrance #2 (94th Street and 2nd Avenue)
- Continued shotcreting of the walls in the former TBML launch box (south of 93rd Street.)
- Resolution of intrusions left in wall face by S3 is ongoing.
- Started demolition of high/low benches within the existing tunnel but encountered lead paint on the steel columns encased in concrete. NYCT issued revised lead placard to continue with this activity.
- Started to set up office trailer complex at the southeast corner of 97th Street and 2nd Avenue.

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

- Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
- Quality
 - Special Inspections continue at the structural steel plant in Ohio and at the delivery trucks upon arrival. The contractor continues to send a representative to the plant on a regular basis.

- *Schedule*
 - *MFACC has approved the contractor's updated recovery schedule. The Project Office reported to the PMOC that the recovery schedule shows the ability to recover approximately 30 days of the previous 89 days of delay. MFACC and the contractor concur that the remaining approximate 59 days cannot be recovered.*
 - *The contractor has confirmed that the 3 weekend street closures, on E 63rd St., for the crane at Ancillary #1 will begin the weekend of February 9-11, 2013.*
- *Structural Steel*
 - *During this period the contractor once again suspended the swing shift due to a reported lag in available steel fabrication/supply. This is reflected in the Project Offices' December 2012 steel tracking summary. Between October and November 2012 steel installation was 95 pieces. Installation for December 2012 slipped to 76 pieces.*
 - *As of December 31, 2012, in Area 5, 596 pieces had been installed versus the 805 planned (100%), and represents 74% of the total. Having missed the scheduled completion date for Area 5 steel (December 15), the contractor and MFACC agreed on an extended date for completion of Area 5 steel erection to February 16, 2013. To achieve this goal there must be an average of 34 pieces erected per week.*
 - *Bolt torquing continued and is staying ahead of the mezzanine floor slab placement.*
 - *The contractor's upper management and MFACC upper management continue to meet regularly on the schedule and increasing production, particularly steel fabrication.*
- *Area 5*
 - *Continued with temporary and permanent structural steel fabrication & erection at the 4th & 5th Mezzanines. The Area 5 reconstruction consists of 6 Mezzanines and the Plaza deck/roof.*
 - *Continued with temporary decking on 4th Mezzanine.*
 - *Continued with concrete stairs #201 & #202.*
 - *Continued with placement of concrete floor slab at the 1st Mezzanine.*
- *Entrance #1*
 - *Began installation of micro-piles.*
 - *Began joist strengthening and temporary shoring.*
 - *Began demolition of floor openings.*
- *Ancillary #1*
 - *The NY DOB permit for the existing building (Hans Garage) has been issued. The contractor began auguring and placement of mini-piles in the garage basement. An access ramp has been installed from the street across the elevator shaft to the basement for materials and equipment access.*

- *The 3 weekend street closures on 63rd St. between Lexington and Park will begin February 9, 2013, from the previous January 2013, due to Hurricane Sandy.*
- *Platforms*
 - *Continued with Service Carrier and conduit installation at G3 & G4 level.*
 - *Continued with application of intumescent paint to girders and wailers.*
 - *Water leaks along the Upper Platform are preventing continuation of intumescent painting.*
- *Fan Plants*
 - *Completed Stair 601 in West Fan Room*
 - *Continued water mist lines in West Fan Room*
 - *Continued installation of conduit for power to equipment in the East Fan Room*
 - *Continued duct work in the East Fan Room*

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

- *Contractor is currently working 2 shifts (7:00 AM to 10:00 PM) Monday thru Friday in the caverns, tunnels, and surface operations/rock excavation under the decking on the northwest corners of 69th and 72nd Street, and southeast corner of 72nd Street. Excavation of the underground cavern/tunnels is complete. Total rock excavated is approximately 176,387 Bank Cubic Yards (95.5% total to date.*
- *Underground Operations*
 - *73rd to 69th Street along 2nd Avenue: Installation of drainage, reinforcement for invert slabs, permanent concrete invert slabs, and waterproofing currently ongoing in the Main Cavern. Preparation for Arch installation in the North Crossover Cavern ongoing.*
 - *South of 69th Street: The North End wall of the Stub Cavern has been completed. Invert clean up in preparation for waterproofing of the invert ongoing at the East TBM Tunnel. Rebar installation for the concrete invert has commenced in the South Crossover Cavern.*
- *Surface Operations: Excavation by Means of Blasting*
 - *Ancillary #2: Contractor is at a depth of 61 feet from the top of decking (78.9% complete). Approximately 29 feet remain. Blasting is expected to continue through February 2013.*
 - *Ancillary #1: Contractor is at a depth of 71 feet from the top of decking (71.0% complete). Approximately 29 feet remain. Blasting is expected to continue through January 2013.*
 - *Entrance 3 Construction: Contractor is at a distance of 60 feet from the top of decking (66.7% complete). Approximately 30 feet remain. Blasting is scheduled to continue through January 2013.*
- *Building remediation ongoing at 1405 2nd Ave.*

Contract G-26013 (C5A) 86th Street Station Excavation, Utility Relocation and Road Decking

- *Substantial Completion was achieved on November 16, 2011.*
- *Coordination with the Office of Civil Rights (OCR) is ongoing to obtain DBE/ WMBE compliance letter which is required prior to final payment.*
- *Awaiting acceptance letters and final invoices from Con Edison and ECS.*
- *Final position letter for AWO #27 was submitted to JDSI for acceptance which was prepared after coordinating with Procurement & MTACC Legal. Time Impact Costs under AWOs #59 and #84 are under Audit and Procurement review*

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

- *Work continued with 3 shifts.*
- *Rock bolting and shotcrete follow the progression of rock excavation.*
- *Both north and south caverns are “shooting” every day.*
- *All surface operations end at 10:00PM daily.*
- *Both North and South Cavern mining progressed towards fully opening the entire cavern area from Ancillary #1 to Ancillary #2*
- *North Shaft Area*
 - *Horizontal mining in the cavern, going south continued with development of the top heading, rock bolting and initial shotcrete applications in the Public Cavern.*
 - *Continued rock excavation to Ancillary #2*
 - *Continued mining the access tunnel to the elevator shaft.*
- *South Open Cut Area*
 - *In the South Open Cut Area/ Ancillary #1 completed ramp mining to the invert of the intermediate bench in the south end of the Public Cavern.*
 - *Continued rock bolting and initial shotcrete application.*
 - *Began preparations for blasting/rock excavation to the access to Entrance #1.*
 - *Continued mechanical rock excavation of Entrance #1 in the building garage basement.*
- *Ancillary #1*
 - *Rock excavation at the Ancillary #1 portion of the South Open Cut has been temporarily leveled off at approximate Elevation 90.*
- *Ancillary #2*
 - *Completing mechanical rock excavation at approximate Elevation 114, and beginning preparations for blasting*
- *Entrance #1*
 - *Continued mechanical rock breakup, excavation and rock bolting*

- *Entrance #2*
 - *Continued drilling and rock excavation at the elevator shaft.*
 - *Began preparations to stop top-down rock excavation, close street opening and move MPT on E 186th St. to the north side to focus on the Entrance #2 Support of Excavation (SOE) wall.*
- *Rock Excavation (for the week ending December 31, 2012)*
As reported to the PMOC by the MTACC C-26008 Project Office
 - *Total rock (estimated) for complete project – 154,623 BCY*
 - *Total rock excavated to date – 74,850 BCY (48.4%)*
 - *Summary by Area (3 areas have not begun rock excavation):*
 - North Cavern – 55,686 BCY (total); 30,720 BCY (to date); 55.2%*
 - South Cavern – 54,302 BCY (total); 32,132 BCY (to date); 59.2%*
 - Ancillary #1 – 11,725 BCY (total); 6,041 BCY (to date); 51.5%*
 - Ancillary #2 – 4,830 BCY (total cut & cover); 2,705 BCY (to date); 56%*
 - Ancillary #2 – 7,480 BCY (total from cavern); 1,182 BCY (to date); 15.8%*
 - Entrance #1 – 1,990 BCY (total from cut & cover); 652 BCY (to date); 32.8%*
 - Entrance #2 – 14,237 BCY (total from cut & cover); 746 BCY (to date); 5.2%*
 - Entrance #2 – 2,573 BCY (total from cavern); 672 BCY (to date); 26.1%*
 - *The tracking of total rock excavation (actual) from April 6, 2012 through December 31, 2012 vs. planned excavation shows the cumulative rock excavation production to date to be approximately 2 weeks ahead of the baseline schedule. This reflects a continued increase in the production of rock excavation in the south cavern*

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

- *Contractor continued submission and review of submittals under contract and coordination of shop drawings by Stations Contractor to avoid conflict during installation*
- *MTACC approved key contractor personnel including System Integration Manager, Environmental Manager, and Site Security Manager.*
- *The Contractor continues survey for the track, traction power, signals and communications work*
- *MTACC conditionally accepted Detailed Cost Breakdown.*

Observations:

Key elements of work or issues requiring resolution in the near future to avoid delays to the work are described below.

For Contract C2A

- *Resolution of launch box open issues from Contract 1 and completion of PVC waterproofing work in lieu of pre-proof waterproofing*

For Contract C2B:

- *Approval of Contractors Detailed Baseline Schedule and completion of negotiations of AWO for PVC waterproofing*

For Contract C3:

- *Structural steel fabrication and erection progress has been an area of concern for several months. A summary of recent progress based on the number of pieces of steel either fabricated or erected includes:*

<i>Date</i>	<i>Steel Erection (# Pcs.)</i>			<i>Steel Fabrication (# Pcs)</i>		
	<i>Installed</i>	<i>Total %</i>	<i>Period %</i>	<i>Fabricated</i>	<i>Total %</i>	<i>Period %</i>
<i>7/27/12</i>	<i>145</i>	<i>18%</i>	<i>18%</i>	<i>250</i>	<i>31%</i>	<i>31%</i>
<i>8/31/12</i>	<i>252</i>	<i>31%</i>	<i>13%</i>	<i>400</i>	<i>50%</i>	<i>19%</i>
<i>9/28/12</i>	<i>347</i>	<i>43%</i>	<i>12%</i>	<i>440</i>	<i>55%</i>	<i>5%</i>
<i>10/31/12</i>	<i>425</i>	<i>53%</i>	<i>9%</i>	<i>545</i>	<i>68%</i>	<i>13%</i>
<i>11/30/12</i>	<i>520</i>	<i>65%</i>	<i>12%</i>	<i>615</i>	<i>76%</i>	<i>9%</i>
<i>12/31/12</i>	<i>596</i>	<i>74%</i>	<i>9%</i>	<i>644</i>	<i>80%</i>	<i>4%</i>
<i>Total Pieces of Steel = 805</i>						

- *During October 2012, the contractor suspended the second shift and experienced a significant drop in erection production. This appears to reflect the significant drop in fabrication amounts in September 2012. Steel delivery was severely delayed briefly during the period of Hurricane Sandy, but the contractor resumed the 2nd shift work in November 2012 and experienced a noticeable increase in erection production. However a repeat in reduced fabrication totals resulted in the contractor once again suspending the 2nd shift during December 2012.*

The PMOC has also observed that since the late November 2012 revisions to the original schedule for completion of Area 5 steel erection in mid-December to February 16, 2013 the contractor's erection totals have again slipped behind the weekly planned goals.

For Contract C4B

- *Resolution of Access Agreement at 301 E 69th Street and 1322 2nd Avenue.*
- *Recovery of Milestone #1 and Substantial completion required by contractor.*

For Contract C5B

- *The schedule mitigations undertaken at the Entrance #2 work zones (proceeding with rock excavation at the elevator shaft ahead of schedule to mitigate Con-Ed utility delays) and the increased production with rock excavation in the South Open Cut/Ancillary #1 caverns has taken the rock excavation work noticeably ahead of schedule.*

For Contract C6:

- Resolution of embedded conduit – part of contract or not.
- Ongoing review of 63rd and 96th Street Station contractor's shop drawings for coordination and to avoid conflicts during field installation.

Concerns and Recommendations:

The SAS Project Team continues to identify, prioritize and address construction problems which have the potential to delay the project. Problems involving steel fabrication and erection at the 63rd Street Station have reportedly been addressed; however, progress reporting received this period does not indicate any improvement in the situation. The PMOC is concerned with the amount of time this has been an open issue and the issue's potential to create schedule consequence that may impact other elements of the project.

2.1.4 Force Account (FA) Contracts

Status:

As of December 31, 2012, the force account expenditure has reached \$3,598,552 of the \$43,000,000 budget. The majority of the expenditure \$3,227,494 is still associated with 63rd Street/Lexington Avenue Station Restoration Contract (C3).

Observation:

Force account labor is being provided by NYCT. The principal source of force account expenditures are for general orders, work trains, and flagging support for the modification of the 63rd Street/Lexington Avenue Station.

Concerns and Recommendation:

None

2.1.5 Operational Readiness

Status:

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

Observation:

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

Concerns and Recommendation:

None

2.2 Third-Party Agreement

Status:

During the 4th Quarter 2012, the SAS Project Team continued its Interagency Coordination as defined in Section 12 of the SAS PMP. MTACC, PB/CCM and contractors meet with Con Edison and ECS representatives bi-weekly to discuss and resolve utility related issues. Coordination with Verizon, DEP, NYCDOT, and NYC Fire Department is ongoing.

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. *As of December 31, 2012, third-party reimbursements totaling \$40,360,568 have been made. The total budget for third-party agreements is \$76,768,950.*

Concerns and Recommendations:

None

2.3 Contract Packages and Delivery Methods

Status:

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 4th Quarter of 2012.*

Table 2-1 below shows specific procurement procedures for each open construction contract package and its current status.

Table 2-1 Construction Procurement Method and Status

Pkg.	Contract	Description	Procurement	
			Type	Status
C4C	C-26011	72nd Street Station: construction of ancillary finishes, station finishes and MEP equipment.	IFB	<i>Bid Period</i>
C5C	C-26012	86th Street Station: construction of the ancillary facilities, station finishes and MEP equipment.	IFB	<i>Bid Period</i>

Observation:

By including several weeks of schedule float to the procurement schedule for the 72nd Street Station (C4C) finishes package. The SAS Project Team has significantly reduced the risk of delaying the contract award beyond the IPS date of February 4, 2013. A similar approach has been implemented for the C5C package.

Concerns and Recommendations:

By adding schedule contingency to the procurement process, MTACC has substantively addressed the PMOC's concern about delay during procurement and significantly reduced the risk of delays in the award of the remaining construction contracts.

2.4 Vehicles

Status:

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:

Delays in implementing cost-to-cure work resulting from real estate transactions is affecting construction progress at Entrance No. 1 of the 72nd Street and 63rd Street Stations. Technical and contractual work-around solutions that will not impact the overall project appear to be feasible at 72nd Street. However, the full impact of the problem at 63rd Street Station cannot be determined at this time.

Conclusions and Recommendations:

The impact of delays in obtaining access to perform utility relocation work adjacent to Entrance 1 at the 72nd Street Station continues to be a concern. MIACC has indicated there may be more than one option available to execute this work. The PMOC recommends the determination of the most advantageous option be expedited so full effort can be devoted to its implementation and completion.

2.6 Community Relations

Status:

During the 4th Quarter of 2012, Community Liaisons held monthly Construction Advisory Committee meetings and continue to follow up on issues raised by resident stakeholders. Distribution of outreach materials such as monthly newsletters, website updates, and brochures are ongoing. The 96th Street Station Area material is also being translated into Spanish since 60% of the residents in that part of the SAS corridor primarily speak Spanish at home. The MIACC's development of a Community Information Center at 1628 Second Avenue is ongoing.

Observation:

MIACC 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:

The PMOC has previously recommended that the community relations effort be more completely integrated 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. [Ref: SAS-26-Jun 12]. *This concern will be addressed as part of Revision 9 to the PMP. Item SAS-26-June 12 will be closed. (See Section 7 – Concerns and Recommendation).*

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

On September 27, 2012, MIACC resubmitted the SAS Project Management Plan as Revision 8.1. This revision fully incorporated all FTA/PMOC comments made to Revision 8, which was originally issued in January 2011.

Observation:

“Candidate Revisions” for SAS PMP Revision 9 are being assembled as issues are identified. Revision 9 to the SAS PMP is tentatively scheduled for initial distribution in the summer of 2013.

Concerns and Recommendations:

The PMOC is concerned that the project-specific processes specifically defined in the PMP as well as recently revised MIACC standard procedure referenced via the SAS PMP may not be consistently implemented across the SAS Project Team. The PMOC recommends that selected sections of the PMP be audited to verify complete and uniform implementation. [Ref: SAS-09-Jan10]

3.2 PMP Sub Plans

Status:

As part of the ongoing PMP review, the referenced Sub-Plans are reviewed to verify conformance of ongoing project activities with the appropriate governing document.

Observations:

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

Concerns and Recommendations:

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

The PMOC notes that the project work is transitioning from primarily excavation and temporary construction to permanent construction. As such, the importance of construction quality and the means by which delivery of a quality product is assured have been substantially elevated. The PMOC recommends a corresponding increase in quality-related reviews, audits and investigations to verify conformance with established quality processes and procedures.

3.3 Project Procedures

Status:

All procedures required for effective management of the SAS Phase 1 Project have been issued.

Observations:

The three additional procedures being considered are not required for the project to be compliant with the PMP.

Concerns and Recommendations:

The PMOC's concerns have been addressed with the issuances of procedure AD 15. Item SAS-11-Jan10 has been closed (See Section 7 – Concerns and Recommendations).

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, start up and other support activities. *IPS Update #77 was received on January 4, 2012 and is based on a Data Date of December 1, 2012. This update contained “.PDF” schedule reports for all remaining work, the critical/longest path, variance tabulation between Updates # 76 and 77, summary schedule and “.XER” schedule files for the IPS and all active construction contracts. The IPS still reflects the forecasted completion of all construction and NYCT Pre-Revenue Training & Testing activities by October 4, 2016, with 90 calendar days (CD) or 64 work days (WD) of contingency when measured against MTA’s target Revenue Service Date (RSD) of December 30, 2016.*

Table 4-1: Summary of Schedule Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007 A	March 20, 2007 A
Construction Complete	December 31, 2013	October 4, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

During the 4th Quarter 2012, progress was made on eight (8) active construction packages:

- C26002 (Tunnel Boring) – Substantially complete, closeout activities, *negotiation of outstanding change order requests (AWOs).*
- C26005 (96th Street Station – Heavy Civil) – *Construction continues.*
- C26010 (96th Street Station – Finishes) – *Mobilization and early construction activities.*
- C26013 (86th Street Station – Setwork) – Substantially complete, closeout activities.
- C26008 (86th Street Station – Heavy Civil) – Construction continues.
- C26006 (63rd Street Station) – Construction continues.
- C26007 (72nd Street Station – Heavy Civil) – Construction continues.
- C26009 (Systems – Track, Power, Signals and Communications) – *Engineering submittals, equipment procurement.*

Table 4-2: Summary Schedule Performance by Construction Package

Pkg.	Award Date	Contract S/C	Upd. #74 Forecast S/C	Upd. #77 Forecast S/C	% Complete	Contract Schedule Status	Quarterly Change
C1	3/20/07	7/20/10	3/20/12A	3/20/12A	97.0%	609 CD	0 CD
C2A	5/28/09	1/7/13	7/8/13	7/9/13	86.1%	183 CD	1 CD
C2B	6/22/12	11/25/15	11/25/15	12/22/15	3.1%	27 CD	27 CD
C3	1/13/11	5/13/14	9/18/14	10/22/14	33.1%	162 CD	34 CD
C4B	10/1/10	10/31/13	12/17/13	1/31/14	64.6%	92 CD	45 CD
C4C	Future	10/5/15	10/5/15	11/4/15	0.0%	30 CD	30 CD
C5A	7/9/09	1/7/11	11/16/11A	11/16/11A	100.0%	313 CD	0 CD
C5B	8/4/11	9/4/14	9/16/14	9/18/14	34.6%	14 CD	2 CD
C5C	Future	7/11/16	7/11/16	5/16/16	0.0%	-56 CD	-56 CD
C6	8/18/16	8/18/16	8/18/16	8/16/16	4.6%	-2 CD	-2 CD

1. "Future" contracts use M/ACC estimated dates based upon preliminary schedules.
 2. Monthly Change reflects schedule gain/loss over most recent reporting period. Negative sign denotes time gain and positive sign denotes time loss.
 3. The contracts marked as Future have not been awarded.
 4. C5A Substantial Completion achieved on November 16, 2011.
 5. C1 Substantial Completion achieved on March 30, 2012.

Observations and Analysis:

Schedule progress through the current update period (December 1, 2012) was adequate to support the forecast RSD of December 30, 2016.

- *C2A: The forecast Substantial Completion date slipped by 1 WD to July 9, 2013. The stability of the schedule combined with the high level of project completion suggests a low level of schedule risk associated with the completion of this package.*
- *C3: The construction schedule continues to experience delays. During the 4th Quarter 2012, the forecast substantial completion date was delayed by approximately one month to October 22, 2014. Overall this package experienced 34 CD of delay during a 92 CD reporting period.*
- *C4B: Substantial Completion slipped by 45 WD from December 17, 2013 to January 31, 2014. This contractor's tendency to work "out-of-sequence" has previously distorted schedule reporting and progress evaluation.*
- *C5B: Full operation of the north and south muck handling systems has been achieved. Recent reporting indicated rock excavation to be on or ahead of schedule. The package schedule was generally maintained this period, with a two day delay to substantial completion reported.*

At the request of the FTA, the PMOC has initiated quarterly tracking of major schedule activities and/or “milestones” that are in progress during that quarter as a means of reviewing and evaluating the project’s ability to achieve short-term schedule goals. Due to the one-month lag in reporting schedule update progress, the 4th Quarter 2012 baseline and intermediate results are published in this report and shown in the following table:

Table 4-3: Quarterly Schedule Target Comparison

Pkg	Act.	Description	Milestone Updates				
			Baseline	M 2	Baseline	Monthly	TF
			Δ	Δ			
4th Qr 2011 Tracking Milestones (Carryover)			1- Oct-11	1- Dec-12			
C3	LP025	Complete Demo – Lower Platform	31- May-12	14- Dec-12	197	28	295
1st Qr 2012 Tracking Milestones (Carryover)			1- Jan-12	1- Dec-12			
C3	005	Complete Sub/ App Struct. Steel Shop Dwgs	20-Jul-12	30-Jan-13	194	27	80
	A1010	Begin Demo - Ancil #1	2- May-12	21- Dec-12	233	22	399
	EN105	Begin Structural Work - Ent #1	22- May-12	23- Dec-13	580	74	59
	MZB05	Compl. Asbestos/ Lead Abatement - Fan Plant	27- Mar-12	7- Dec-12	255	21	277
	010	Begin Elevator Fab	7- Mar-12	3-Jan-13	302	51	192
C4B	C4B ENT12 00A	Contractor (Start) Cost to Cure Work	2- Mar-12	1- Feb-13	336	60	224
2nd Qr 2012 Tracking Milestones			1- Apr-12	1- Dec-12			
C2A	E105	Relocate MEP @ Rainbow Hardware (AWO98)	25-Jun-12	3- Dec-12	161	32	134
C3	MZC01/ MZC05	Asbestos/ Lead Abatement & Demo - Lower Mezz	27- Apr-12	27- Nov-12 A	214	19	
	MZ5001/010/015	Lead Abatement/ Demo - M->M6	10-Jul-12	7- Dec-12	150	29	150
C4B	72C1430	Start Main Cavern Invert FRP/S (Start)	24-Jul-12	7- Dec-12	136	-19	31
3rd Qr 2012 Tracking Milestones			1- Jul-12	1- Dec-12			
C2A	A126	Exc. Upper Level/Install Decking-Ancil. #1	27-Sep-12	30- Nov-12 A	64	3	
C3	UP001	Demo Upper Platform (Complete)	19- Aug-12	9- Dec-12	112	21	105
	MZC15	Structural Work Lower Mezz (Complete)	10-Sep-12	7- Dec-12	88	21	138
	MZ5020	Structural Work 2nd Mezz (Complete)	11- Oct-12	12- Dec-12	62	26	135
C4B	NCC1055	North X Over Invert FRP/S (Complete)	9- Oct-12	12- Oct-12 A	3	0	
C4C	25d	Bid Opening	27- Nov-12	18- Dec-12	21	7	32
C5B	S110b	South Cavern Exc. - Dev. & Top Heading (Complete)	12-Sep-12	28- Nov-12 A	77	13	
	S150	North Cavern Exc. - Dev. & Top	12- Oct-12	14- Nov-12 A	33	1	

			Milestone Updates				
Pkg	Act.	Description	Baseline	M 2	Baseline	Monthly	TF
		Heading (Complete)			Δ	Δ	
	E245	Ent #2 South SOE/ Decking (Complete)	27-Sep-12	5-Oct-12 A	8	0	
	E120	Ent #1 Underpinning (Complete)	13-Sep-12	27-Oct-12 A	44	0	
C5C	20k	Authorization to Advertise	27-Nov-12	21-Dec-12	24	14	20
4th Qr 2012 Tracking Milestones			1-Oct-12	1-Dec-12			
C2A	6S235	Pour Invert + Embedded MEP 93-95 (MS#2)	28-Dec-12	18-Dec-12	-10	20	197
	A126	Exc. Upper Level/Inst. Decking; Anc. #1	8-Nov-12	30-Nov-12 A	22	3	
	M2-STA	Milestone 2 - 92nd - 95th Complete	28-Dec-12	18-Dec-12	-10	20	197
	A129	Inst. Tier 2 Bracing & Exc to Tier 3 - S 6A	27-Dec-12	9-Jan-13	13	12	91
C2B	403	Complete Tunnel Lead Abatement	16-Nov-12	28-Dec-12	42	42	315
	415	Fireproof Steel	21-Feb-13	2-Apr-13	40	32	370
C3	LP010	Conc Stairs & Wall - Lower Platform Area 6	30-Nov-12	18-Dec-12	18	-8	394
	UP045	Reframe Steel/ Construct Platform	29-Nov-12	9-Jan-13	41	23	374
	MZB25	Structural Work-East Fan Plant	20-Dec-12	9-Jan-13	20	6	277
C4B	72CNI430	Main Cavern North S/n Invert F/R/P/S	4-Dec-12	16-Nov-12 A	-18	-18	
	G3S11140	G3/S1 Cavern II Wall F/R/P/S	13-Dec-12	4-Dec-12	-9	32	178
	NCC1070	North Crossover Wall F/R/P/S	30-Nov-12	15-Jan-13	46	32	114
	G4T1020	G4 TBM Tunnel Invert F/P/S	4-Dec-12	10-Jan-13	37	28	82
C4C	25d	Bid Opening(w contingency)	27-Nov-12	18-Dec-12	21	7	32
C5B	S150	North Cavern Exc - Dev. & Top Heading	5-Nov-12	14-Nov-12 A	9	1	
	XP1S110	South Cross Passage- Conc Lining	13-Dec-12	7-Dec-12	-6	-13	179
C5C	20j	Final Sign Off - DM	16-Nov-12	30-Nov-12 A	14	-3	
	20m	Advertise (for bids)	4-Dec-12	3-Jan-13	30	16	19
C6P	150	Traction Power SS & CBH Design	23-Nov-12	28-Dec-12	35	30	7
C6T	160	Track & SWP Design	4-Jan-13	3-Apr-13	89	30	129

Summary	
# Calendar Days Elapsed	61
Average Δ from Baseline - all activities	89
Average Δ from Baseline - completed activities	43
Average Δ from Baseline - ongoing activities	104
4th Qr. Milestone Summary	
# Activities Forecast this Qr.	20
# Activities forecast to complete this Qr.	18
# Activities completed this Qr.	4
# Activities on/ahead of schedule	5
# Activities behind schedule	11
Average Δ from Baseline (CD)	21
Average Monthly Δ (CD)	15
Avg TF - Open Activities	185
Carryover Milestone Summary	
# Activities Carried Over	22
# Activities forecast to complete during/before this Qr.	22
# Activities completed this Qr.	7
# Activities on/ahead of schedule	0
# Activities behind schedule	15

Concerns and Recommendations:

Based on the sampling of activities in the Milestone Summary, the PMOC notes the following:

- Construction package C3 continues to experience significant delays on a wide range of activities. C3 activities contained in this sampling typically made no schedule progress during December 2012 (Monthly Δ).
- Most of the activities in this sampling have sufficient schedule float to absorb the delay without direct impact to the overall project schedule.
- Delays to C6 preconstruction design and submittal activities are already being experienced.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update #77 (DD=12/01/12), major activities that can be anticipated to either start or complete over the upcoming 90 days include the following:

Table 4 4: 90- Day Look- Ahead Schedule

Activity ID	Start	Finish
C2A – 96th Street Station Site work & Heavy Civil		
<i>Stage 6 Excavation – (MS #1)</i>		<i>4/4/13</i>
<i>De mo/ Renovate Rainbow Hardware</i>		<i>1/31/13</i>
<i>Pour Invert + Embedded MEP (MS #2)</i>		<i>12/18/12</i>
C2B – 96th Street Station Concrete, Finishes & Utilities		
<i>Complete Tunnel Lead Abatement</i>		<i>12/28/12</i>
<i>De mo Benches/ Build New Benches</i>		<i>3/26/13</i>
C3 – 63rd Street Station Rehab		
<i>Division 5: Structural Steel Shop Dwg.</i>		<i>1/30/13</i>
<i>Fabricate Structural Steel/M sc. Metals</i>		<i>3/14/13</i>
<i>Demolition – Ancillary #1 (Cooling Tower)</i>		<i>12/21/12</i>
<i>MTACC provides access – Entrance #1</i>		<i>1/15/13</i>
C4B – 72nd Street Station Mining & Lining		
<i>Ancillary 2 Excavate Shaft</i>		<i>3/29/13</i>
<i>Entrance 3 Excavate Shaft/Inst dl Mid Mt</i>		<i>1/28/13</i>
<i>F/R/P/S North Crossover Wall</i>		<i>1/15/13</i>
<i>F/R/P/S C3/S1 Cavern II Arch</i>		<i>2/14/13</i>
C4C – 72nd Street Station Finishes		
<i>Award construction Contract</i>		<i>2/4/13</i>
C5B – 86th St. Station Mining & Lining		
<i>South Cavern Excavation: Intermediate Bench & El Adit</i>		<i>2/1/13</i>
<i>Entrance #1: Rock Excavation</i>		<i>2/15/13</i>
<i>Entrance #2: North SOE & Decking</i>		<i>2/21/13</i>
<i>North Cavern Exc: Public Cavern Top Heading</i>		<i>3/15/13</i>
C5C – 86th St. Station Finishes & MEP		
<i>Advertise for Bids</i>	<i>4/4/13</i>	
C6 – Systems		
<i>Traction Power SS & CBH Design</i>		<i>12/28/12</i>
<i>Track & SWP Design</i>		<i>4/3/13</i>

Observations and Analysis:

90- Day Look- Ahead Notes:

1. *The unique relationship between the C2A and C2B construction packages allows the C2B contractor to perform work in advance of its contractual access milestones. The C2B baseline schedule will be prepared and approved based upon all applicable contract milestones and work access restraints. Early progress and any other schedule “relaxation” will be reflected in the 1st update of the approved baseline schedule.*

2. *The duration of many C6 preconstruction design and procurement activities is excessive. "Near-critical" preconstruction design and procurement activities should be divided into meaningful activities of smaller duration to facilitate short-term monitoring and progress evaluation.*

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 #77 of the IPS, the calculated date for completion of all SAS Phase 1 activities is October 3, 2016. This results in 90 calendar days of contingency when compared against the MTACC's revenue service goal of December 30, 2016.

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

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

1. *Construction of the 86th Street Station*
2. *Design, manufacture and installation of traction power systems at the 96th Street Station*
3. *Design, manufacture and installation of signal system equipment.*
4. *Refinement and validation of systems installation, integration and testing logic.*

Observations:

Project Critical Path: *The most "critical" or longest schedule path that spans between the current data date of December 1, 2012 and the project completion date (RSD) consists of three distinct elements:*

1. *The initial portion of this path involves procurement activities for the CSC construction package, which is currently in progress. This portion of the critical path has a float of 19 WD and concludes with the contract award on May 24, 2013.*
2. *A schedule "lag" of 447 WD connects the CSC contract award to CSC MS#9, Complete Work in all Traction Power Rooms (North). CSC MS#9 initiates Activity #C6AR86-06, which is the C6 contractual "full access" date to traction power rooms at the north end of the 86th Street Station. This milestone defines a time period during which the CSC contractor will construct necessary elements of the 86th Street Station to support follow on C6 installation activities and serves to constrain subsequent C6 work activities so they cannot start before March 18, 2015.*

3. *The final portion of this path involves traction power installation and testing at the 86th Street Station, which is scheduled for completion on August 17, 2016. NYCT “Proof of Operation” testing is concurrent with Traction Power System Testing and also is scheduled for completion on August 17, 2016. All third party construction is completed as of August 18, 2016, when the C6 Packages is scheduled for completion. NYCT operational testing including dispatch tower testing, proof of route familiarity and new systems and equipment familiarization are the final activities for SAS, Phase 1, with scheduled completion on October 3, 2016. Adding the current schedule contingency of 64 WD results in the target RSD of December 30, 2016.*

Secondary Paths: *Major secondary or “near-critical” float paths of significance to the overall status of the project include the following:*

- +7 WD:** *This path is initiated by the design, manufacture and delivery of the traction power substation and associated control equipment at the 96th Street Station. It then follows the installation of the traction power system at the 96th Street Station through its local and integrated test activities. This path joins the critical path on May 18, 2016 with the start of Proof of Operation testing.*

The PMOC is concerned about the schedule “lags” between completion of traction power design and the start of equipment manufacture. It is unclear why manufacture of DC breakers at the 86th Street CBH controls the start of manufacture of traction power equipment at the 96th Street Station.

- + 8 WD:** *The detail design and development of signal system shop drawings controls the start of this path and should complete in mid-July 2013. The start of signal equipment manufacture is staggered in the following order; 63rd St. → 72nd St. → 96th St. → 86th St. Development and review of system shop drawings is currently in progress, with equipment delivery for 86th St. currently scheduled for October 2, 2015. Installation work at 86th St. is scheduled to be completed on April 15, 2016. This path joins the project critical path on May 18, 2016 with the start of Proof of Operation testing.*

The PMOC is concerned about two specific issues found on this path:

- *The excessive duration of activities representing the manufacture and delivery of signal equipment at each of the four SAS station locations and,*
- *The start of equipment manufacture for 86th Street Station has the least schedule float (+8 WD) yet its start is intentionally delayed until approximately 4 months after the completion of signal system design.*

- +18 WD:** *This path is initiated by the construction of the G3 TBM arch, the G4 TBM arch followed by construction of the electrical benches at the G4 Tunnel, the G4/S2 Cavern and the South Grossover. Contract C4B substantial completion and turnover to C4C occurs on January 31, 2014. C4C has until November 6, 2014 to construct the required elements of Ancillary 1, at which time this area is made available to the C6 contractor. This path then follows signal system installation at the 72nd Street Station through June 24, 2016, at which time the signal system is made available for operational and integrated testing activities.*

The start of the C3 TBM March construction is restrained by schedule lag until May 31, 2013. It is unclear to the PMOC why the start of this work is currently postponed, especially in light of its relative criticality to the overall IPS.

+23 WD: *NYCT Pre-Revenue Operation Activities scheduled to start on August 18, 2014. This path is unchanged this period.*

+36 WD: *This path is initiated by excavation of the south cavern of the 86th Street Station, which is currently being performed by the C5B contractor. Following cavern excavation, drainage, waterproofing and structural concrete work, control of this area is transferred to the C5C contractor. This handoff is currently scheduled to occur on March 25, 2014. The C5C contractor has until March 18, 2015 to construct the required elements of the 86th Street Station to support subsequent systems installation and to provide access to the C6 contractor. At this point in the schedule, this path joins the critical path (TF=0) and follows traction power system installation and testing at the 86th Street Station.*

+55 WD: *86th Street Station, Entrance #1. This path follows underpinning, rock excavation and structural concrete installation at Entrance #1. After the heavy civil and structural work is complete, responsibility for this area is transferred to the C5C contractor via Milestone #1 on March 27, 2014. Note that this work is currently scheduled to complete and be ready for turnover to the C5C contractor on February 14, 2014. After completion of interior finish construction, the C6 contractor is provided access to the area via Milestone #9 on February 19, 2015, at which time this path joins the critical path.*

+58 WD: *Provide access and completion of "cost-to-cure" work at 63rd Street Station. Completion of all "cost-to-cure" work is currently scheduled for July 24, 2013, followed by completion of Entrance #1 construction, Entrance #3 construction and completion of construction package C3 on October 22, 2014. From this time installation of the signal system controls this path until it joins the critical path via the start of "Proof of Operation" testing.*

The PMOC considers it possible that the criticality of this path is somewhat inflated. It is not clear why work at Entrance #3 is dependent on the completion of work at Entrance #1. Signal equipment installation (trackside) is restrained by the C3 requirement to provide "full access" to C6 as of contract substantial completion. It is unclear how ongoing work at the entrance(s) would impact the C6 contractor's access to trackside work areas.

+85 WD: *This path extends through the construction of the 96th Street Station (C2A -> C2B -> C6). It is initiated by Stage 6 (97th to 99th Streets) excavation, forecast for completion on approximately April 4, 2013. Following C2A concrete invert construction, this path moves to the C2B Station Finishes package in July 2013. C2B MS#10 establishes the required date for completion of all station construction and complete turnover to the C6 contractor. Systems installation (C6) at the 96th Street Station is forecast to complete on February 10, 2016 at which time this path merges with the integrated system testing (critical) path.*

This is the "most critical" schedule path involving the 96th Street Station.

Concerns and Recommendations:

Based on its review of the critical and near-critical paths, the PMOC offers the following:

- 1. It is understood that the IPS is not a “production” schedule, and the usual concerns regarding the use of schedule lags are not completely applicable. However, for “near critical” paths (reference the +7 WD path) excessive periods of no activity created by lags should be replaced with documentable work activities and defensible schedule logic.*
- 2. Where activities with excessive durations are found on “near-critical” paths (reference the +8 path), they should be broken down in a reasonable manner to facilitate tracking and evaluation of acceleration or work-around options if needed.*
- 3. The PMOC considers Items #1 and #2 above to be necessary prerequisites to MTACC’s compliance with ELPEP Section IV.b, which states that “near critical” schedule float paths shall contain at least 25 CD of schedule float.*
- 4. MTACC should review and evaluate potential resequencing of the signal system equipment. It is counter-intuitive that the start of manufacture of the most critical equipment (86th Street Station) is delayed until last (approximately four months).*
- 5. MTACC should review and evaluate the delay to the start of C3 TBM arch construction by the C4B contractor. The IPS does not support this delay, which unnecessarily consumes schedule float and increases the risk associated with unanticipated downstream construction delays.*
- 6. The PMOC recommends Items #4 and #5 above be considered as part of the overall management and mitigation of schedule risk.*
- 7. The schedule logic involving the relationship between Entrance #1 and Entrance #3 and their relationship to signal equipment installation is questioned. The PMOC recommends this sequencing be clarified with both the C3 and C6 contractors.*

4.4 Compliance with Schedule Management Plan

Status:

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

Observations and Analysis:

In the opinion of the PMOC, SAS Phase I is in compliance with the metrics, deliverables and intangible goals enumerated in the Enterprise Level Project Execution Plan (ELPEP), dated January 15, 2010 (Section IV.b, page 8) and as further described by the Schedule Management Plan (SMP). Specifically:

- *Forecast Revenue Service Date*
 - *ELPEP Requirement: February 28, 2018*
 - *Current Forecast: December 30, 2016*
- *Minimum schedule contingency (measured against February 28, 2018 RSD)*
 - *ELPEP Requirement: 240 CD*

- *Current Forecast: 513 CD (estimated based on best available information).*
- *Minimum Allowable Float; Real Estate Acquisition*
 - *ELPEP Requirement: 60 CD*
 - *Current Forecast: All Real Estate Takings are complete as of November 1, 2011.*
 - *Current Forecast of Cost-to-Cure construction:*
 - *Entrance #1 (63rd Street Station) – 58 WD (approximately 81 CD)*
 - *Entrance #1 (72nd Street Station) – TBD, scope transfer from C4B -> C4C, some redesign to gain community acceptance is probable.*
- *Minimum Allowable Secondary Float Path*
 - *ELPEP Requirement: 25 CD*
 - *Current Forecast: +7 WD (approximately 10 CD)*
- *Secondary Schedule Mitigation (critical path compression)*
 - *ELPEP Requirement: 125 CD*
 - *Current Forecast: Not Available.*

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

Concerns and Recommendations:

With respect to project schedule management, the MTACC has realized the beneficial outcomes envisioned by the ELPEP on SAS. MTACC has generally been in compliance with its Schedule Management Plan, however, the PMOC recommendations made in Section 4.3 of this Report should be reviewed and addressed in order to assure MTACC's continued compliance with its SMP.

Section 6.2 of the Schedule Management Plan states in part, “.....requests for any amount of critical path contingency drawdown during either the design or construction phases will be submitted by the Project Controls Manager to the Program Executive for approval, and to the MTACC Vice President of Project Controls and the MTACC President for discussion and concurrence prior to being presented at the Monthly Progress Meeting”. In effect, the MTACC President must approve the use of any schedule contingency prior to its formal incorporation in an IPS update.

The PMOC is concerned that strict adherence to this section of the SMP will lead to manipulation of the IPS in order to avoid reporting incremental delays along the IPS critical path. The PMOC recommends a Candidate Revision be developed that modifies this section in a way that better supports accurate and transparent reporting of schedule status and that is mutually acceptable to all stakeholders.

5.0 PROJECT COST STATUS

5.1 Budget/ Cost

Status:

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

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

Std Cost Category (SCC)	Description	FFGA	MTACC's Current Working Budget (June 30, 2012)
10	Guideway & Track Elements	\$612,404,000	\$638,107,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,294,629,000
30	Support Facilities	\$0	\$0
40	Site Work & Special Conditions	\$276,229,000	\$534,865,000
50	Systems	\$322,708,000	\$265,792,000
60	ROW Land Existing Improvements	\$240,960,000	\$281,500,000*
70	Vehicles	\$152,999,000	\$0**
80	Professional Services	\$796,311,000	\$973,000,000
90	Unallocated Contingency	\$555,554,000	\$463,107,000
Subtotal		\$4,050,000,000	\$4,451,000,000
Financing Cost		\$816,614,000	\$816,614,000
Total Project		\$4,866,614,000	\$5,267,614,000

* Includes \$47 M Cost-to-Cure

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

The PMOC notes that the MTACC's CWB omits the cost for new Rolling Stock or corresponding reduction in funding and that this CWB does not represent an approved budget modification in any form.

Observation and Analysis:

Table 5-1 represents MTACC's most recent update (September 2012) of its CWB into the FTA Standard Cost Categories.

Conclusions and Recommendations:

MTACC is executing Phase 1 of the SAS within the constraints of its CWB. PMOC will continue to monitor MTACC conformance to its budget.

5.1.1 Project Cost Management and Control

Status:

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

Observation:

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

Concerns and Recommendations:

None.

5.1.2 Project Expenditures and Commitments:

Status:

As of December 31, 2012, a summary comparison of the SAS Current Working Budget (Estimate Revision #9) and expenditures is as follows:

Description	CWB	Expended	%
Total Construction (1)	\$2,702,757,299	\$1,188,827,450	42.7%
Total Soft Cost	\$1,255,727,995	\$899,420,623	71.6%
Contingency	\$492,514,706	<i>(Included above)</i>	
Subtotal	\$4,451,000,000	\$2,088,248,073	46.9%
<i>(1) % complete includes AWOs executed to date.</i>			

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, O&P, etc.) which skew the percentage of those categories expended to date.

Based upon financial expenditures reported by the MIACC during December 2012, SAS Phase I is approximately 46.9% complete. The completion status of the active construction contracts through December 2012, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 97.1%
- C26005 (96th Street Station) – 86.1%

- C26010 (96th Street Station) – 3.1%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 34.6%
- C26006 (63rd Street Station) – 33.1%
- C26007 (72nd Street Station) – 64.6%
- C26009 (Systems) – 4.6%

Aggregate Construction % Completion:

- 82% of all construction work is under contract
- 53.8% of active construction contracts are complete
- 42.7% of all construction is complete

Based upon cost data received from MFACC for December 2012:

- Value of construction in place this period = \$56,972,842
- Estimated value of construction remaining = \$1,513,929,849
- Target construction completion = August 18, 2016
- # Months remaining = 43.6

Average rate of construction required to achieve target completion date = \$34,708,497/MO

Soft Cost expenditures (not including real estate, O&P, etc.) during December 2012 totaled approximately \$4.45M. This expenditure is higher than that experienced in recent months and reflects an increase in design, construction administration and construction management expenses. If soft cost expenditures continue at this rate for an extended period of time, some contingency transfer to soft cost categories may be required.

Conclusions and Recommendations:

The average progress (payments) achieved over the most recent six month period is \$41,739,362. Based on a review of cost data for December 2012, it appears that adequate overall progress was made on the project to achieve the RSD of December 30, 2016.

5.1.3 Change Orders

Status:

As of December 31, 2012, 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	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26002 (1)	97.00%	\$337,025,000	\$53,095,231	15.75%	\$45,212,443	13.42%
C26005 (2A)	86.10%	\$325,000,000	\$47,588,990	14.64%	\$35,137,212	10.81%
C26010 (2B)	2.49%	\$324,600,000	\$602,723	0.19%	\$0	0.00%

Contract	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26006 (3)	33.10%	\$176,450,000	\$4,945,366	2.80%	\$1,098,890	0.62%
C26007 (4B)	64.60%	\$447,180,260	\$1,607,030	0.36%	\$3,659,232	0.82%
C26013 (5A)	100.00%	\$34,070,039	\$6,717,318	19.72%	\$4,285,471	12.58%
C26008 (5B)	34.55%	\$301,860,000	\$8,043,763	2.66%	\$1,653,930	0.55%
C26009(6)	4.57%	\$261,900,000	\$323,360	0.12%	\$323,360	0.12%
TOTAL		\$2,208,085,299	\$122,923,781	5.57%	\$91,370,538	4.14%

Observation and Analysis:

The value of AWOs reported by M'ACC/ NYCT in December 2012 is summarized as follows:

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
<i>December-2012</i>	<i>\$91,370,538</i>	<i>\$122,923,781</i>
<i>November-2012</i>	<i>\$89,507,381</i>	<i>\$117,519,310</i>
<i>Monthly Change</i>	<i>\$1,863,157</i>	<i>\$5,404,471</i>
<i>Monthly Change</i>	<i>2.08%</i>	<i>4.60%</i>

The change in AWO Exposure was primarily driven by the following:

1. Contract C3: Adjustments to forecast exposure for AWOs #10 and 27 as well as the addition of new AWOs #28, 29 and 30 totaling \$2,048,137.
2. Contract C4B: An adjustment to correct an error in the handling of AWO #54 resulted in a decrease of \$3,304,364.
3. Contract 5B: Initial valuation of AWOs #31 and 32 and the addition of AWOs #36 and 38 totaling \$6,408,824.

The change in Executed AWO Value was primarily driven by the following:

1. Contract C1: Execution of AWOs #132, 133, 147 and 130 for a net increase of \$1,031,000.
2. Contract C2A: Execution of AWOs #97 and 107 for a total cost of \$644,000.

As of December 31, 2012, total AWO Exposure equaled \$122,923,781 compared to a total AWO Exposure value of \$72,440,881 as of December 31, 2011. During 2012, total AWO Exposure growth exceeded 69%. During that period (16.4%) of all construction was completed on the project. AWO exposure growth per contract is tabulated as follows:

<i>A WO Exposure</i>			
<i>PKG</i>	<i>Dec. 31, 2011</i>	<i>Dec. 31, 2012</i>	Δ
<i>C2A</i>	\$ 16,631,853	\$ 47,588,990	\$ 30,957,137
<i>C1</i>	\$ 45,007,942	\$ 53,095,231	\$ 8,087,289
<i>C5B</i>	\$ 92,418	\$ 8,043,763	\$ 7,951,345
<i>C3</i>	\$ 57,500	\$ 4,945,366	\$ 4,887,866
<i>C2B</i>	\$ -	\$ 602,723	\$ 602,723
<i>C6</i>	\$ -	\$ 323,360	\$ 323,360
<i>C5A</i>	\$ 6,559,848	\$ 6,717,318	\$ 157,470
<i>C4B</i>	\$ 4,183,738	\$ 1,607,030	\$ (2,576,708)

Four construction packages (C2A, C1, C5B and C3) account for the vast majority of the total AWO growth experienced during 2012. A review of major AWOs for each of these packages suggests that construction contract management and stakeholder management issues were major contributors to the overall AWO growth. A summary of major AWOs for these packages includes the following:

<i>PKG</i>	<i>AWO</i>	<i>Description</i>	<i>Exposure \$; Construction Impacts</i>			<i>AWO Exposure - 2012</i>	
			<i>\$/AWO</i>	<i>\$/PKG</i>	<i>TOTAL</i>	<i>\$</i>	<i>%</i>
<i>C2A</i>	48	<i>Schedule Resequencing Plan</i>	\$758,423	\$26,617,334	\$38,934,360	\$51,883,637	75.0%
<i>C2A</i>	94	<i>Schedule Resequencing Plan</i>	\$7,858,912				
<i>C2A</i>	113	<i>Contaminated Soil T & D over-runs</i>	\$18,000,000				
<i>C1</i>	115	<i>Impact Costs Resulting From AWO - 107</i>	\$5,083,418	\$5,083,418	\$38,934,360	\$51,883,637	75.0%
<i>C1</i>	129	<i>Slurry Wall Differing Site Condition</i>	\$1,963,625				
<i>C5B</i>	26	<i>Acoustic Panels @ Muck Conveyor Elevated Deck</i>	\$138,000	\$6,791,171			
<i>C5B</i>	9	<i>Wet Scrubber Systems for Blasting Dust Control</i>	\$597,000				
<i>C5B</i>	29	<i>Acoustic Paneling @ Muck Conveyor Lower Level</i>	\$239,000				
<i>C5B</i>	31	<i>8pm Blasting Restriction</i>	\$5,817,171				
<i>C3</i>	10	<i>Mod 67- Miscellaneous Design Changes</i>	\$1,700,000	\$442,436	\$38,934,360	\$51,883,637	75.0%
<i>C3</i>	21	<i>Drug & Alcohol Testing</i>	\$442,436				
<i>C3</i>	30	<i>Relocation of Building Utilities at Entrance 1</i>	\$1,200,000				

Based on this tabulation, approximately 75% of the additional construction cost incurred by SAS during 2012 is attributable to construction and stakeholder management. It can be inferred that other issues which frequently contribute to cost growth including design errors and omissions, unforeseen conditions (including geotech and utilities) have collectively been responsible for approximately 25% of the cost growth.

Concerns and Recommendations:

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

With 42.7% of all construction complete, approximately 53.7% of the AWO Contingency, based upon a budget of \$229M and an Exposure of \$122.9 has been consumed. Understanding that reporting may lag somewhat, the actual consumption can be reasonably assumed to be somewhat higher. Continued AWO Contingency consumption at this rate will require the transfer of funds from other contingency sources.


5.2 Project Funding

Status:

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

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

 * Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru December 31, 2012
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	\$27,789,674
NY-03-0408-08	\$197,182,000	\$197,182,000	0
NY-03-0408-09	\$186,566,000	Pending	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$41,088,000
Total	\$1,250,508,200.00	\$1,063,942,200.00	\$651,988,874.00

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

A total of \$2,088,248,072 has been expended on the project through December 31, 2012, of which \$436,360,581 has been spent on design and \$1,107,322,000 on construction (MTACC's December 2012 Cost and Schedule Summary Input).

Observation and Analysis:

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

Concerns and Recommendations:

None

5.2.1 Overall Project Funding

Refer to Section 5.2 of this Report.

5.2.2 Local Funding

Refer to Section 5.2 of this Report.

5.3 Cost Variance Analysis

Status:

The C4C bid package, which was received on December 18, 2012, requested that contractors provide a base bid and pricing for a total of four (4) options. An evaluation of the apparent low bid with respect to these options includes the following:

	Engineer's Estimate	Low Bidder	MTACC CWB
Base Bid	\$ 253,375,323	\$ 243,308,405	\$ 250,756,000
Option 1: Entrance 1 excavation & structural shell	\$ 10,650,020	\$ 3,934,595	Included in C4B scope-of-work
Option 2: Utility relocation @ 301 E 69th St. & 1322 2nd Ave	\$ 3,156,080	\$ 1,270,000	Included in C4B scope-of-work
Option 3: Entrance 1 fit-out and finishes	\$ 2,477,198	\$ 6,100,000	Included in C4C base bid
O&M Period: Maintenance & tunnels between substantial completion and RSD	\$ 2,180,001	\$ 3,740,000	Not included
TOTALS	\$ 271,838,622	\$ 258,353,000	\$ 250,756,000
BID COMPARISON		\$ 253,148,405	\$ 250,756,000

Observation and Analysis:

Observations from the C4C bid results which may be relevant to the overall financial performance of SAS Phase 1 include:

1. *The adjusted bid comparison between the MFACC CWB of \$250,756,000 and the low bid value for base bid and options not previously accounted for of \$253,148,405 represents a .95% overrun. The current available contingency is adequate to absorb this overrun.*
2. *Should MFACC decide to exercise Options #1 and #2, it must recover no less than \$5,204,595 from the C4B contract or for the work deleted from its scope. This is a reasonable goal as the team led by the C4B contract or bid at a total of \$9,345,464 for Options #1 and #2 as part of its bid for the C4C package.*
3. *MFACC should initiate an AWO for the C4B construction contract representing the option(s) it intends to exercise via the C4C package and an appropriate estimate of the anticipated credit.*
4. *Based upon IPS Update #77, construction substantial completion dates for the four station "finish packages" are:*

	<i>Substantial Completion - Update #77</i>	<i>Phase 1 Construction Complete</i>	<i># Days</i>	
<i>C2B</i>	<i>12/22/2015</i>	<i>10/4/2016</i>	<i>287</i>	<i>O&M services added via addendum</i>
<i>C3</i>	<i>10/22/2014</i>	<i>10/4/2016</i>	<i>713</i>	<i>O&M by MTA as part of active Station</i>
<i>C4C</i>	<i>11/4/2015</i>	<i>10/4/2016</i>	<i>335</i>	<i>O&M services added via addendum</i>
<i>C5C</i>	<i>5/16/2016</i>	<i>10/4/2016</i>	<i>141</i>	

It is likely that MFACC may determine it advantageous to obtain O & M Period maintenance services for the C5C contractor. These costs were not included in the latest project estimate (Rev 9) and should be included in any EAC estimate where appropriate.

On December 21, 2012, the final draft of the C4C Risk Analysis was published. This analysis is discussed in greater detail in Section 6.2 of this report. Section 6.1 of the C4C Risk Analysis concludes that, in order to achieve an 80% confidence level, the AWO budget contained in the current CWB should be increased by approximately \$10M. Schedule management and delay are major drivers of this conclusion. These drivers are common to the C5C package.

The MFACC construction EAC has already incorporated an AWO estimate for both C4C and C5C that addresses the result of the C4C Risk Analysis, however. The EAC estimates are not consistently rolled up to project-level reporting.

Using the MFACC financial reporting format contained in its Capital Construction Reports, the PMOC maintains an independent Estimate-At-Completion (EAC) report for Phase 1 of the Second Avenue Subway Project until such time as the MFACC assumes this reporting function in accordance with its Cost Management Plan. This EAC is based on:

1. *Contract awards, AWOs and actual expenditures.*
2. *Forecasts and projections based upon Item 1.*
3. *The results of MFACC's cost estimate (Rev. 9) for SAS Phase 1, where needed.*
4. *Cost information provided by the SAS project team through established contemporaneous reporting.*
5. *Events, Issues, and trends with a high risk of cost impact as identified by the PMOC.*

A summary of the SAS Phase I EAC based on values developed as noted above is as follows:

Table 5-4: Estimate @Completion

	<i>CWB</i>	<i>EAC</i>
<i>Total Construction</i>	\$2,702,757,299	\$2,976,593,892
<i>Engineering Services</i>	\$576,541,264	\$591,500,000
<i>Third Party Expenses</i>	\$534,800,000	\$534,800,000
<i>TA Expenses</i>	\$125,160,085	\$128,160,085
<i>Contingency</i>	\$351,741,352	
<i>Executive Reserve</i>	\$160,000,000	
TOTAL	\$4,451,000,000	\$4,231,053,977

Conclusions and Recommendations:

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

The PMOC recommends the MTACC update its financial reporting to include all the various analytical efforts to provide a complete picture of the project's financial position.

5.4 Project Contingency

Status:

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

- \$220 million through 90% Bid and 50% Construction
- \$140 million through 100% Bid and 85% Construction
- \$45 million through Start Up and Pre-Revenue Operations

The independent analysis of contingency drawdown maintained by the PMO is generally consistent with that maintained by the SAS Project team and confirms it to be in compliance with the required minimum contingency balance of \$220,000,000.

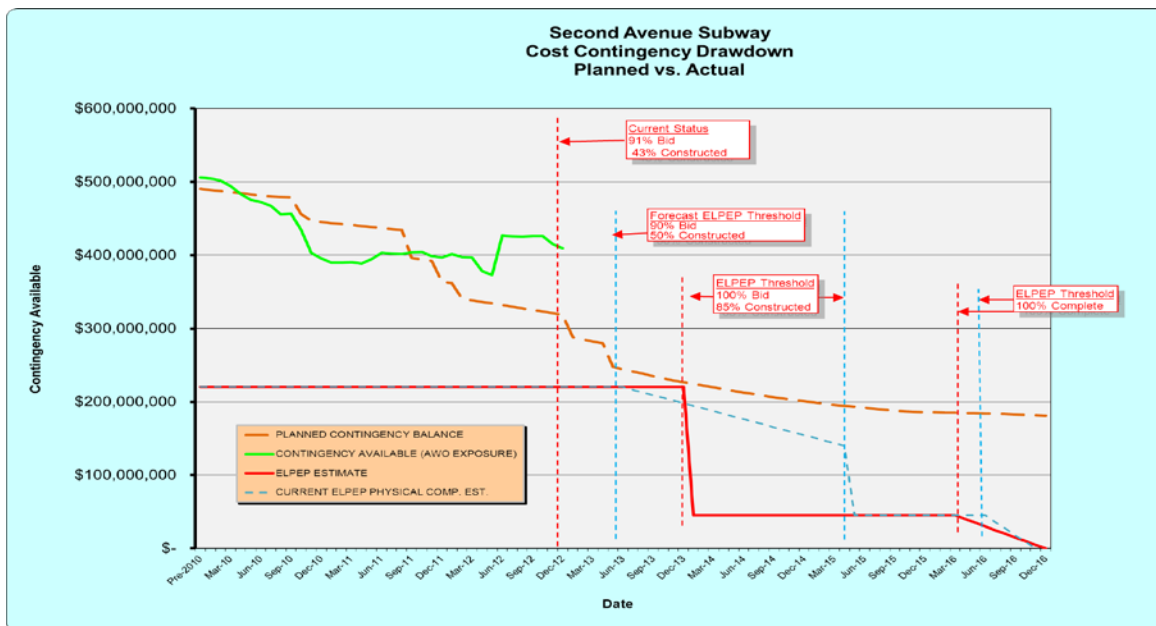
Observations and Analysis:

During December 2012, contingency changes were limited to routine incorporation of AWOs into the individual project and overall program reporting systems. No other significant changes in the SAS construction program have been reported that materially affected the forecast cost contingency baseline against which the current contingency balance is measured.

The PMOC has updated and adjusted its contingency drawdown and utilization model to reflect changes made this period. In order to maintain consistency with ELPEP contingency thresholds, contingency adjustments associated with construction contract C4C will not be incorporated until contract execution. Models maintained by both the PMOC and the SAS Project Team verify that the current contingency balance is greater than the Planned Balance and exceeds the ELPEP Required Balance.

	<u>November 2012</u>	<u>December 2012</u>
Required Balance (ELPEP):	\$220,000,000	\$220,000,000
Planned Contingency Balance:	\$320,840,562	\$318,629,661
Actual Contingency Balance (PMOC):	\$414,871,585	\$409,467,114
Actual Contingency Balance (MFACC):	\$424,787,000	TBD

In graphic form



Concerns and Recommendations:

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

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period

6.2 Risk Updates

Status:

During the 4th Quarter 2012, the MFACC updated its Contract 4C Risk Analysis and received construction bids for this package (refer to Section 2.1.2 of this report for additional detail). The low bid compared favorably with the MFACC Engineer's Estimate and SAS Current Working Budget. With construction contract values established for nine of ten construction packages, those risks associated with construction procurement have been substantially mitigated

Observation and Analysis:

A summary of the results of the C4C Risk Analysis includes:

- 1. The analysis also shows a significant risk level after award, therefore the typical 5% post-award contingency may not be sufficient.*
- 2. The current AWO budget has less than 30% chance of being sufficient. For an 80% confidence level, the AWO budget should be increased [by approximately \$10M]*
- 3. The Risk Assessment shows that the total delay exposure, including delay on Award and delay in Construction Duration is roughly 225 calendar days, at the 80% confidence level. The cost impact due to compensable schedule delays, either on indirect costs or in schedule recovery measures, are shown to be on the order of \$6.7M with 80% confidence.*
- 4. The 80% confidence level on substantial completion date is June 2016, as opposed to its originally estimated completion of October 2015.*
- 5. The total project duration (after award) is likely to be 39 months, as opposed to the 34 months shown in the baseline schedule*
- 6. With respect to the impact on the systems contractor (C6) contractual access, the 7 major milestones were evaluated. The milestone to provide ".full access/turnover of all communications rooms" to C6 shows a very low chance on being achieved (<10% with a potential risk of 5 month delay. This milestone is particularly important due to the uncertainty in the ability of C6 to perform all their work in the scheduled 5 months to turn it back to C4C for completion, testing etc.*

Conclusions and Recommendations:

The results of the C4C Risk Analysis suggest that without extensive mitigation, there is a significant risk that the RSD may be delayed beyond the December 30, 2016 date, but still be achieved prior to the FTA RSD forecast of February 28, 2018. The results further indicate that the project can be completed within the MFACC CWB.

6.3 Risk Management Status

Status:

Risk Management includes the manner by which the project team identifies and copes with risks retained by the MFACC. 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:

Specific Risk Management activities observed by the PMOC during the 4th Quarter 2012 include:

- *Incorporation of contract “options” in the C4C package to enable complete construction of this element of the project if delays cannot be overcome to allow construction via the C4B package.*
- *Development of alternative plans to support the partial opening of 63rd Street Station subsequent to construction.*
- *As a part of the C4C Risk Analysis, identification and ranking of the top risks which pose the greatest challenge to project cost and schedule contingencies.*
- *Allocation of additional resources to support areas of the project where inadequate performance poses a risk to the overall project success. Examples include C3 steel fabrication and erection and safety and security certification.*

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.

The PMOC recommends utilizing the top package risks identified by the C4C Risk Analysis as the initial risks considered for this package at the next Risk Mitigation Meeting.

The PMOC also recommends establishing selection criteria that can be used to identify risks on the register that should be updated and considered for follow up action at the monthly risk mitigation meetings. This will assist in ensuring that the status of significant risks to project cost and schedule performance are periodically reviewed and updated.

6.4 Risk Mitigation Actions

Status:

Risk Mitigation Meeting No. 21 was held on December 20, 2012. Recent risk management activities reviewed included the draft C4C Risk Analysis.

Observation and Analysis:

Major risks reviewed and updated during this Quarter include:

- 1) **Contract Interfaces (Risk CNS 4 (C6)):** The updated interface tracking report was distributed for review. *These reports identify inter-contract interfaces and their respective float values based upon the IP. The reports have proven to be a valuable tool in identifying potential conflicts. Currently, the C3 scheduled completion of communication rooms and SSC (Milestone #3) is later than the access date provided to the C6 contractor. Efforts to work-around this problem are under way.*

- 2) **System Safety Certification (Risk CNS 8 (C6)):** *The full-time safety certification coordinator has started work on the project. A System Safety Certification Committee meeting is anticipated in January 2013 to provide a detailed update of the status of this effort.*
- 3) **Cost-To-Cure Utility Relocations (Risks C4B 77 and C4B C14):** *Relocating utilities that service buildings adjacent to Entrance No. 1 (301 East 69th Street, 1322 Second Avenue). A potential solution to reconfigure and partially relocate this entrance has been well-received by building owners. A presentation of this alternate will be made to the FTA to ensure compliance with applicable environmental constraints.*

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. The majority of risks identified have involved the construction process rather than any inherent deficiencies in the design of the project.

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status:

Refer to Section 5.4 of this report.

6.5.2 Schedule Contingency

Status:

Schedule contingency reported by M/ACC, based upon Update #77 of the SAS IPS, conforms to schedule contingency threshold limits established by the ELPEP. Based on this update, schedule contingency measured against M/ACC's RSD commitment date of December 30, 2016 is 90 CD. When measured against the FTA/PMOC RSD estimate of February 28, 2018, the contingency is currently 513 CD vs. the 240 CD stipulated by ELPEP.

Observations:

Tracking available schedule contingency over recent schedule updates is summarized in the following table:

Table 6-1: Schedule Contingency

IPS Update #	65	68	71	74	77
Data Date	12/01/11	03/01/12	06/01/12	09/01/12	12/01/12
Contingency (CD)					
RSD=12/31/2016	67	80	90	No	90
RSD=02/28/2018	490	503	513	Report	513

Concerns and Recommendations:

None.

7.0 LIST OF ISSUES AND RECOMMENDATIONS

Priority in Criticality column 1 – Critical 2– Near Critical

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
SAS-09-Jan10	3.0 PMP	<p>The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP.</p> <p><u>PMOC Recommendation:</u> Update the PMP and its sub-plans within the timeframes established in the ELPEP.</p> <p><u>Update:</u> This effort is under way. MTACC has initiated new management processes in the areas of schedule, cost and risk management in advance of the formal completion of new plans or procedures. Candidate Revisions to the PMP have been identified and the associated sections of the PMP are being updated.</p> <p><u>Update (January 2011):</u> Revised draft PMP issued and currently being reviewed by PMOC. Review anticipated to be completed by February 2011.</p> <p><u>Update (March 2011):</u> PMOC review of PMP update is substantially complete.</p> <p><u>Update (April 2011):</u> The PMOC has completed its review of PMP Revision 8 (update). The PMOC will review its findings with the FTA and compare findings with the corresponding PMP review which is currently under way for the East Side Access Project. After these tasks are complete, the PMOC and FTA will present findings and recommendations to the MTACC.</p> <p><u>Update (May 2011):</u> No additional information this period.</p> <p><u>Update (June 2011):</u> PMOC is monitoring the implementation and effectiveness of Candidate Revisions per discussions with FTA. Results to be included in review comments.</p> <p><u>Update (Sept 2011):</u> In general, Revision 8 of the SAS PMP was updated in accordance with the “PMP Update” process defined in the ELPEP. Candidate Revisions were issued and approved by the Technical Advisory Committee for all “Material Decisions”, i.e., project decisions that affect scope, cost, schedule or funding.</p> <p><u>Update (December 2011):</u> Resolution of PMOC comments/recommendation and FTA concurrence is anticipated by mid-February 2012.</p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<p>Update (March 2012): Review of recommendation is on-going</p> <p>Update (June 2012): Resolution of PMOC's concerns will be addressed during a meeting with SAS Project Team during July 2012.</p> <p>Update (September 2012): On September 27, 2012, MFACC resubmitted the SAS Project Management Plan as Revision 8.1. This revision formally incorporated all FTA/PMOC comments made to Revision 8, which was originally issued in January 2011. PMOC is waiting authorization from FTA Region II to perform selected audits of the Project for compliances.</p> <p>Update (December 2012): Future refinements to the PMP will be documented via the candidate revision process. Revision 9.0 of the PMP is forecasted for mid-2013.</p>	
SAS-10-Jan10	3.1 PMP Sub-Plans	<p>MFACC is required to develop and finalize a Cost and Schedule Management Plan, and a Cost and Schedule Contingency Management Plan for the SAS in conformance with ELPEP requirements within 60 days of January 15, 2010. The PMOC is concerned that the 60-day requirement may not be met.</p> <p>Update: This process is ongoing. Schedule Management Plan complete; conditional approval forwarded by FTA on October 25, 2010. Review of Cost and Cost Contingency Management Plan is in progress.</p> <p>Update (March 2011): SMP outstanding comments resolved. Updated CMP submitted and PMOC comments returned. Reconciliation of comments to be scheduled in April 2011.</p> <p>Update (April 2011): Revisions to the CMP are anticipated on May 3, 2011 and will be discussed at the ELPEP meeting on May 5, 2011. Based upon the clarifications and understandings achieved at this meeting, MFACC will revise the CMP accordingly and resubmit it on or about May 13, 2011.</p> <p>Update (May 2011): A final revision to the CMP will be published in June 2011 based upon comments received to date. The CMP is at a high level of completion. Final comments should be developed in June leading to a conditional approval of the plan.</p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<p>Update (June 2011): PMOC final review comments transmitted to MFACC</p> <p>Update (September 2011): Schedule & Schedule Contingency Management Plan – The PMOC has verified SAS substantial compliance with the SMP since August 2010. The process of transferring the verification process to the respective project teams has been generally discussed in several recent ELPEP meetings. Refer to “Conformance Demonstration” for additional information.</p> <p>Cost & Cost Contingency Management Plan (CMP) – Conditional approval of this plan was transmitted to the MFACC from the FTA on September 1, 2011. The MFACC is working to address the five (5) Candidate Revisions upon which final approval is conditioned.</p> <p>Update (December 2011): MFACC has submitted its final revisions to the CMP, which incorporate its responses to those Candidate Revisions. FTA/PMOC final review of these revisions is in progress.</p> <p>Update (March 2012): Review is ongoing</p> <p>Update (June 2012): Review is ongoing</p> <p>Update (September 2012): The CMP has been accepted by FTA Region II. PMOC will continue to monitor the Project for compliance.</p> <p>Update (December 2012): Monitoring is ongoing. Compliance is discussed during FTA/PMOC Monthly Cost/Schedule Meeting with the SAS Project Team. Compliance is also addressed in the monthly updates of the IPS. This item has been adequately addressed and is considered closed.</p>	
SAS-11-Jan10	3.3 Procedures	<p>The PMOC is concerned whether the new procedures will actually be utilized by the different operating agencies within the MFACC, given that NYCT will implement SAS, and the procedures of the SAS PMP reflect the NYCT quality management system</p> <p>PMOC Recommendation: The PMOC recommends that the MFACC develop a process to assure itself that all of these procedures are in use on all of its projects. An example of</p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<p>such a process would be a new procedure distribution system that would require the recipients (the individual Project Managers) to acknowledge receipt of each new procedure as it is released for implementation. This system could be monitored by the parent MFACC to assure implementation across all its organizations and provide it with the opportunity to correct any non-conformances as they develop.</p> <p>Update (April 2011): The MFACC is behind schedule in developing the revised project procedures. To date, it has adopted a total of 69 revised procedures of 75. MFACC originally committed to have all revised procedures adopted by April 12, 2010.</p> <p>Update (May 2011): No update this period</p> <p>Update (June 2011): No update this period</p> <p>Update (Sept 2011): The MFACC released one additional procedure during September 2011. The total number of revised procedures is now 73 of a potential 75.</p> <p>Update (December 2011): Two procedures were issued, which brings the total number of procedures issued to 75. Four additional procedures are under development with no specific time period identified for their completion.</p> <p>Update (March 2012): No additional procedures have been issued.</p> <p>Update (June 2012): As of June 30, 2012, the MFACC has implemented a total of 76 revised project procedures, with several others under development. One of these, AD 15 – Program Change Control, is critical to MFACC's program management of the SAS project.</p> <p>Update (September 2012): On September 28, 2012 the MFACC issued Program Change Control Procedure AD 15. The total number of procedures issued to date is 77. Three other procedures are being considered however, they are not required for the project to be compliant with the PMP. No further action is required.</p> <p>Update (December 2012): <i>All procedures required for effective management of the SAS Phase I Project have been issued. This item has been adequately addressed and is</i></p>	

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<i>considered closed</i>	
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>Update (February 2011): Meeting to be set up with MTA/ACC/ SAS/ ESA for review and comparison of AWP processing procedures and identification of specific ways to accelerate SAS process.</p> <p>Update (March 2011): Meeting with MTA/ACC/ SAS/ ESA not scheduled. No improvement in processing observed to date. Open Item</p> <p>Update (April 2011): With regard to the procurement of additional work orders (AWOs), NYCT and MTA/ACC have jointly implemented a more streamlined approach to approving Procurement Staff Summaries. This adjustment has reduced the number of signatures necessary for approval and should save time during the approval phase of the AWO process. Specifically, NYCT has removed the following 4 executive level signatures: NYCT President, NYCT Executive Vice President, NYCT General Counsel, and NYCT Chief Officer - Civil Rights. Additionally, the NYCT VP Capital Programs and the NYCT VP Subways have been replaced with lower level designees who should cut down further the amount of time necessary for approval.</p> <p>Update (May 2011): Some marginal improvement in AWO processing has been noted – see Section 5 of this report. PMOC will continue to monitor and report.</p> <p>Update (June 2011): Some marginal improvement in AWO processing has been noted – see Section 5 of this report. PMOC will continue to monitor and report.</p> <p>Update (September 2011): In recent months, the MTA/ACC has implemented certain staffing changes and process improvements directed at reducing the time required to estimate, negotiate and administratively process Additional Work Orders (AWOs). The</p>	1

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<p>PMOC is monitoring and evaluating the quantifiable indicators associated with AWO processing in an effort to evaluate the effectiveness of the MTA's improvement efforts.</p> <p>Update (December 2011): PMOC monitoring of the AWO process is on-going. To date, no significant reduction in the time to process an AWO has been noted.</p> <p>Update (March 2012): PMOC monitoring of the AWO process is on-going. AWO status and processing is discussed during each construction contract Job Progress Meeting.</p> <p>Update (June 2012): PMOC monitoring of the AWO process is on-going. PMOC audit of selected AWO files will be performed during the 3rd Quarter 2012.</p> <p>Update (September 2012): PMOC awaiting authorization from FTA Region II to perform audit of AWO process.</p> <p><i>Update (December 2012): PMOC monitoring of the AWO process is on-going. PMOC audit of selected AWO files will be performed when authorized by FTA Region II.</i></p>	
SAS-21-Dec10	2.1.2 Procurement	<p>Excessive recent delay to G26009 package is noted. PMOC recommends MTACC initiate corrective action and/or develop "recovery schedule" to regain time lost.</p> <p>Update (February 2011): Additional delays noted.</p> <p>Update (March 2011): RFP documents were made available to the qualified proposers on March 7, 2011 and the pre-proposal meeting was held on March 31, 2011.</p> <p>Update April 2011: Receipt of proposals has already been delayed from May 18, 2001 to June 3, 2011. Further, unspecified delays are forecast for the receipt of proposals for this package as a result of MTA's intention to "coordinate" systems procurement among the three "mega-projects" (No. 7 Line, SAS, and ESA).</p> <p>Update (May 2011): Additional one-month delay to package award was realized during May 2011 as a result of ongoing "coordination" with other systems procurements. MTA</p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<p>Executive Management is apparently directing this effort.</p> <p>Update (June 2011): Additional one-month delay to package award was realized during June 2011 as a result of bidder requests for a time extension. Criticality of other delays have superseded this issue. PMOC to continue monitoring progress of this procurement.</p> <p>Update (September 2011): Additional one-month delay to package award was realized during June 2011 as a result of bidder requests for a time extension. Criticality of other delays have superseded this issue. PMOC to continue monitoring progress of this procurement.</p> <p>Update (December 2011): On December 21, 2011 the MTA Board approved the Track, Power, Signals and Communication Systems Contract G-26009 (C6) for award. Notice of Award is scheduled for mid-January 2012. This concern is closed with no further action planned by the PMOC.</p> <p>Update (March 2012): Contract G-26009 (C6) was awarded to Constock/Skanska JV on January 18, 2012. No additional action required this concern is closed.</p>	
SAS-22-Jun 12	1.1.2f Community Relations	<p>MTACC's community outreach efforts have had a positive impact on relations with the affected community. Many of the specific issues and resulting actions may have been beyond contemplation prior to the start of construction. Based upon the "lessons learned" to date, the PMOC recommends the MTACC develop a more comprehensive plan for construction phase community relations going forward, including an overall execution plan and proposed scope of activities.</p> <p>Update (September 2012): Plan development is ongoing. Cost associated with opening an office in the work area to provide better communications with the residents and to address their concerns is being accumulated.</p> <p>Update (December 2012): PMOC will coordinate with the MTACC to issue Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is</p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<i>forecasted for mid-2013.</i>	
SAS-23- Jun 12	2.1.2 Procurement	<p>The PMOC is concerned that the estimated procurement durations contained in the project schedule do not reflect the experience and “lessons learned” on the project to date. If the actual procurement durations for these remaining packages are consistent with past experience, it will result in schedule “delays” of approximately 48 CD for each of these construction packages.</p> <p>The PMOC recommends an evaluation of the time available for these remaining procurements and consideration of schedule adjustments to mitigate or eliminate potential schedule delays.</p> <p>Update (September 2012): The PMOC has previously expressed concern over the adequacy of the scheduled duration of construction contract procurement for SAS Phase 1 contracts and recommended an acceleration of the procurement schedule. MFACC’s approach of adding schedule contingency to the procurement process substantively addresses the PMOC’s concern and significantly reduces the risk of delays in the award of the remaining construction contracts. No further action required.</p> <p>Update (December 2012): <i>By including several weeks of schedule float to the procurement schedule for the 72nd Street Station (C4C) finishes package. The SAS Project Team has significantly reduces the risk of delaying the contract award date of February 4, 2013. A similar approach has been implemented for the C5C package. No further action is required and this item is considered closed.</i></p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
SAS-24- Jun 12	2.3 Contract Packages and Delivery Method	<p>Despite the delays experienced to date, the SAS Project Team does not consider it worthwhile to accelerate the procurement schedule of either of the remaining finish packages (C4C, C5C). Each of these packages have several months of “preconstruction time” built into their schedules where access to work areas is not available due to the work of predecessor contracts. This “preconstruction time” is necessary for purchase and fabrication of long lead items, etc. Delays that absorb some of this “preconstruction time” have the potential to delay completion of these packages.</p> <p>The PMOC recommends the SAS Project Team reconsider acceleration of the procurement schedule for one or both of the remaining construction packages.</p> <p>Update September (2012): The PMOC has previously expressed concern over the adequacy of the scheduled duration of construction contract procurement for SAS Phase 1 contracts and recommended an acceleration of the procurement schedule. MTACC’s approach of adding schedule contingency to the procurement process substantively addresses the PMOC’s concern and significantly reduces the risk of delays in the award of the remaining construction contracts. No further action required.</p> <p>Update (December 2012): <i>By including several weeks of schedule float to the procurement schedule for the 72nd Street Station (C4C) finishes package. The SAS Project Team has significantly reduces the risk of delaying the contract award date of February 4, 2013. A similar approach has been implemented for the C5C package. This item is considered closed.</i></p>	2
SAS-25- Jun 12	2.5 Property Acquisition and Real Estate	<p>The PMOC recommends the total cost-to-cure process be modeled and updated in a much greater level of detail than currently exists in the IPS. The PMOC also recommends establishment of threshold date(s) for the 72nd Street work which would trigger either a more aggressive approach in resolving the issue by MTACC or full implementation of scope transfer to the C4C package.</p> <p>Update September (2012): For Entrance No. 1 of the 72nd Street Station, MTACC has</p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
		<p>terminated the agreement and is seeking additional easement through eminent domain condemnation proceeding. The alternative of deferring some portion of the work to the C4C package is a viable contingency.</p> <p><i>Update (December) 2012: Three options were added to the C4C bid package to address the easement issue associated with Entrance No. 1. The option that best mitigate the delay will be selected</i></p>	
SAS-26-Jun 12	2.6 Community Relations	<p>The community relations effort has proven to be an important element of the management of this project. It is the recommendation of the PMOC that the community relations effort be fully incorporated into the mainstream of project scope, budget and risk management activities to support the goals of cost-effective and transparent decision making and the related goals of the ELPEP</p> <p>Update (September 2012): See item SAS-22-Jun 12 above.</p> <p><i>Update (December) 2012: PMOC will coordinate with the MTACC to issued Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is forecasted for mid-2013.</i></p>	2

Number with Date Initiated	Section	Issues/ Recommendations	Criticality
SAS-27- Jun 12	3.2	<p>The PMOC has noted that community relations activities continue to be a very significant element of the overall management of this project. However, neither the PMP nor any applicable sub plan identify this work, the manner by which it will be managed or executed, the scope of the work or any budgetary or financial controls.</p> <p>The PMOC recommends the development or update of applicable plans and procedures governing such work during the next PMP update period.</p> <p>Update (September 2012): The PMOC will request a Candidate Revision be issued to address this recommendation. Candidate Revisions for SAS PMP Revision 9 are being assembled now as issues are identified. Revision 9 to the SAS PMP is tentatively scheduled for initial distribution in the summer of 2013.</p> <p>Update (December) 2012: PMOC will coordinate with the MFACC to issue Candidate Revisions for Update No. 9 to the SAS PMP to address this concern. Update to the PMP is forecasted for mid-2013.</p>	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>Update: Vehicle requirements and associated cost to be addressed as part of the FFGA amendment.</p> <p>Update: No additional vehicles will be procured for the SAS Phase 1 Project. M'ACC/ 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>		
SAS- A18- Aug08	ELPEP Updates	<p>The change in the Contingency Drawdown Curve, particularly the latent contingency, needs to be clarified</p> <p>Update: At the quarterly meeting, a new contingency drawdown curve was presented. Management of the contingency is being addressed in the newly required Cost Contingency Management Plan.</p> <p>Update: The latest submission of the Cost Contingency Management Plan is under review. M'ACC has initiated contingency management and reporting which generally conforms to the requirements of the ELPEP.</p> <p>Update: Review and resolution of all issues is anticipated to be completed in February 2011.</p> <p>Update: See ELPEP section of report.</p>	2	6/30/10

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	<i>Comstock Skanska Joint Venture</i>
CWB	Current Working budget
DC	Design Consultant
DOB	New York City Department of Buildings
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
FD	Final Design
FEIS	Final Environmental Impact Statement
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
HASP	<i>Health and Safety Plan</i>
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
NA	Not Applicable
NEPA	<i>National Environmental Policy Act</i>
NTP	Notice to Proceed
NYCDEP	New York City Department of Environmental Protection
NYCT	New York City Transit
OClP	Owner Controlled Insurance Program
PE	Preliminary Engineering
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PQM	Project Quality Manual
RAMP	Real Estate Acquisition Management Plan
RFMP	Rail Fleet Management Plan
RFP	Request for Proposal
ROD	Record of Decision
ROD	Revenue Operations Date

RSD	Revenue Service Date
S3	Skanska, Schiavone and Shea, JV
SAS	Second Avenue Subway
SCC	Standard Cost Categories
SSCP	<i>Safety and Security Certification Plan</i>
SOE	Support of Excavation
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSRA	<i>Systems Safety and Reliability Assurance Program Plan</i>
SOE	Support of Excavation
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSPP	System Safety Program Plan
TF	<i>Total Float (schedule)</i>
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)		
42.7%	<i>Percent Complete Construction at December 31, 2012</i>		
73.4%	Percent Complete Time based on Rev Ops Date of December 30, 2016		

Cost (\$)

3,839 M	Total Project Cost (\$YOE) at Approval Entry to PE (w/o Financing Costs)
3,880 M	Total Project Cost (\$YOE) at Approval Entry to FD (w/o Financing Costs)
4,866 M	Total Project Cost (\$YOE) at FFGA signed (w/ \$816 M Financing Costs)
4,673 M	Total Project Cost (\$YOE) at Revenue Operations (w/o Financing Costs)
5,489 M	Total Project Cost (\$YOE) at date of this report including \$816 M Finance Charges
\$2,088 M	Amount of Expenditures at date of this report from Total Project Budget of \$4,451 M
46.9%	Percent Complete based on Expenditures at date of this report
\$409 M	Total Project Contingency remaining (allocated and unallocated contingency)

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

APPENDIX C – LESSONS LEARNED

There were no Lessons Learned to report for 4th Quarter for 2012

#	Date	Phase	Category	Subject	Lessons Learned
1	Oct-09	Construction	Schedule	Delays to excavation caused by adjacent Fragile Buildings	The PMOC recommended and MFACT adopted a plan to review the stability of all of the buildings affected by the Second Avenue Subway project. MFACT 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 MFACT get the utility companies to agree that once they have approved the plans, they cannot make major changes after award. MFACT's SAS Project Executive is meeting with the utilities to work out this problem.

APPENDIX D – PMOC STATUS REPORT
(Transmitted separately)

APPENDIX E – SAFETY AND SECURITY CHECKLIST

Project Overview			
Project mode (Rail, Bus, BRT, Multi mode)	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/Build/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 (NYSPTS B)
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 MTAACC
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		NYSPTS B
Has the oversight agency reviewed and approved the grantee's SSPP as per Part 659.17?	Y		The NYSTB issued a letter of recertification on September 2, 2010.
Has the oversight agency reviewed and approved the grantee's Security			

Project Overview		
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 of 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 activities throughout all project phases?	Y	Responsibilities during the design and construction phases identified
Does the grantee update the safety and security responsibility matrix/organizational chart as necessary?	Y	

Project Overview		
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	<i>None active construction contracts are being monitored daily by the CCM with oversight being performed by the grantee.</i>
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 with safety and security requirements in design?	Y	Ongoing part of design review process
Has the grantee verified conformance with safety and security requirements in equipment and materials procurement?	Y	Verification will continue with the procurement of equipment during the Station contracts (C2B, C4B, and C5B).
Has the grantee verified construction specification conformance?	Y	Reference Section DB.4 Construction Criteria Conformance of the

Project Overview		
		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?	NA	Project is currently in Design/ Construction Phase
Does the grantee evaluate change orders, design waivers, or test variances for potential hazards and/or vulnerabilities?	Y	Part of formal configuration control process
Has the grantee ensured the performance of safety and security analyses for proposed work-arounds?	NA	
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: Activation Plan and Procedures Integrated Test Plan and Procedures Operations and Maintenance Plan Emergency Operations Plan	Y	The various plans will be 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 Contract 6
Has the grantee issued the final safety and security verification report?	N	To be covered as part of the testing in Contract 6
Construction Safety		
Does the grantee have a documented/implemented Contract or Safety Program with which it expects contractors to comply?	Y	
Does the grantee's contract or(s) have a documented company wide safety and security program plan?	Y	
Does the grantee's contract or(s) have a site-specific safety and security program plan?	Y	Reference sections 011150 Safety Requirements and 011160 Security

Project Overview		
		Requirements of the Contract Terms and Conditions
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	<p><i>The OSHA Lost Time Accident Rate and Recordable Accident Rate from the start of construction until November 30, 2012 are 2.17 and 5.50, respectively. Both rates showed an improvement from the previous reporting period. The Lost Time Accident rate is below the national average of 2.2 and the Recordable Accident Rate is above the national average of 3.8. The cumulative construction time worked since the project inception is 4,797,455 hours. Cumulative lost time injuries since project inception is 52 and the cumulative recordable injuries are 80.</i></p>	National Average 2.2 and 4.2 respectively
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	<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 all Contractor Safety Managers, OCI P Representative, and the insurance carrier representative in order to make all aware of the safety concerns on the project and to exchange lessons learned. <i>Each contractor is also holding its own "toolbox" meetings focusing on various safety topics. Corrective Action Plans have been requested from contractors.</i></p>	

Project Overview		
	<i>with high safety incident rates.</i>	
Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y	
Federal Railroad Administration		
If shared track: has grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	NA	
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	NA	
Is the Collision Hazard Analysis under way?	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
(transmitted separately)

Appendix G-- Core Accountability Items				
Project Status:		Original at FFGA	Current*	ELPEP**
Cost	Cost Estimate	\$4,050 M	\$4,451 M	\$4,980 M
Contingency	Unallocated Contingency	\$555.554 M	\$386 M	\$220 M
	Total Contingency (Allocated plus Unallocated)	\$555.554 M	\$409 M (December 2012)	\$220 M
Schedule	Revenue Service Date	June 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	46.9%		
	Based on Earned Value	N A		
Major Issue		Status	Comments	
<i>Organization and Staffing</i>		<i>Open</i>	<i>Certain relationships on the current Org Chart do not reflect actual structure and function of project team. Need to fill two open positions ASAP.</i>	
<i>Safety and Security Certification</i>		<i>Open</i>	<i>Detailed planning and organizational prep for safety & certification process needs to continue. Current lack of dedicated staff may impede progress.</i>	
Date of Next Quarterly Meeting:		TBD		

* MFACC's Current Working Budget

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

All data based on December 31, 2012 reporting