

PMOC MONTHLY REPORT

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

January 1 to January 31, 2011



PMOC Contract No. DTFT60-09-D-00007

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

OPs Referenced: OP20-OP26, OP33, OP34, OP37, OP40, OP41, OP53, OP54

Urban Engineers of New York, P.C., 2 Penn Plaza, Suite 1103, New York, New York 10121

PMOC Lead, Charles A. Halboth, PE, 212-736-9100; cahalboth@urbanengineers.com

Length of time on project: 1 year

TABLE OF CONTENTS

	Page No.
SECOND AVENUE SUBWAY (SAS)	
EXECUTIVE SUMMARY	1
ELPEP SUMMARY	3
1.0 GRANTEE’S CAPABILITIES AND APPROACH	7
1.1 TECHNICAL CAPACITY AND CAPABILITY	7
1.2 FTA COMPLIANCE DOCUMENTS	14
2.0 PROJECT SCOPE.....	17
2.1 STATUS & QUALITY: DESIGN/PROCUREMENT/CONSTRUCTION	17
2.2 THIRD-PARTY AGREEMENT	23
2.3 CONTRACT PACKAGES AND DELIVERY METHODS	23
2.4 VEHICLES.....	24
2.5 PROPERTY ACQUISITION AND REAL ESTATE.....	24
2.6 COMMUNITY RELATIONS	25
3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS.....	25
3.1 PMP SUB PLAN.....	26
3.2 PROJECT PROCEDURES	26
4.0 PROJECT SCHEDULE STATUS	26
4.1 SCHEDULE STATUS	26
4.2 90-DAY LOOK-AHEAD.....	28
4.3 CRITICAL PATH ACTIVITIES	29
4.4 COMPLIANCE WITH SCHEDULE MANAGEMENT PLAN.....	31
5.0 PROJECT COST STATUS	32
5.1 BUDGET/COST	32
5.2 COST VARIANCE ANALYSIS	34
5.3 PROJECT FUNDING STATUS	35
6.0 PROJECT RISK	36
6.1 INITIAL RISK ASSESSMENT	36
6.2 RISK UPDATES	36
6.3 RISK MANAGEMENT STATUS	36
6.4 RISK MITIGATION ACTIONS	39

6.5	COST AND SCHEDULE CONTINGENCY	39
7.0	LIST OF ISSUES AND RECOMMENDATIONS	42
8.0	GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS	48

TABLES

TABLE 1: PROJECT BUDGET/COST TABLE	5
TABLE 2: SUMMARY OF CRITICAL DATES	6
TABLE 1-1: STANDARD COST CATEGORIES.....	12
TABLE 1-2 APPROPRIATED AND OBLIGATED FUNDS.....	12
TABLE 2-1: CONSTRUCTION PROCUREMENT.....	18
TABLE 4-1: SUMMARY OF CRITICAL DATES	27
TABLE 4-2; TARGET SCHEDULE COMPARISON.....	27
TABLE 4-3: 90-DAY LOOK-AHEAD SCHEDULE.....	28
TABLE 4-4: CRITICAL PATH ACTIVITIES.....	30
TABLE 5-1: ALLOCATION OF CURRENT WORKING BUDGET TO STANDARD COST CATEGORIES.....	33
TABLE 5-2 AWO SUMMARY	34
TABLE 5-3: APPROPRIATED AND OBLIGATED FUNDS	36
TABLE 6-1: SCHEDULE CONTINGENCY*.....	41

APPENDICES

APPENDIX A – LIST OF ACRONYMS

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The Second Avenue Subway project will include a two-track line along 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 tunnels from 105th 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.

COST BASELINE

FFGA \$4.87 billion (Federal = \$1.35; Local = \$3.52 billion including financing cost of \$817 million).

SCHEDULE BASELINE

Key Milestones:

▪ Preliminary Engineering (PE):	December 2001
▪ Final EIS Record Of Decision (ROD):	July 8, 2004
▪ FFGA:	November 19, 2007
▪ Final Design:	April 2006
▪ Original FFGA Revenue Service Date (RSD):	June 30, 2014
▪ Current MTA RSD:	December 30, 2016
▪ Current FTA/PMOC RSD:	February 2018

COMPLETION STATUS

A summary of the completion status of the four (4) active construction contracts as of January 31, 2011 is as follows:

- C26002 (Tunnel Boring) – 79.84%
- C26005 (96th Street Station) – 27.39%
- C26013 (86th Street Station) – 53.59%
- C26007 (72nd Street Station) – 2.37%

Aggregate Construction % Completion:

- 35.8% of active construction contracts are complete (C3 not included)
- 14.65% of all construction is complete

PROGRESS AND ISSUES

Contract C-26002 is near completion of the West Bore. The ground freeze at the beginning of the East Bore has started. The next two months will primarily involve the extraction of the TBM from the East Bore and remobilization for the start of the West Bore. During January 2011, C-26006 (63rd Street Station Upgrades) was awarded.

Key Issues to be monitored during the upcoming period:

- *Removal of the TBM from the West Bore.*
- *The bid opening for Contract C-26008(86th Street Station Cavern Excavation/Heavy Civil) is scheduled for February 4, 2011.*
- *Ongoing coordination of TBM Mining Runs w/72nd Street Station excavation and blasting operations.*
- *Redesign and formal approval of the proposed 72nd Street Station Muck House & Mucking System.*

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:

As of the end of January 2011, MTACC continued to work with the FTA to produce Management Plans and to demonstrate compliance with the Enterprise Level Project Execution Plan (ELPEP). As reported previously, the original schedule for accomplishment of portions of the ELPEP implementation has consistently not been met; however, progress continues to be made in several key areas. A significant contribution to the delays in implementing the ELPEP has been the requirement for intermediate deliverables by the MTACC to establish mutual and complete understanding of the concepts and requirements of the ELPEP which in many cases differed from the original MTACC interpretation of the ELPEP. A recent example of intermediate deliverable development is the development of a Risk Mitigation Capacity Plan. The purpose of this plan is to describe the processes MTACC has implemented to provide the level of Risk Mitigation Capacity required to meet the requirements of the ELPEP. Upon the successful completion of an acceptable plan, which the FTA considers to meet the requirements of the ELPEP if fully implemented, the Plan will then be used to verify the implementation and functional use of these procedures in the management of the two FTA Mega Projects.

October 12, 2010 marked the official goal for complete implementation of the ELPEP, which has not been achieved as of this writing. The PMOC projects that the full implementation of the ELPEP will require several more months of cooperative effort between the FTA and MTACC, however the four primary plans that are in various stages of development should be able to be completed within the next two months.

This month, the PMOC, MTACC, ESA and SAS Management attended the following ELPEP meetings:

- *1/13/11 – ELPEP Implementation Bi-Weekly Meeting*
- *1/4/11 – CMP Comment Review Meeting with ESA*
- *1/6/11 – CMP Comment Review Meeting with ESA*
- *1/11/11 – CMP Comment Review Meeting with ESA*
- *1/13/11 – ELPEP SMP Comment Review Meeting*
- *1/26/11 – CMP Review Working Meeting with SAS*

This past month, MTACC has completed the TCC process and has delivered the top ten CRs (candidate revisions) to FTA. The entire PMP revision had been anticipated to be delivered to FTA by the end of January. MTACC will issue the final revision; with a separate copy sent to FTA with changes tracked electronically. This action exceeds the requirement of the TCC approval letter.

Cost Management Plan review meetings were held on January 4, 6, 11 and 26 to discuss the PMOC comments with ESA (SAS representatives attended a portion of these meetings). A meeting was held to begin discussion of the CMP with SAS in which a Beneficial Outcomes document was distributed to MTACC to assist in the re-writing of the CMP.

At the January 13 ELPEP meeting, the PMOC distributed comments to the Schedule Management Plan (SMP) revisions made by MTA in response to the October 25, 2010

acceptance letter. The comments were reviewed between FTA and MTA. MTA will make further revisions to the SMP in response to these comments.

This month, MTACC met their revised internal goal to provide an SAS approved revised PMP containing the results of the TCC Implementation Plan. By providing the sections of the PMP which had been revised to meet the requirements of their top 10 Change Request list, this requirement of the TCC Implementation Plan approval letter was met. On October 26, 2010, FTA provided MTACC the Schedule Management Plan (SMP) Acceptance Letter. MTACC will update their SMP to include the items in the SMP acceptance letter. Once these modifications have been defined, MTACC will determine what level of approval /documentation will be required and finalize the changes. MTACC has submitted a revised draft Cost and Cost Contingency Management Plan, to which the PMOC/FTA have provided comments. As part of the final review and approval process, meetings will be held in January to review the ESA and SAS Cost Management Programs individually. MTACC has begun work on their demonstration of ELPEP conformant Construction Risk Mitigation Capacity by distributing a draft summary of the processes addressing stakeholder issues. PMOC has pointed out that this is a good first step to define processes and the next step should define how MTACC will demonstrate a functioning program and processes.

Based on the ELPEP effective date of January 15, 2010, the following items continue to be overdue:

- *MTA will finalize the Cost and Cost Contingency Management Plan in conformance with ELPEP requirements.*
- *MTA to demonstrate a functioning process for achieving the traceability of contract package scope from the design basis documentation through pre-construction planning into the contract package cost estimate, and schedule through a contract package level WBS or functional equivalent for one active ESA contract package (CM014). MTA will provide the FTA with a plan to demonstrate similar ELPEP conformance on all other un-awarded contract packages for both projects except for construction risk mitigation capacity.*

Observation:

Based on ELPEP requirements, the overall progress remains behind schedule; however, in January 2011 the MTACC made further progress in the completion of the TCC PMP review, the implementation and re-write of the Schedule Management Plan, and the revision of the draft Cost Management Plan. The draft recovery plan has been reviewed by the PMOC with comments forwarded to the Region II Office on November 1, 2010. The PMOC understands that the FTA has had additional discussions with MTACC to resolve issues with the respective ESA and SAS Plans, and that a meeting will be held in February 2011 to review MTACC's re-written Plan.

The FTA and MTACC continue to participate in a cooperative process to produce the deliverables described in the ELPEP. The bi-weekly ELPEP progress meetings serve to review progress and look ahead to upcoming milestones. MTACC has made good progress in finalizing the CMP, meeting the requirements of the TCC approval letter, meeting the requirements of the SMP approval letter and the development of the intermediate Risk Mitigation Capacity Plan. Comments to the MTACC draft CMP have been reviewed with ESA and are in the process of

review with the SAS staff. This month, the SAS Project Team has continued to be proactive in the support of the ELPEP implementation effort.

Concerns and Recommendations:

- *The PMOC had recommended that the MTACC develop their proposed method to demonstrate compliance with the ELPEP requirements for risk mitigation capacities in the form of an intermediate deliverable. MTACC has delivered their draft Plan which is under PMOC review. Once this intermediate deliverable is validated, the intermediate deliverable, which is a description of its procedures that would then be verified.*
- *The PMOC has recommended revisions to the draft CMP which have been discussed with ESA project management in January 2011, leading toward the goal of a finalized CMP.*

Table 1: Project Budget/Cost Table

	FFGA			FFGA Amendments	MTA's Current Working Budget (CWB)		Expenditures as of January 31, 2010	
	(\$ Millions)	(%) Grand Total Cost	Obligated (\$ Million)	TBD	(\$ Millions)	(%) Grand Total Cost	(\$ Millions)	% of Grand Total Cost
Grand Total Cost:	4,866.614	100	4,137.911		5,489.614	100	1,124.463	20.48%
Financing Cost	816.614	16.78			816.614	14.88		
Total Project Cost:	4,050.000	83.22	4,137.911		4,673.000	85.12	1,124.463	20.48
Total Federal share:	1,350.693	27.75	*628.911		1,350.693	24.60	351.336	6.40
Total FTA share:	1,300.000	96.25	600.818		1,300.000	23.68	340.224	6.20
5309 New Starts share	1,300.000	100	600.818		1,300.000	23.68	340.224	6.20
Total FHWA share:	50.693	3.75	28.093		50.693	0.92	11.112	.20
CMAQ	48.233	95.15	25.633		48.233	0.88	8.652	.16
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	.04
Total Local share:	2,699.307	55.47	**3,509.000		**3,509.000	63.92	773.127	14.08
State share	450.000	16.67	100.000		450.000	8.20		
Agency share	2,249.307	83.33	1,145.782		3,059.000	55.72		
City share	0	0			0	0		

*Obligated amounts obtained from the Transportation Electronic Award Management (TEAM) system and MTACC's Grant Management Department. * *Current MTA Board approved budget see Section 1.1.3 b for details.

Table 2: Summary of Critical Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	03/20/2007A	03/20/2007A
Construction Complete	December 31, 2013	May 23, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016(1)	February 2018*

(1) SAS Phase 1 Integrated Project Schedule, Revision 3; Update #54, and data date of January 1, 2011.

* From ELPEP

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

The Design staff is being reduced as the remaining work is completed. Construction support services have not been adversely affected. The Construction Manager is adding staff as construction activity increases.

MTACC is currently utilizing consultant staff to fill positions it has otherwise been unable to fill through direct hire.

The current project team acts as an integrated organization with virtually no distinction between the employee's actual employer.

Observation:

The current project organization appears well integrated and very cohesive.

Concerns and Recommendations:

The PMOC had reservations about the Quality Manager reporting to the Program Manager of Construction Support. To address the PMOC's concern, MTACC's Quality Management agreed that the SAS Project Quality Manager will report to the Vice President/Deputy Program Executive. The organization chart will be revised to reflect this change. PMOC will continue to periodically review project staffing to verify its adequacy.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

On January 13, 2011, MTACC issued an updated (draft) SAS Project Management Plan for PMOC's review. The revised plan incorporated candidate revisions to reflect the "Material Decision" process of the ELPEP. PMOC review is ongoing and is anticipated to be completed by mid February 2011.

Observation:

Integration of the ELPEP requirements into the SAS PMP will allow the MTACC to more effectively manage the SAS project. It will also give the FTA/PMOC a greater level of assurance that the SAS project can proceed through the construction phases and be delivered to the start-up phase consistent with the estimated total project cost and schedule.

Concerns and Recommendations:

Any concerns will be identified during the review of the updated PMP.

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

Status:

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

Observation:

Efforts are underway to amend the FFGA because the baseline cost and schedule have been exceeded.

Concerns and Recommendations:

See section 1.1.2 a

c) Grantee's Approach to Community Relations, Asset Management, and Force Account Plan

Status:

Community Relations—During January 2011, MTACC continued to field questions via the field office telephones, SAS Hotline and MTA web mail regarding all aspects of the project. The community relations representative continued to support the bi-weekly job progress meetings and made known any concerns of the community that needed to be addressed. The Good Neighbor Initiative is ongoing to standardize the look of construction barriers, paint barriers, increase the use of signage and improve overall cleanness of work zone areas.

Asset Management –Identification and control of project assets will be coordinated between the System Contractor (Contract 6) and NYCT's Department of Subways. Development of the plan is on-going.

Force Account –*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. As of January 31, 2010, \$142,637 of the \$33,000,000 Force Account budget has been expended.*

Observation:

Responses to community and business concerns are timely. The project recognizes that more community buy-in is needed to minimize the probability of community distress. SAS Asset Management Plan must be integrated with NYCT's Property Management System. The Force Account budget is being validated as part of the review of Revision 8 of the SAS Cost Estimate.

Concerns and Recommendations:

None

d) Grantee's Approach to Safety and Security

Status:

Safety –Each construction contractor continued to implement its Safety Program in compliance with Section 011150 of the General Requirements Section of the Contract.

Security –Each construction contractor continued to implement its Site Security Plan in compliance with Section 011160 of the General requirements of the Contract. The section

specifies requirements for the security of the work including: site and office security, and transportation and protection of explosives.

The MTA initiated a comprehensive review of its infrastructure to determine how to protect its customers and key assets from a terrorist incident. Security experts define critical vulnerabilities and determine appropriate protective strategies. The result of these efforts was the implementation of a multi-faceted program including operating and capital investments. The capital investments included hardening vulnerable assets and implementing the networks and equipment necessary to conduct targeted surveillance, control access, stop intrusion and provide command and control system to support incident response. MTA began implementing these investments in the 2000-2004 Capital Program and will continue to progress this program and subsequent programs using Federal funds (Reference: Proposed MTA Capital Program 2010-2014, dated September 23, 2009).

Observation:

During January 2011, each construction contractor continued being proactive in implementing its safety program. Weekly tool box meetings were conducted to keep the workforce informed on various safety topics. Root cause analysis is being performed to assure that the actual cause of an incident has been identified and positive corrective actions implemented to prevent recurrence. The year to date (as of December 30, 2010) OSHA Lost Time Rate is 2.64 and the OSHA Recordable Accident Rate is 5.88. Both rates are above the national average of 2.2 and 4.2 respectively.

Due to the sensitive nature of the security effort, the proposed 2010-2014 Capital Program identifies a single budgetary reserve of \$250M, which will be used to progress the next group of projects. (Reference: Proposed MTA Capital Program 2010-2014, dated September 23, 2009).

Concerns and Recommendations:

None

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

a) Uniform Property Acquisition and Relocation Act of 1970

Real estate acquisition and tenant relocation is being 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.

b) Local Funding Agreements

MTA's approved 2000-2004 and 2005-2009 Capital Programs provided \$2,964 million for SAS Phase 1 (\$1,050 million and \$1,914 million respectively). The proposed 2010-2014 Capital Program budgets \$1,487 million to complete the SAS Phase 1 project. Of the \$1,487 million, \$545 million was approved for the 2010-2011 timeframe. MTA needs to approve \$942 million for the 2012-2014 timeframe.

1.1.4 Scope Definition and Control

Status:

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 installation and overall operating systems inspection and testing.

Active issues involving the management and control of project scope include:

<i>Issue</i>	<i>Description</i>
<i>Deletion of railcars</i>	<i>MTACC has proposed the elimination of the vehicle procurement from the scope of the project. The rationalization for the elimination of the vehicle is presented in the revised NYCT Fleet Management Plan. Approval of the FTA is required for the formal incorporation of this scope deletion.</i>
<i>Transfer of East Bore Tunnel Lining between 72nd and 86th Street Stations</i>	<i>MTACC proposes to transfer this work from construction package C1 to construction package C5B to reduce the risk of delay through construction interferences and priority conflicts. A bid option has been included in the C5B bid package. Negotiations regarding cost and schedule considerations have started with the C1 construction contractor.</i>
<i>Additional requests from NYCT operating departments</i>	<i>Final design reviews resulted in numerous requests from the NYCT operating departments for both additions and deletions of scope. The SAS Project Team is in the process of reviewing and evaluating these requests through the Configuration Control Board and, if implemented, the Technical Advisory Committee.</i>

Observation:

The process of utilizing the Configuration Control Board (CCB), the change control process, the Technical Advisory Committee (TAC) and issuing Technical Memorandums has proven to be an effective means of controlling scope and managing the transfer of scope between construction packages.

Concerns and Recommendations

None. The PMOC will continue to monitor and review these processes to verify effective scope management.

1.1.5 Quality

Status:

During January 2011, PB's Quality Assurance oversight activity for each construction contractor forced on: review and approval of contractor's Quality Work Plans; review of the contractor's Quality Management System (internal audit of contractors and external audit of subcontractors); participation in Preparatory Phase Sessions for construction processes; bi-

weekly quality meetings with contractor's management and PMOC; and monitoring the control of non-conforming material.

Observations:

None

Concerns and Recommendations:

None

1.1.6 Project Schedule

Status:

A summary of project schedule information is as follows:

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	03/20/2007A	03/20/2007A
Construction Complete	December 31, 2013	May 23, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

Observations:

The Revenue Service Date (RSD), as forecast by the Integrated Project Schedule (IPS) has essentially remained constant over the past six months. In maintaining this overall schedule, the SAS Project Team has overcome several individual package delays that could have impacted the overall project. Nevertheless, delays in TBM mining, procurement and utility relocation have extended several paths to "near-critical" status.

The substantial completion of the Design Phase in November 2010 and West Bore contract TBM mining in December 2010 represent significant achievements and reductions in the risk of future schedule delays.

Conclusions and Recommendations:

The SAS Project Team has demonstrated the capacity and capability to manage and maintain the project schedule. The calculated RSD has remained constant for approximately six months.

1.1.7 Project Budget and Cost

Status:

Total project cost in the approved FFGA is \$4,866,614 million 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
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 and obligated amounts as of *January 31, 2011*

Table 1-2 Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru <i>January 31, 2011</i>
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	<i>\$167,810,300</i>
NY-03-0408-06	\$274,920,030	\$274,920,030	<i>\$60,125,583</i>
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	\$8,652,432
NY-95-X015-00	\$45,800,000	\$45,800,000	0
Total	\$628,911,200.00	\$628,911,200.00	<i>\$351,336,185.00</i>



* Denotes American Recovery and Reinvestment Act (ARRA) funds

A total of \$1,124,462,971 has been expended on the project through *January 31, 2011*, of which \$404,070,652 has been spent on design and \$386,955,706 on construction (MTACC's monthly financial input).

Observation:

Local funds totaling \$773,126,786 (\$1,124,462,971 - \$351,336,185) have been spent as of *January 31, 2011*. MTA's approved 2000-2004 and 2005-2009 Capital Programs provided \$2,964 million for SAS Phase 1 (\$1,050 million and \$1,914 million respectively). The proposed 2010-2014 Capital Program budgets \$1,487 million to complete the SAS Phase 1 project. Of the \$1,487 million, \$545 million was approved for the 2010-2011 timeframe. MTA needs to approve \$942 million for the 2012-2014 timeframe.

Concerns and Recommendations:

None

1.1.8 Project Risk Monitoring and Mitigation

Status:

Risk monitoring and mitigation is ongoing and being performed per the SAS Risk Management Program, which is documented in Section 6.0 of the PMP. Through January 2011, the project has held eight Risk Mitigation Meetings. A Risk Register has been developed and maintained on the Project since late 2002. The present Risk Register is being updated to include Risk Mitigation Meeting proceedings as of November 2010.

Observation:

SAS Project Management is being proactive in its efforts to monitor and mitigate risk. From the initial Risk Mitigation and through all subsequent meetings held to date, the Project has been focusing on those risks that DHA indicated in its December 2009 Risk Analysis Report as the risks that contribute the most to the contingency requirements.

Concerns and Recommendations:

None

1.1.9 Project Safety

Status:

Each construction contractor continued to implement its Safety Program in compliance with Section 011150 of the General Requirements Section of the Contract. *The year to date (as of December 31, 2010) OSHA Lost Time Rate is 2.64 and the OSHA Recordable Accident Rate is 5.88. Both rates are above the national average of 2.2 and 4.2 respectively.*

Observation:

Each construction contractor conducts weekly tool box meetings to keep the workforce informed on various safety topics. Safety concerns identified by CCM safety personnel and the OCIP representative are quickly addressed by the contractors. When an incident occurs, root cause analysis is performed to assure that the actual cause has been identified and positive corrective actions implemented to prevent recurrence.

Concerns and Recommendations:

None

1.2 FTA Compliance Documents

Status:

No change this period.

1.2.1 Readiness to Enter PE

Status:

Preliminary Engineering (PE) began in December 2001.

1.2.2 Readiness to Enter Final Design

Status:

Final Design began in April 2006.

1.2.3 Record of Decision

Status:

The Record of Decision (ROD) was dated July 8, 2004.

1.2.4 Readiness to Execute FFGA

Status:

The Full Funding Grant Agreement (FFGA) was dated November 19, 2007.

1.2.5 Readiness to Bid Construction Work

Status:

The PMOC's implementation of the OP53 reviews during *January* 2011 included the following actions:

- *Scheduled and conducted two internal progress meetings per week and prepared and issued meeting minutes for SAS 2B and 4B Contract reviews, and general information on other SAS contract reviews to be performed;*
- Distributed additional package-level design documents directly, through internal server access, and through an FTP server to OP53 Review Team;
- The OP53 review of the *2B package* and *4B package update* continued with the research of needed documents in the EDMS system, and further chronology development;
- Assembled additional *2B* design documents *for* OP53 reviews;
- Continued analyses and *updated* various Contract 4B report sections;

- Prepared additional analyses and development of Contract 2B report sections pertaining to Demonstrated Management Capacity and Control in Procurement, Package Chronology and Package Level Verification;
- *Participated in FTA annual Engineers Meetings pertaining to OP53 by web-x;*
- *Performed research of various professional association technical papers to obtain relevant “Best Practices” documents at FTA request. These are to be referenced in further developments of OP53 product report reviews;*
- *Participated in interactive session with MTACC IT staff in PMO office to improve and/or resolve EDMS access to MTACC documents. Coordinated with MTACC IT and document management staff to advise on EDMS access problems;*
- *Met with the Grantee’s Quality Manager, and the Designer’s Quality Manager to review quality activities on the 96th Street Station and 72nd Street Station designs, specifically on Contracts 2B and 4B.*

Observation:

- *The Bid Package for SAS Contracts 2B and 5C had design quality checks performed as required by the project. The QA/QC check consists of ensuring that the design QC checks were performed, signoffs and markups were added to the drawings appropriately, and that the final submission was fixed appropriately. The check was performed on a sampling basis to the current ANSI standard Z1.4. For the purposes of these checks, “major” defects are considered to be any inconsistency or mistake that could lead to an RFI from the contractor. This defect designation is over and above what would traditionally be considered “major” defects in an ordinary quality audit. A “major” defect would typically represent an observation of a complete breakdown of the quality system.*
 - *For Contract 2B, the Structural Design package was reviewed for product quality. The structural package contained a total of 269 drawings. 32 of these were sampled and there was only one “major” deficiency uncovered, yielding an AQL of 98.5%. If the AQL had been 95% or lower, there would have been another Quality Check performed on the package when it was corrected.*
 - *The “major” deficiency noted was that a note on one of the drawings referred to another drawing number, but the drawing it referenced had moved to the next page. This sort of deficiency would not lead to a construction problem but may have lead to an RFI and it was corrected.*
 - *For Contract 5C, the Civil Design package was reviewed for product quality. No “major” defects were found.*
 - *A complete QA/QC report was issued for each package. The other design packages for the contract were Fire Protection, Plumbing, Civil, Structural, Architectural, and Utilities. All notes/deficiencies from each report had to be addressed and/or corrected before the package could be final.*
- *The Designer’s Contract, Article 3.1.14 Constructability Review (CR), notes “The Consultant shall participate in formal constructability review.” Further, it notes that “At each stage of the project a constructability review shall be made and formally*

documented. Constructability will review issues that affect the construction and issues that affect the public. Key issues that should be studied in detail include utilities...” and various other significant issues are listed. In numerous sections, the Designer’s contract identifies requirements for consideration of constructability issues for the progress of design work involving multiple disciplines.

- Modification 38 to the Design contract identifies that the Designer shall participate in one combined constructability review for contracts 4A, 4B, and 4C. This review, a workshop, was carried out in August 2009. Other than this review, the PMOC did not find other constructability reviews by the Designer for 4B and 2B contracts since 2006. No constructability reviews could be found after the 4A/4B combination.
- *The PMOC feels that a constructability review would have been warranted. Given that there was originally a ‘hand-off’ period between the 4A and 4B contracts, the new contract might need a sequencing plan. The SAS’s Risk Register (Risk ID #29f) during the 4th Quarter 2009 indicated that the coordination and interface between Contract 4A and 4B as ‘Very Important.’ No cost impacts were quantified with this risk. However, the Register indicated that there was 90% likelihood that this risk could effect the project schedule from 5 to 30 days. A recent Risk Register, September 20, 2010, still has the coordination between 4A and 4B ‘Open.’ No additional risks have been added to register that refer to the combination of 4A and 4B.*

Concerns and Recommendations

The PMOC believes that schedule, cost and constructability risks exist by combining the contracts 4A and 4B without a thorough analysis after associated designs were prepared. In addition, the general lack of such reviews for the various contracts should be evaluated to determine if additional risk impacts should be added to the Risk Register.

1.2.6 Readiness for Revenue Operations

Status:

No change this period.

Observation:

None

Concerns:

None

2.0 PROJECT SCOPE

2.1 Status &Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

MTACC reported the design phase of the SAS Project to be 100% Complete in late November 2010. During this period, the PMOC has received and reviewed 100% Design Memorandums for recently completed packages.

Observation:

PMOC observations include the following:

- *There are several elements of design work that are incomplete; however, they are not currently delaying the progress of any of the construction packages. As such, the PMOC considers the term “substantially complete” to be a more accurate description of the current status of the design phase.*
- *Design work items that are incomplete at this time include:*
 - *Incorporation of items beyond the scope of the current design contract. These items have been identified as “Design Scope Changes” and are currently being assembled as a final modification to the design contract. Some of this work will be incorporated in the construction packages after award as a change order.*
 - *Evaluation of scope changes requested by NYCT during the 95% Design Review. Over 50 changes were requested. All must be reviewed by the project team for technical merit as well as cost and schedule impacts. Scope changes that will be added must then be evaluated by the TAC and formally incorporated into the design.*
 - *Updating the design of station finish packages (C2B, C4C, and C5C). “Dusting off” these designs includes final scopes for all utility work, incorporation of “as-built” info from predecessor contracts, and similar updating activities.*
- *Recent experience with C3 and C5B construction procurements suggest the project team is effectively managing the design process. These packages experienced limited cost and schedule growth during procurement resulting from design quality issues.*

Concerns and Recommendations:

The PMOC is concerned that the SAS project team has not fully evaluated the effort required for the “dustoff” of the three station finish packages prior to advertisement.

2.1.2 Procurement

Status:

Two significant procurement events occurred during January 2011:

- *Contract C3 was awarded to Judlau, Inc. on January 13, 2011.*

- The bid opening for construction package C5B was postponed again until February 4, 2011.

A summary of “milestones” for ongoing or near-term procurements are as follows:

Table 2-1: Construction Procurement

Activity #	Description	Date*	Comment
Contract C-26006 (C3): 63 rd Street Station Upgrade			
C3 PR40	Award Contract C3	01/13/11A	Contract awarded to Judlau, Inc.
Contract C-26008 (C5B): 86 th Street Station Cavern & Heavy Civil			
C5B 20m	Procurement – Advertise C5B Bid Package	10/25/10A	Bid date postponed until 02/04/11.
C5B 25d	Procurement (IFB) Open Bids	02/04/11	
C5B PR40	Award Contract 5B	03/29/11	
Contract C-26009 (C6): Systems			
SYPR20e	Authorization to Advertise	09/10/10A	Issuance of RFP delayed by resolution of “Buy America” requirements.
SYPR 20k	Prep RFP Short List	11/29/10A	
SYPR 25t	Issue RFP	02/18/11	
SYPR30d	Submit Proposals	04/20/11	
SYPR40	Award Contract	07/18/11	

* Note: All dates reference IPS Update #54 (DD=01/01/11) U.N.O.

Observations and Analysis:

As part of IPS Update #54, the procurement of Contract C26010 (Package 2B) was postponed by one month.

MTACC is reportedly considering the postponement of the C2B package by as much as six months due to slower-than-anticipated progress and associated coordination issues involving C2A.

To date, the PMOC has seen no indication of a “dustoff plan” for packages C4C and C5C.

Concerns and Recommendations:

Incorporation of all, “as-built” changes into the station finish packages will be a significant component of controlling cost growth during construction. Timely development, collection and incorporation of this information into the respective packages may be critical to the procurement schedule. MTACC committed to developing an action plan for this work and including it with the 100% Design Memoranda. It did not do so. The PMOC has suggested that schedule activities and logic for the “dustoff” phases be developed and incorporated into the IPS. This has not occurred.

The PMOC is concerned over MTACC's apparent disinterest and/or lack of concern over this dustoff phase". The PMOC recommends the MTACC devote the appropriate effort to plan this phase of work sufficiently in advance of it starting to reduce the risk of unforeseen delays and problems.

2.1.3 Construction

Status:

There are five (5) active construction contracts on the SAS project. Construction progress on these contracts through January 2011 includes:

- **Contract C-26002(C1) –TBM tunnels from 92nd Street to 63rd Street**
 - *Continued mining of TBM west tunnel through additional length added via AWO #92. Completion of the west bore is anticipated in early February 2011.*
 - *Turned on ground freeze system on January 10, 2011.*
 - *Completed test pit work for installation of ground instrumentation to monitor freeze area.*
 - *Cellar Tie work at 1808, 1804 & 1834 completed. Work at 1814 is still pending sidewalk shed removal by the owner.*
 - *Coordination of S3TC power feed from 96th Street and Contract 2A splice boxes for deck beam resolved.*
 - *Sidewalk improvements/Good Neighborhood Program initiatives continue.*
- **Contract C-26005 (C2A) 96th Street Station Heavy Civil, Structural and Utility Relocation**
 - *Completed sewer trench excavation between manhole MH 98-3 and MH 98-4.*
 - *Completed ECS duct crossing from west side of Second Avenue to MHC at 98th St.*
 - *Con Edison and ECS continued to pulled and spliced cables between 95th and 98th Streets on the east side of Second Avenue.*
 - *Installed sewer trench between SC 95-2 and Entrance 3.*
 - *Interference between ECS ductbank and sewer at 98th Street resolved. Work expected to resume in mid-February.*
 - *Began CFA piles between 95th Street and 98th Street.*
 - *Started secant pile installation for north wall of Ancillary 2.*
 - *Completed gas service connections to buildings between 96th and 97th Street.*
- **Contract C-26006 – (C3) 63rd Street Station Upgrade**
 - *Notice to Proceed issued January 13, 2011.*
 - *Preliminary Schedule submitted January 28, 2011.*
 - *CPM Baseline Schedule under development.*
- **Contract C-26007 (C4B) 72nd Street Station Mining and Lining**
 - *Rock blasting started at 69th Street shaft on January 18, 2011.*
 - *All test blasts completed at 69th Street shaft on January 21, 2011.*

- *Production blasting at 69th Street shaft started on January 26, 2011.*
- *Mobilization of construction equipment, MPT and temporary utilities at 69th & 72nd Streets Access Shafts.*
- *Ground & building instrumentation installation completed.*
- *Asbestos Abatement started at Ancillary 2.*
- ***Contract C-26013 (C5A)86th Street Station Excavation, Utility Relocation and Road Decking***
 - *Con Ed continues cable pulling & splicing work east side of Second Ave, between 82nd- 84th St.*
 - *Completed soldier pile & cap beam installation at south shaft.*
 - *Deck beam, Line drilling, and Lagging installation underway at south shaft.*
 - *Excavated basement of Gothic Cabinet Bldg. to locate sewer service.*
 - *Con Ed continued work on new transformer vault V13-6, connecting sewer pipe to transformer.*
 - *Completed tie-in of the north 30" gas main loop.*
 - *Completed installation of MH "Z".*
 - *Completed MH K2 and the ducts from K2 to K.*

Observations:

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

For Contract C1 - As of January 30, 2011, TBM progress is summarized as follows:

	Second Avenue Subway TBM Summary - PMOC Projection							
	Date	Station	Total Progress	Unit	Period Progress	Work Days/ Period	Progress/ Period	Unit
Actual	6/8/2010	Sta 1221+89.0	0.0					
					261.0	16	16.31	LF/WD
	6/29/2010	Sta 1219+28.0	261.0	LF				
					374.2	22	17.01	LF/WD
	7/29/2010	Sta 1215+02.96	635.2	LF				
					1292.8	18	71.82	LF/WD
	8/31/2010	Sta 1202+61.0	1928.0	LF				
					1054.0	17	62.00	LF/WD
	9/29/2010	Sta 1192+07	2982.0	LF				
					769.0	24	32.04	LF/WD
	11/2/2010	Sta 1183+85.72	3751.0	LF				
				877.0	20	43.85	LF/WD	
	11/30/2010	Sta 1175+09.17	4628.0	LF				
				368.0	4	92.00	LF/WD	

Second Avenue Subway TBM Summary - PMOC Projection							
Date	Station	Total Progress	Unit	Period Progress	Work Days/Period	Progress/Period	Unit
12/6/2010	Sta 1171+93	4996.0	LF				
	Original limit, TBM-1			392.0	6	65.33	LF/WD
12/14/2010	Sta 1167+48.8	5388.0	LF				
				883.5	18	49.08	LF/WD
1/9/2011	Sta 1158+65.6	6271.5	LF				
				943.5	13	72.58	LF/WD
2/5/2011	1150+00	7215.0	LF				
Total To Date		7215.0	LF		158	45.66	LF/WD
Forecast	3/5/2011	Extract TBM			20		
	4/9/2011	Remobe/Reset TBM			25		
	4/9/2011	Sta 1221+89	0.0	LF			
				7827	171	45.66	LF/WD
	12/4/2011	Sta 1143+80	7827.0	LF			

- *As previously reported, the contractor has accepted responsibility for 82 WD of delay through June 1, 2010. TBM-related delays to date are also considered to be the contractor's responsibility. These delays are currently estimated at 45 WD. To date, no Recovery Plan or other indication how the Contractor intends to recover this time has been presented.*
- *Transfer of the concrete lining of the east bore (72nd to 86th Streets) from contract C1 to contract C5B is anticipated to satisfy New York City Fire Department (NYCFD) requirements and coordinate the work of these packages. To date, a proposal detailing the corresponding schedule reduction has not been submitted by the Contractor.*

For Contract C2A:

- *Completion of Critical ConEd work West Side 2nd Ave between 95th & 96th Sts.*
- *A temporary "work around" for the ECS ductbank interference with sewer line at SC 95-2 was approved; the work is underway.*
- *ECS MH interference with Slurry wall panel at 95th Street – Additional field investigation to be coordinated with ECS/Verizon after CFA piles installed.*
- *Approval of AWO #48 for Schedule Recovery/Mitigation – Awaiting Contractor concurrence of proposed Excusable & Impactable dates.*
- *Redesign of 1802 2nd Ave Building Stabilization. DHA design under review.*
- *Additional 60" Water Main – DEP approval, Fabrication, Installation requiring Shut-down.*

- *DOT approval is required for Lane/Sidewalk closure between 97th and 99th Streets to support water line work.*

For Contract C3:

- *None to date.*

For Contract C4B:

- *The C4B Contractor has overcome the restriction which did not allow blasting if the TBM was south of the 72nd Street shaft. Vertical blasting of the shafts and excavation started during January 2011.*
- *After considerable review, the MTACC informed the C4B Contractor it could not permit construction of the proposed muck conveyor/loading operation enclosure. The C4B Contractor has responded with several design modifications to mitigate possible environmental impacts. These modifications are currently under review by MTACC and a subsequent meeting will be held with the FTA/PMOC.*

For Contract C5A:

- *Completion of critical ConEd cable pulling and splicing to the east side of 83rd Street and at the Chase Bank Building by mid-March 2011.*
- *Access to perform remediation and underpinning work for two (2) buildings on west side of 83rd St Access is required by 2/15/11 so that remediation work can be completed by 2/28/11, allowing pit excavation to start.*
- *Coordination of blasting operations at the 69th and 72nd Street shafts with C1 TBM mining Operations & CIP concrete work.*

Concerns and Recommendations:

MTACC continues to make progress in resolving problem issues and avoiding major construction delays.

The rapidly increasing volume of construction activity may PMOC considers an improvement in the processing times for AWOs to be an area requiring improvement.

2.1.4 Force Account (FA) Contracts

Status:

As of January 31, 2011, \$142,637.00 of the \$33,000,000 FA budget has been expended.

Observation:

Force account involvement in the project has been very low to date.

Concerns and Recommendation:

None

2.1.5 Operational Readiness

Status:

NYCT has developed a Concept of Operations Plan for the SAS Project. Operational Readiness will be validated during NYCT's Pre-Revenue Service testing scheduled from March 21, 2016 to June 15, 2016. *SAS and NYCT will meet during February 2011 to start dialog on what tests will be performed and possible generation of a test plan.*

Observation:

The specific tests with its associated durations that NYCT will perform during Pre-Revenue Service testing are not identified on the IPS.

Concerns and Recommendation:

The PMOC recommends that the Concept of Operations Plan be updated to reflect any changes from the optimization effort which could affect the SAS project. *An Operational Readiness review will be performed as outlined in FTA's OP #54.*

2.2 Third-Party Agreement

Status:

No change this period.

Observation:

None

Concerns and Recommendation:

None

2.3 Contract Packages and Delivery Methods

Status:

There was no change to the delivery method for any of the construction packages during January 2011.

Observation:

The C5B bid package requested a price to furnish and install the tunnel liner in the east bore between the 72nd Street and 86th Street Stations. This work is currently a part of the C1 package. It is MTACC's intention to delete this work from the C1 package to minimize potential interference and coordination problems with follow-on construction packages at both the 72nd Street and 82nd Street Stations.

Delays in construction of the C1 package have significantly increased the probability of coordination problems and delays with cavern and station construction at the 72nd street and 86th Street sites. The transfer of scope between construction packages is considered an important element in avoiding subsequent delays and maintaining the current project schedule.

Concerns and Recommendations:

Scope transfers of this nature commonly have a less than favorable financial outcome for the owner. Including the work as part of the C5B bid package will enable MTACC to receive a

competitive price based on current market conditions. If MTACC can negotiate a reasonable credit for the deleted work with the C1 Contractor, this negative outcome can be avoided.

2.4 Vehicles

Status:

NYCT has stated in their Rail Fleet Management Plan and at project progress meetings that the purchase of vehicles for the SAS program may be cancelled based on NYCT projections for their fleet requirements to support the service including the SAS Phase 1 project. FTA and the PMOC have requested analysis to back up the NYCT calculations which according to the RFMP are based on a change to the NYCT fleet spare factor. A revised RFMP has been generated by NYCT, which bases the justification for not purchasing additional vehicles for the SAS project on the inclusion of service reductions in the calculation of fleet requirements.

Observations:

The PMOC had requested certain clarifications of the decision to decrease the total fleet spare factor and, thereby, the fleet requirement, by increasing the maintenance intervals for new millennium cars.

NYCT has revised their RFMP to no longer link the change to SMI intervals to the availability of vehicles for the SAS Phase I service, a previous concern reported by the PMOC. The RFMP accounts for recent service cuts, which significantly increase the fleet spare factor. The delay to vehicle orders to meet fleet growth on other “B” division lines will also be postponed. Additional cars to support the “Q” line rerouting portion of SAS would reassign service reduction cars as necessary. The PMOC noted, however, that the total requirement for SAS Phase I service is 132 cars based on additional vehicles for the “W” service.

The NYCT RFMP now indicates that the 80 R-179 Option 2 cars is NYCT’s preferred choice for satisfying Phase 1 of SAS, pending funding availability, however the recent service reductions provide ample spare vehicles, allowing NYCT to maintain a higher spare factor than before.

Concerns and Recommendations:

Should NYCT experience future growth or other circumstances that require the reversal of service reductions implemented in 2010, this issue, combined with the inclusion of vehicle orders that are not funded, could present challenges meeting service when the SAS service is initiated, requiring the identification of funds for the purchase of additional vehicles.

2.5 Property Acquisition and Real Estate

Status:

Real estate acquisition is ongoing in support of contract procurement.

Observation:

Revisions requires for 2 appraisals submitted to FTA, Block 1417, Lot 45 – 200-201 East 63rd Street and Block 1397, Lot 61 – 124-126 East 63rd Street. MTA will re-submit and send out offer letters to property owners upon receipt of approval from FTA.

# Parcels Identified	# Parcels Closed	# Parcels Under Contract	# Parcels In Negotiation	# Parcels In Appraisal	# Parcels In Condemnation	# Parcels Right of Occupancy
95	91	0	4	4	94	88

Concerns and Recommendations:

PMOC recommends a site visit in first quarter 2011 to review status of condemnations and files; verify schedule of completion of all rock bolt temporary easements; meet with MTA Real Estate to discuss cost to cure on interior building utilities and how it impacts schedule deliverables; and review property management plan for FTA compliance under OP23. PMOC will review the temporary relocations and verify cost to complete budgets and schedules.

2.6 Community Relations

Status:

In late October, MTACC announced its “Good Neighbor Initiative” throughout the SAS construction area. Elements of this initiative include:

- *Implementing way-finding signage for stores that is uniform, legible and clean*
- *Ensuring sidewalks are in good condition without holes, cracks, and trip hazards*
- *Replace bent/worn fencing*
- *Painting all barriers*
- *Maintaining sidewalks, crosswalks, and safe sight lines for pedestrians/vehicles*
- *Maintaining full access to businesses/residences*

During January 2011, this initiative continued with sidewalk improvements between 92nd and 93rd Streets.

Observation:

Outreach efforts of this nature are necessary to counter the ongoing complaints of businesses allegedly affected by construction. Responses to community and business concerns are timely. The project recognizes that more community buy-in is needed to minimize the probability of community distress.

Concerns and Recommendations:

None

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

Status:

Revision 8 of the SAS Project Management Plan was submitted to the PMP for review and comment on January 21, 2011. The PMOC has commenced its review.

Observations:

The SAS Project Management Team has developed Candidate Revisions to its Project Management Plan. These proposed revisions and accompanying work papers have been

provided to the PMOC. The PMOC will utilize the Candidate Revisions in its review of the PMP.

Concerns and Recommendations:

None at this time

3.1 PMP Sub Plan

Status:

As part of the Candidate Revision process for the update of the PMP, the Sub-Plans have been identified and will be referenced in the section of the PMP, which relates to its subject matter. The Sub-Plans will be updated to assure consistency with the PMP.

Observations:

SAS Sub-Plan documents to be referenced 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 Procedure.

Concerns and Recommendations:

None

3.2 Project Procedures

Status:

The MTACC adopted 2 additional revised procedures during January 2011, for a total of 68 (of 75+). Training of SAS personnel to the new procedures will start in February 2011.

Observation:

The MTACC is behind schedule in developing the revised project procedures. To date, it has adopted a total of 68 revised procedures (of 75+), but they had originally committed to have all revised procedures adopted by April 12, 2010, which it failed to do. These procedures will, in many cases, replace the procedures that are currently referenced in the PMP.

Concerns and Recommendations:

The PMOC remains concerned about the length of time it has taken to produce the revised procedures. This activity is now almost a year behind schedule. The PMOC continues to recommend that MTACC focus on completing the remaining procedures.

4.0 PROJECT SCHEDULE STATUS

4.1 Schedule Status

Status:

IPS Update #54 was received on February 02, 2011 and is based on a Data Date of January 01, 2011. Update #54 contained a narrative report, a schedule variance report, a schedule revision log and "PDF" versions of several schedule reports. Project schedule completion milestone dates remained essentially unchanged for this period. MTACC continues to forecast completion

of all construction on 07/15/16, with 165 calendar days of contingency until its committed RSD of 12/30/16.

Table 4-1: Summary of Critical Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	03/20/2007A	03/20/2007A
Construction Complete	December 31, 2013	May 23, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

During the month of January 2010, progress continued on the four (4) active construction packages: C-26002 (C1) TBM Tunneling and 96th Street Box, C-26005 (C2A) 96th Site Work and Heavy Civil, C-26013 (C5A) Open Cuts and Utility Relocation, and C-26007 72nd Street station Cavern mining & Lining (C4B). The IPS does not currently reflect the C4B contractor's work plan. A resubmission of the C4B Baseline is expected in early February 2011. It is anticipated that this schedule will be adequate to update the IPS with the Contractor's actual construction plan.

Observations and Analysis:

The following table compares forecast, actual and baseline finish dates for significant "target activities" as a means of evaluating overall performance. No "target" activities were completed in January 2011.

Table 4-2: Target Schedule Comparison

<i>Act #</i>	<i>Description</i>	<i>IPS Update #29 DD=11/30/08</i>	<i>IPS Update #54 DD=01/01/11</i>	<i>Difference (WD)</i>
S6100c	Mine West Tunnel; Launch Box to 72 nd Street	20-Jun-10	6-Dec-10A	123
S6100d	Mine West Tunnel; Launch Box to 65 th Street	Not included; work added after this update	22-Feb-11	
S9101e	Develop Freeze Zone for TBM-2	Not included; work added after this update	18-Mar-11	
S9100b,c,d	Mine East Tunnel; 96 th Street Launch Box to 63 rd Street	01-Dec-10	20-Dec-11	

The IPS forecast for the completion of TBM-2 compares favorably with the PMOC analysis contained in Section 2.1.3 of this report.

Concerns and Recommendations:

The PMOC is concerned about the forecast duration of the East TBM Bore. MTACC is currently forecasting duration of 94 WD from the 96th Street Launch Box to 72nd Street. The recently completed base contract portion of the west drive required 138 WD to bore a similar distance. Assuming geotechnical conditions to be similar, it appears the current forecast of duration for the East Bore may be somewhat understated. The “near-critical” status of this path necessitates that activity durations be thoroughly validated. The PMOC recommends a review of the forecast durations for the East Bore and an update of IPS as necessary.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#54, major activities that can be anticipated over the upcoming 90 days include the following:

Table 4-3: 90-Day Look-Ahead Schedule

<i>Activity ID</i>	<i>Start</i>	<i>Finish</i>	<i>Note</i>
<i>C1- TBM Construction – Tunnel 96th Box (91st to 95th)</i>			
<i>TBM 1st Run – Mine West Tunnel from 96th Street Launch Box to 65th Street</i>	<i>05/27/10A</i>	<i>02/22/11</i>	
<i>De-Assemble & Backup TBM</i>	<i>02/22/11</i>	<i>03/24/11</i>	
<i>Develop/Verify Freeze Zone complete</i>	<i>01/10/11</i>	<i>03/25/11</i>	
<i>Reposition & Reassemble TBM for East Drive</i>	<i>03/24/11</i>	<i>04/29/11</i>	
<i>C2A – 96th Street Station Sitework & Heavy Civil</i>			
<i>Begin Slurry Wall Const (Stage 4; 95th to 97th St, West Side)</i>	<i>05/23/11</i>		
<i>C2B – 96th Street Station Concrete and Finishes & MEP</i>			
<i>Advertise for construction bids</i>	<i>04/08/11</i>	<i>07/12/11</i>	
<i>C5B – 86th St. Station Mining & Lining (IFB)</i>			
<i>Bid Opening</i>		<i>02/04/11</i>	<i>3</i>
<i>Award</i>		<i>03/29/11</i>	
<i>C6 – Systems (RFP)</i>			
<i>RFP Available to Proposers (Part 2) CONFIRM</i>	<i>02/18/11</i>		
<i>Submit Proposals</i>	<i>04/20/11</i>		

Observations and Analysis:

90-Day Look-Ahead Notes:

1. *Completion of TBM-1 expected in early February. Recent TBM progress has been better than forecast*

2. *Advertisement for C2B delayed by one month this period. MTACC is considering deferring this advertisement for as much as six months as a result of construction delays to predecessor contract C2A.*
3. *Bid opening again delayed. Reforecast for 02/04/11.*
4. *Delayed due to resolution of “Buy America” contract provisions.*

The risk of major schedule delay is greatest in three specific elements of the SAS (Phase 1) Project:

- *Design – MTACC reported design to be 100% complete in early November 2010. In fact, resolution of outstanding design issues continues. The limited number of technical issues raised by recent construction package procurements (C3, C5B) supports the observation that these issues are being efficiently managed. The likelihood of a major design-related schedule delay appears very low.*
- *Tunnel Boring – TBM production for the west bore has been less than predicted. The East Bore has been reforecast using more realistic production rates. Completion of this work is one of the “near-critical” schedule paths; however, the SAS project team has demonstrated the capacity to manage the critical relationships associated with tunnel mining to minimize consequential delay. The likelihood of a significant, future delay associated with TBM mining appears to be moderate.*
- *Systems Installation and Testing – The design and installation of signal and traction power performed by NYCT mitigates the risk of delay for this work. However, ongoing delays to the procurement of this construction package, and its dependence on the performance and cooperation of multiple station package contractors, suggests that the risk of significant future delay involving this package remains very significant.*

Concerns and Recommendations:

The SAS Project Team actively manages the project schedule and has been able to hold the currently calculated RSD for over six months. However, construction delays have significantly eroded float on secondary paths, creating a situation where a delay to the calculated RSD and the reduction in schedule contingency is likely.

Geotechnical and utility-related issues remain the major schedule risks. There is limited opportunity to mitigate these risks among the active construction contracts.

4.3 Critical Path Activities

Status:

The project critical path is essentially unchanged this period. Table 4-3 summarizes the critical path contained in IPS Update #54.

Table 4-4: Critical Path Activities

Activity ID		Update #53 Duration	Start	Finish
C5	86th Street Station	1286	01-Jan-11	27-Sep-15
C5A	86th Station - Excavation & Utility Work	251	01-Jan-11	27-Sep-11
C5B	86th Station - Mining & Lining	551	10-Oct-11	20-Nov-13
C5C	86th Station - Architectural & MEP Finishes	435	20-Nov-13	24-Jul-15
C6	System Installation (86th Street Station)	170	12-Jan-15	4-Sep-15
C6	Systems (Track, Signal, Traction Power & Communication)	185	7-Sep-15	20-May-16
C6	Construction	185	7-Sep-15	20-May-16
NYCT	Pre-Revenue Operation Test & Revenue Service	85	21-Mar-16	15-Jul-16
	Phase 1 Substantial Completion	0	15-Jul-16	15-Jul-16
	Phase 1 Schedule Contingency	120	18-Jul-16	30-Dec-16
	Completion w-Schedule Contingency	120	18-Jul-16	30-Dec-16

The formal IPS critical path, as reported, is initiated by Contract 5A utility relocations and shaft excavations. In October 2011, upon completion of the south shaft by C5A, the critical path is “handed off” to Contract 5B where it follows the south cavern excavation and structural concrete work until November 2013, when the critical path shifts to Contract 5C. This Contract continues with the structural construction and turns over select work areas to Contract 6 in September 2015. Systems installation continues through May 2016, followed by system testing and startup activities. The calculated completion of Phase 1 is currently July 15, 2016, which provides 120 WD of contingency (float) for the RSD on December 30, 2016, which is unchanged from the last update.

Observations:

There are several additional “near-critical” paths in the IPS:

- *The Contract 1 TBM Mining is only 8 days off the current critical path and must also be considered a critical path because any significant delay to this path will impact the overall project RSD. The handoff from the TBM mining operation to the 86th Street Station north cavern excavation is scheduled for January 2012. As a result of this independent, “near critical” path, all cavern excavation for the 86th Street Station (both north and south caverns) is within eight working days or less of the project critical path.*

As noted in previous reports, some “flexibility” exists between the TBM mining and the handoffs to C4B and C5B cavern excavation. Recent experiences in coordinating the work of C1 and C4B illustrate this point. Blasting at C4B has been able to continue even though the TBM is south of the 72nd Street Site. Previous information indicated this period would be a “no blast” period for C4B. For this reason, the critical path extending from C5A → C5B → C5C → C6 is considered the governing critical path for the project.

- *Utility-related delays to contract C2A appear to have created another “near-critical” path with 29 WD of float. This path extends through C2A structural work between 97th and 99th Streets. The delay to C4B procurement has provided an additional one month of float to the C2A->C2B path. The 29 day float path now extends through the closeout of C2A and is not transferred to any other package.*

The PMOC considers a path with 29 WD of float to be “near-critical” on a project of this magnitude and duration. However, this path does not pose an immediate concern to the overall project schedule. It has been isolated to the C2A package.

- *Changes to the C4C concrete activity logic provided additional float to the previously reported 41 WD float path. This path now has 94 WD of float and is no longer considered “near-critical”.*

Concerns and Recommendations:

Due to the complexity of the project and the time required to effectively respond to schedule challenges, the PMOC considers independent float paths within 50 WD to be “near critical”. The PMOC will monitor these paths and seek to identify mitigation strategies that can be offset the effects of the delays.

The PMOC is concerned that mitigation of “near-critical” paths by resequencing future activities in pre-construction packages provides an artificial means to mitigate near-critical paths. These types of schedule manipulations may provide relief “on paper”; however, the assumptions must be reasonably achievable by the construction contractors at a cost that can be supported by the project. Any production rate changes or manipulation of work activity relationships must be thoroughly validated prior to incorporation to ensure they are not interim patches that cannot reasonably be achieved.

4.4 Compliance with Schedule Management Plan

Status:

The PMOC has established a structured review of the MTACC’s compliance with its Schedule Management Plan, developed as part of the overall ELPEP process. The initial formal review was conducted this period.

Observations and Analysis:

Schedule Management Plan compliance is based upon achieving four (4) “Beneficial Outcomes” identified in the ELPEP and related documents.

1. Establish the IPS’ usefulness as a management tool for the planning and organizing the work, and as a decision support tool for evaluation of alternatives and risk-based scenarios.
2. MTACC is actively managing and controlling individual packages and the overall project with input from and consideration of the project schedule.
3. Provide reliable forecasts of the SAS revenue service date (RSD) and other major accomplishments.
4. Facilitate communication of project time-related information, priorities, issues, and changes, as may be required.

Specific Processes, Products and Metrics cited in the ELPEP and companion documents, supporting each “Beneficial Outcome” have been summarized and grouped in a worksheet. A summary of the review conducted this period:

- *MTACC “Conforms” to 18 of 24 performance measures.*
- *MTACC “Does Not Conform” to 5 of 24 performance measures.*
- *Information was incomplete on 1 of 24 performance measures. The situation wherein the schedule activity linkage to a WBS or functional equivalent has not occurred to date.*
- *“Schedule Resiliency” is interpreted as the schedule’s ability to recover after experiencing a deformation or external stressor. MTACC has introduced several alternative to recover float along near-critical paths, however, to date these alternative have not been proven to be achievable or practical.*

Of note is the fact that MTACC does not conform to Item 1.3 of the PMOC evaluation checklist, wherein the difference between the project critical path and the next most critical path shall be no less than 25 CD of float. This nonconformance is acknowledged by MTACC. The PMOC notes that it may not be possible to achieve this goal.

Concerns and Recommendations:

In general, the PMOC notes that MTACC is realizing the beneficial outcomes established by the ELPEP. Based upon this analysis, the MTACC’s IPS currently “Conforms” to the Schedule Management requirements established by the ELPEP.

As previously noted, the PMOC recommends monitoring all independent “near critical” paths less than 50 WD of float. Development of mitigation strategies should be initiated at that level so that prompt implementation can occur should the float decrease to the 25 WD level.

Several additional nonconformances were noted during this updating period. The PMOC will work with the SAS Project Team to address these issues.

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	MTA's Current Working Budget
10	Guideway & Track Elements	\$612,404,000	\$728,617,000
20	Stations, Stops, Terminals, Intermodal	\$1,092,836,000	\$1,276,632,000
30	Support Facilities	0	\$562,000
40	Site Work & Special Conditions	\$276,229,000	\$537,621,000
50	Systems	\$322,708,000	\$247,627,000
60	ROW, Land, Existing Improvements	\$240,960,000	\$292,000,000*
70	Vehicles	\$152,999,000	0**
80	Professional Services	\$796,311,000	\$885,941,000
90	Unallocated Contingency	\$555,554,000	\$482,000,000
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 \$47M Cost-to-Cure ** FTA has not approved the removal of the vehicles from the scope of work.

The PMOC notes that this 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.

As previously reported in November 2010, the updated Phase 1 Cost Estimate (Revision 8) included a reduction in direct construction cost and escalation of approximately \$50.4 million. The PMOC questioned this reduction and considers it inconsistent with recent comparisons of project construction cost estimates vs. bid received. The PMOC requested MTACC to conduct a complete review and validation of these estimate revisions. *MTACC has reported that this effort is complete and under review by senior project management. It is expected that the results of this analysis will be made available in mid-February 2011.*

Observation and Analysis:

For the active construction contracts, AWOs to date are summarized as follows:

Table 5-2 AWO Summary

Contract	% Complete	Award	Exposure		Notes
			\$	% of Award	
C26002 (1)	79.84%	\$337,025,000	\$53,192,376	15.78%	AWO#92 is included in this evaluation
C26005 (2A)	27.39%	\$325,000,000	\$20,480,000	6.18%	Options 1 & 2 included in award value
C26007 (4B)	2.37%	\$447,180,260	(\$122,446)	-0.03%	
C26013 (5A)	53.59%	\$34,070,039	\$7,222,740	21.20%	
<i>TOTAL</i>		<i>\$1,143,275,000</i>	<i>\$80,361,413</i>	<i>7.03%</i>	
<i>TOTAL</i>		<i>\$696,095,000</i>	<i>\$80,485,859</i>	<i>11.56%</i>	<i>w/o C26007</i>
<i>TOTAL</i>		<i>\$696,095,000</i>	<i>\$61,676,413</i>	<i>8.86%</i>	<i>w/o C26007 and C26002, AWO#92</i>

Conclusions and Recommendations:

Construction cost increases will be the primary driver of cost variances. To date, the project has experienced cost growth equal to approximately 9% of the value of construction contracts awarded. This is greater than the AWO contingency contained within the project budget. AWO expenditures in excess of this value will likely result in an overrun of the project budget.

5.2 Cost Variance Analysis**Status:**

Using the MTACC financial reporting format contained in its Capital Construction Reports, the PMOC prepared an independent Estimate-At-Completion (EAC) for Phase 1 of the Second Avenue Subway Project. This estimate is based on the following:

- *An update construction phase EAC presented in prior Monthly Reports. Updated as appropriate with contemporaneous package award and AWO information.*
- *MTACC's draft cost estimate (Revision 8) for the project. Validation of this estimate is currently underway.*
- *Cost information provided by the SAS project team through established periodic reporting.*
- *Independent cost estimates developed by the PMOC.*

It is the intention of the PMOC to maintain and update this estimate as appropriate based on receipt of updated information until such time as MTACC undertakes this task as part of its overall ELPEP-Compliant Cost Management Plan.

Observation and Analysis

The PMOC's Estimate-At-Completion for the SAS (Phase I) project is summarized in the following table:

Component	FFGA Budget per MTACC	Current Working Budget	Awarded	PMOC EAC	Comment
<i>EIS</i>	<i>\$11,599,831</i>	<i>\$11,599,831</i>	<i>\$11,599,831</i>	<i>\$11,599,831</i>	
<i>PE & FP Eng.</i>	<i>\$227,338,756</i>	<i>\$227,338,756</i>	<i>\$227,162,743</i>	<i>\$227,338,756</i>	
<i>Final Design</i>	<i>\$170,209,887</i>	<i>\$199,746,256</i>	<i>\$169,731,277</i>	<i>\$180,000,000</i>	<i>Plug</i>
<i>Reserve</i>	<i>\$851,526</i>	<i>\$6,315,157</i>			
<i>SUBTOTAL</i>	<i>\$410,000,000</i>	<i>\$445,000,000</i>	<i>\$408,493,851</i>	<i>\$418,938,587</i>	
<i>Construction</i>	<i>\$2,692,000,000</i>	<i>\$3,034,697,117</i>	<i>\$1,400,086,413</i>	<i>\$3,326,344,978</i>	<i>CWB and PMO EAC include all construction contingencies</i>
<i>NYCT F/A</i>	<i>\$28,000,000</i>	<i>\$33,000,000</i>	<i>\$7,000,000</i>	<i>\$33,000,000</i>	
<i>Eng Force Account</i>	<i>\$48,000,000</i>	<i>\$70,000,000</i>	<i>\$23,700,000</i>	<i>\$70,000,000</i>	
<i>Utilities</i>	<i>\$58,000,000</i>	<i>\$64,000,000</i>	<i>\$41,857,000</i>	<i>\$64,000,000</i>	<i>Third party utility relocation costs.</i>
<i>CCM</i>	<i>\$80,940,647</i>	<i>\$96,000,000</i>	<i>\$80,940,647</i>	<i>\$96,000,000</i>	<i>Additional \$ in CWB/EAC based upon extended duration of project thru 12/2016.</i>
<i>Artwork</i>	<i>\$6,000,000</i>	<i>\$6,000,000</i>	<i>\$0</i>	<i>\$6,000,000</i>	
<i>Rolling Stock</i>	<i>\$152,999,000</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>MTACC deduction from CWB not approved by FTA</i>
<i>Real Estate</i>	<i>\$240,960,000</i>	<i>\$245,000,000</i>	<i>\$113,958,813</i>	<i>\$200,000,000</i>	<i>Plug</i>
<i>Cost To Cure</i>	<i>\$0</i>	<i>\$47,000,000</i>	<i>\$10,647,021</i>	<i>\$20,000,000</i>	<i>Additional cost due to "Fragile Buildings" Not included in original budgets</i>
<i>OCIP</i>	<i>\$160,000,000</i>	<i>\$172,000,000</i>	<i>\$132,533,112</i>	<i>\$172,000,000</i>	<i>Additional \$ in CWB/EAC based upon extended duration of project thru 12/2016.</i>
<i>Exec Reserve</i>	<i>\$173,100,353</i>	<i>\$238,302,883</i>	<i>\$0</i>	<i>\$0</i>	
<i>TOTAL</i>	<i>\$4,050,000,000</i>	<i>\$4,451,000,000</i>		<i>\$4,406,283,565</i>	

This estimate is based on the PMOC's construction cost forecast using MTACC's Revision 8 to the SAS Construction Cost Estimate. This forecast may be revised pending the results of MTACC's validation Estimate Revision 8, as discussed in Section 5.1 of this report.

Conclusions and Recommendations:

Based on the information available, the PMOC's EAC essentially validates MTACC's Current Working Budget of \$.451B.

This effort should be revisited periodically, at a minimum quarterly, to incorporate updated information and evaluate its effect on the overall EAC.


5.3 Project Funding Status

Federal

Total Federal participation is currently \$1,350,692,821. Appropriated, obligated and disbursements are shown below:

Table 5-3: Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru <i>December 31, 2010</i>
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	<i>\$167,810,300</i>
NY-03-0408-06	\$274,920,030	\$274,920,030	<i>\$60,125,583</i>
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	\$8,652,432
NY-95-X015-00	\$45,800,000	\$45,800,000	0
Total	\$628,911,200.00	\$628,911,200.00	<i>\$351,336,185.00</i>

* Denotes American Recovery and Reinvestment Act (ARRA) funds

Local

Local funds totaling \$773,126,786 (\$1,124,462,971 - \$351,336,185) have been spent as of *January 31, 2011*. MTA's approved 2000-2004 and 2005-2009 Capital Programs provided \$2,964 million for SAS Phase 1 (\$1,050 million and \$1,914 million respectively). The proposed 2010-2014 Capital Program budgets \$1,487 million to complete the SAS Phase 1 project. Of the \$1,487 million, \$545 million was approved for the 2010-2011 timeframe. MTA needs to approve \$942 million for the 2012-2014 timeframe.

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period.

6.2 Risk Updates

Status:

No updates for this period.

6.3 Risk Management Status

Status:

As Phase 1 of the Second Avenue Subway transitions from the design to the construction phase, the process of risk management changes somewhat. During design, risk can be proactively managed via the development of the administrative and technical construction documents.

During construction, execution of the duties established for each party by the contract documents is a key element in managing and mitigating the risks of cost and schedule growth.

Experience has shown that the prompt and equitable management of the change process (AWO) during construction is critical to mitigating the risks of additional and consequential cost and schedule growth.

The PMOC has expressed concern over the extended period of time required by SAS/NYCT to review, negotiate and execute AWOs. Contractors frequently undertake additional work in advance of an executed AWO. The SAS Project Team and the MTACC President have committed to a comprehensive review and evaluation of its AWO processing procedures.

At the August 2010 FTA Monthly Briefing, the PMOC presented tabulated and reported on the status of AWO processing on the SAS Project. The remainder of this section will update that analysis and compare with A...

Observation and Analysis:

Based upon NYCT AWO Tracking Logs through 01/31/11, a tabulation of AWP processing duration follows:

	Quarter			Year		To Date		TOTAL	
	Qtr	Processed	Avg. Duration	Processed	Avg. Duration	Processed	Avg. Duration	Processed	Avg. Duration
2007	2	1	2	11	21	147	93	222	122*
	3	1	7						
	4	9	24						
2008	1	9	49	28	87				
	2	6	50						
	3	5	123						
	4	8	135						
2009	1	6	70	34	56				
	2	8	66						
	3	7	49						
	4	13	46						
2010	1	11	104	69	119				
	2	18	81						
	3	21	143						
	4	19	136						
2011	1	5	176	5	176				
		75	180						
* Assumes all open AWOs are resolved on 02/10/11.									

Comparing AWO processing through 01/31/11 with data previously compiled through 07/31/10:

	<i>As of 07/31/10</i>	<i>As of 01/31/11</i>
<i>AWOs Processed</i>	<i>100</i>	<i>147</i>
<i>Process Duration</i>	<i>54</i>	<i>93</i>
<i>Open AWOs</i>	<i>77</i>	<i>75</i>
<i>Process Duration</i>	<i>149</i>	<i>180</i>
<i>All AWOs</i>	<i>177</i>	<i>222</i>
<i>Process Duration</i>	<i>105*</i>	<i>122*</i>
<i>Both analyses assumed that open AWOs were resolved as of the report date.</i>		

Based upon this analysis:

- *Average time required to process AWOs increased in each of the three categories evaluated. Processing durations through the second half of 2010 and early 2011 increased significantly.*
- *The increase in processing duration generally corresponds to an increase in the number of AWOs, suggesting that:*
 - *As construction activity increases, additional resources dedicated to this task will be required to maintain current processing levels.*
 - *Additional resources dedicated to this task could be beneficial in improving overall process durations.*
 - *Any initiatives implemented by MTACC at the project level or NYCT estimating and procurement have yet to make a positive impact.*

Conclusions and Recommendations:

The prompt and fair management of construction contractor business concerns has been demonstrated to be a critical ingredient in successful execution of the construction phase of a major capital project. Stated another way, efficient contract management is a risk that is unavoidably retained by the owner. An owner's capacity to mitigate construction risk must necessarily address its ability to manage and amend construction packages. In discussions with project staff, two specific problem areas/opportunities for improvement have been identified:

- *Improved field management including prompt and complete scope development on major AWOs and resolution of smaller AWOs at the appropriate management level.*
- *Streamlined review and sign-off processes subsequent to the actual negotiation and agreement.*

The PMOC recommends investigation of these recommendations (and others), development of an action plan and schedule for overall process improvement, formal integration of the agreed-upon approach in the PMP and appropriate sub-plans via the Candidate Revision process.

It is the opinion of the PMOC that the MTACC cannot be considered fully “ELPEP-Compliant” until such time as it has demonstrated the capability to consistently execute AWOs in a timely manner and within the time period identified within its PMP/reference procedures.

6.4 Risk Mitigation Actions

Status:

Risk monitoring and mitigation is ongoing and being performed per the SAS Risk Management Program, which is documented in Section 6.0 of the PMP. Through January 2011, the project has held eight Risk Mitigation Meetings. A Risk Register has been developed and maintained on the Project since late 2002. The present Risk Register is being updated to include Risk Mitigation Meeting proceedings as of November 2010.

Observation:

SAS Project Management is being proactive in its efforts to monitor and mitigate risk. From the initial Risk Mitigation and through all subsequent meetings held to date, the Project has been focusing on those risks that DHA indicated in its December 2009 Risk Analysis Report as the risks that contribute the most to the contingency requirements.

Concerns and Recommendations:

None

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status:

The ELPEP requires the MTACC to develop a Cost Contingency Management Plan (CCMP), which will define how the MTACC will forecast required contingency funds, manage and transfer all project cost contingency funds, and how the minimum level of contingency will be maintained. The MTACC submitted an updated CCMP, which is currently under review. MTACC has agreed to maintain minimum contingency balances referenced in the ELPEP:

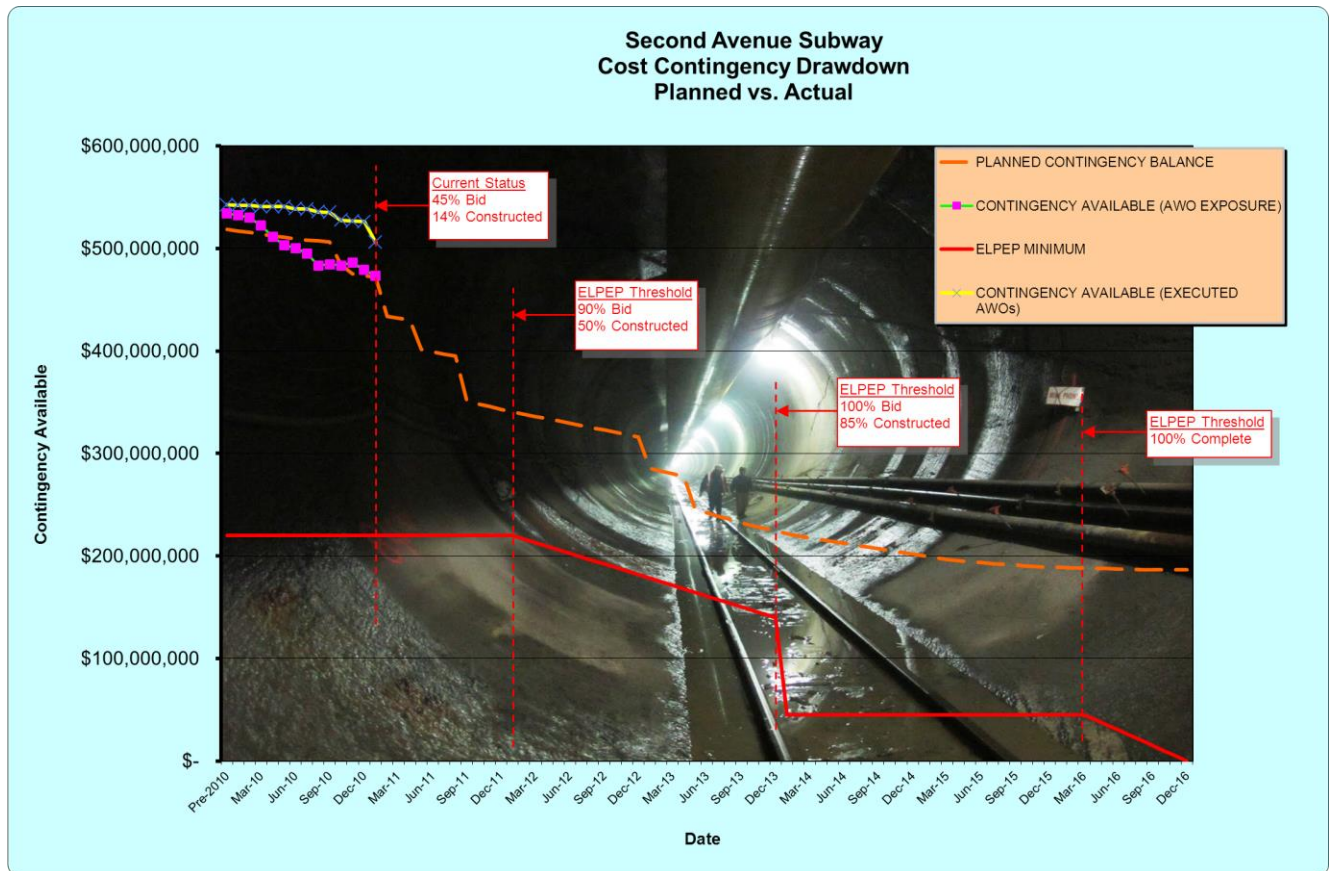
- \$220 million through 90% Bid and 50% Construction
- \$140 million through 100% Bid and 85% Construction
- \$45 million through Start Up and Pre-Revenue Operations

Observations and Analysis:

Using the MTACC’s methodology, the PMOC has developed a contingency analysis for the project. Through January 2011, cost contingency status is summarized as follows:

<i>Planned Balance:</i>	<i>\$ 471,911,087</i>
<i>Actual Balance (using executed AWOs):</i>	<i>\$ 505,787,779</i>
<i>Actual Balance (using AWO Exposure):</i>	<i>\$ 473,421,326</i>

In graphic form:



The ELPEP and the MTACC Draft Cost Management Plan do not currently specify how the Actual Drawdown is to be calculated for comparison with the required ELPEP minimum. In the opinion of the PMOC, Actual Drawdown should be calculated using the “AWO Exposure” value tabulated in the monthly AWO tracking logs. Contingency balance using both “AWO Exposure” and “Executed AWOs” is presented in the graphic above. *As demonstrated, using either method, the current contingency balance exceeds both the planned balance and the ELPEP Threshold.*

Significant changes which occurred during January 2011 include:

1. *New AWO Exposure equaled \$5,570,522. This increase is driven primarily by C26002 AWOs #114 and 117 for \$3,953,956 of additional cost for TBM mining through the “freeze zone” and C26005 AWOs #62 and #66 for \$2,258,556 of additional cost for installation of a 60” watermain (NYCDEP requirement) and resolution of the ECS/sewer conflict at 98th Street.*
2. *Executed AWO value increased by \$20,412,500. The approval of C26002, AWO #92 for \$18,685,000 was the primary driver of this increase.*
3. *MTACC’s much publicized “Good Neighbor Initiative” along Second Avenue has resulted in additional costs to date (C26002, AWO #118) of \$195,044.*

Concerns and Recommendations:

MTACC is using a rigorous and disciplined methodology for tracking and reporting on construction contract cost growth. *The PMOC recommends the following refinements to this methodology:*

1. Contingency usage is based upon an evaluation of the construction phase only. Construction cost is expected to be the primary driver of contingency usage, however, other elements of the project may draw upon (or provide surplus) contingency funds. The current methodology should be extended to include all design phase and other project soft costs, to provide a total picture of contingency usage.
2. Construction contingency usage should be based upon “AWO Exposure” as discussed above.

6.5.1 Schedule Contingency

Status:

Schedule contingency reported by MTACC, based upon Update #54 of the SAS IPS exceeds threshold limits established by the ELPEP. Schedule contingency measured against MTACC's RSD commitment date of 12/31/16 is 165 CD. When measured against the FTA/PMOC RSD estimate of 02/28/18, the contingency is currently 589 CD.

Observations:

There has been no net change in schedule contingency during this period.

Table 6-1: Schedule Contingency*

<i>IPS Update #</i>	<i>49</i>	<i>50</i>	<i>51</i>	<i>52</i>	<i>53</i>	<i>54</i>
<i>Data Date</i>	08/01/10	09/01/10	10/01/10	11/01/10	12/01/10	01/01/11
<i>Contingency (CD)</i>						
<i>RSD=12/31/2016</i>	127	165	185	172	165	165
<i>RSD=02/28/2018</i>	551	589	617	604	589	589

**Estimated by PMOC based on IPS Update #54, provided by MTACC*

It is the PMOC's opinion that the current IPS is a reasonable model of the SAS construction phase and that the contingencies shown above are reasonable indicators of the current schedule status of the project.

Concerns and Recommendations:

The PMOC will continue to evaluate the IPS for reasonableness and suggest improvements to enhance its reliability as a forecasting tool.

Priority in Criticality column 1 – Critical

1 – Critical

2 – Near Critical

Number with Date Initiated	Section	Issue/Recommendation	Criticality
SAS-08-Jan10	2.2 Third Party Agreements	<p>The PMOC is concerned that, in several cases, agreed upon design and scope of work has been revised when later reviewed by other personnel within the agencies.</p> <p><u>Update:</u> MTACC has stated that no design packages would be considered 100% complete unless formal agreements with utilities had been executed.</p> <p><u>Update:</u> MTACC has been unable to achieve this goal, but is obtaining agreements prior to construction contract award.</p> <p><u>Update (December 2010):</u> MTACC current “work-around” appears adequate. No delay to construction procurement due to this issue noted for C3 of C5B.</p> <p><u>Update (January 2011) :</u> <i>Item is closed.</i></p>	2
SAS-09-Jan10	3.1 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 underway. 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> <i>Revised draft PMP issued and currently being reviewed by PMOC. Review anticipated to be completed by February 2011</i></p>	2

Number with Date Initiated	Section	Issue/Recommendation	Criticality
SAS-10-Jan10	3.2 PMP Sub-Plans	<p>MTACC 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>	2
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 MTACC, 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 MTACC develop a process to assure itself that all of these procedures are in use on all of its projects. An example of 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 MTACC to assure implementation across all its organizations and provide it with the opportunity to correct any non-conformances as they develop.</p>	2
SAS-12-Oct10	2.1.3 Construction	<p>MTACC should develop contingency plans for contract coordination issues that may result from continuing delay to TBM mining. This primarily involves Contracts 4B and 5B, where TBM mining may impact proposed work sequencing.</p> <p>Update (November 2010): TBM progress should not significantly affect C4B. TBM progress will affect the period during which blasting is permitted; this has been anticipated in the C4B contract documents.</p> <p>Update (December 2010): TBM progress improved significantly during December</p>	2

Number with Date Initiated	Section	Issue/Recommendation	Criticality
		<p>2010. Coordination of blasting periods with C4B appears effective.</p> <p><u>Update (January 2011):</u> <i>S1 and C4B contractors have resolved issues associated with blasting at the 69th and 72nd Street shafts. This issue will be closed.</i></p>	
SAS-13-Oct10	2.5 Real Estate	<p>The PMOC proposes to conduct a detailed review of the current status of condemnation, business tenant relocation, temporary rock bolt easements, and cost to cure of interior building utilities. Evaluation of the adequacy of the current Real Estate budget and any potential cost overrun/under run exposure is included.</p> <p><u>Update (November 2010):</u> No progress this period. PMOC to follow-up.</p> <p><u>Update (December 2010):</u> This work is scheduled to commence in January 2011.</p> <p><u>Update (January 2011):</u> <i>The MTA Real Estate Department has determined that the SAS budget is adequate for all real estate procurement and relocations. This issue is will be closed.</i></p>	2
SAS-14-Oct10	4.1 Schedule Status	<p>Confirm detailed coordination between TBM and ground freeze activities. Confirm active monitoring and forecasting of progress and performance thresholds to support decision making.</p> <p><u>Update (November 2010):</u> PMOC has confirmed that the MTACC, through the CCM is reviewing the status of these activities on a weekly basis.</p> <p><u>Update (December 2010):</u> <i>PMOC has verified coordination of TBM progress with startup of ground freezing activity by MTACC/CCM. Startup of freeze plant scheduled for mid-January.</i></p> <p><u>Update (January 2011):</u> <i>Startup of the freeze plant started in January 2011. This issue will be closed.</i></p>	2

Number with Date Initiated	Section	Issue/Recommendation	Criticality
SAS-15-Oct10	4.4 SMP Compliance	<p>The PMOC recommends the addition of schedule activities representing the “dustoff” phase for Contracts 2B, 4C and 5C were not added this period. Adding these activities to the IPS will enhance its usefulness, reliability and provide improved visibility for these tasks.</p> <p><u>Update (November 2010):</u> Not completed to date. PMOC to follow up.</p> <p><u>Update (December 2010):</u> <i>Not completed to date. PMOC to follow up.</i></p> <p><u>Update (January 2011):</u> <i>Not completed to date. PMOC to continue follow up effort.</i></p>	2
SAS-16-Oct10	5.1 Budget/Cost	<p>The PMOC recommends validation of the MTACC’s Update #8 of the Phase 1 Project Estimate prior to accepting the stated savings generally in excess of \$50 million.</p> <p><u>Update (November 2010):</u> MTACC reports this effort is in progress.</p> <p><u>Update (December 2010):</u> <i>No results received to date. PMOC to follow up.</i></p> <p><u>Update (January 2011):</u> <i>MTACC’s validation of “soft cost” associated with Update #8 of the Project Estimate is ongoing.</i></p>	2
SAS-17-Oct10	6.2 Risk Updates	<p>Reconciliation of the current cost estimate values with those used in the risk assessment for Contract C3 and, if necessary, adjustment of the results and conclusions of that analysis.</p> <p><u>Update (November 2010):</u> The C3 risk assessment concluded that current funds allocated for this package should be adequate.</p> <p><u>Update (December 2010):</u> <i>No further action. This item will be closed.</i></p> <p><u>Update (January 2011):</u> <i>Item closed.</i></p>	2

Number with Date Initiated	Section	Issue/Recommendation	Criticality
SAS-18-Oct10	6.5.1 Schedule Contingency	<p>The PMOC will review the SAS Project Team’s distribution and allocation of schedule contingency.</p> <p><u>Update (November 2010):</u> MTACC has allocated schedule contingency to select schedule events on a limited basis to reflect a degree of risk or uncertainty in achieving a proposed modification or mitigation to the involved activities. This is not a return to the “handoff activity” contingency distribution methodology. PMOC will monitor this practice monthly to ensure schedule results are not being manipulated through this practice.</p> <p><u>Update (December 2010):</u> <i>The PMOC has reviewed the IPS for indication of manipulation through the use of negative lags or similar processes. It is the PMOC’s opinion that the IPS is a reasonable model of the manner in which this project is planned to be performed. PMOC will continue to review.</i></p> <p><u>Update January 2011):</u> <i>IPS monitoring is ongoing. Currently reviewing Update #54.</i></p>	2
SAS-19-Dec10	4.3 Critical Path Activities	PMOC will utilize 50-WD threshold for identification of “near-critical” float paths. MTACC to identify and investigate potential mitigation strategies at this level to aid in implementation if the 25 WD threshold is breached.	2
SAS-20-Dec10	2.1.3	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.	1
SAS-21-Dec10	2.1.2 Procurement	Excessive recent delay to C-26009 package is noted. PMOC recommends MTACC initiate corrective action and/or develop “recovery schedule” to regain time lost.	2
SAS-22-	2.1.1	MTACC has reported 100% design complete for several packages for which 100% Design	2

Number with Date Initiated	Section	Issue/Recommendation	Criticality
Dec10	Design	Memorandums have not been published. PMOC requests distribution of these Memorandums ASAP.	

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
		<u>Update:</u> <i>Vehicle requirements and associated cost to be addressed as part of the FFGA amendment.</i>		
SAS-A18-Aug08	ELPEP Updates	<p>The change in the Contingency Drawdown Curve, particularly the latent contingency, needs to be clarified.</p> <p><u>Update:</u> 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><u>Update:</u> The latest submission of the Cost Contingency Management Plan is under review. MTACC has initiated contingency management and reporting which generally conforms to the requirements of the ELPEP.</p> <p><u>Update:</u> <i>Review and resolution of all issues is anticipated to be completed in February 2011.</i></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
DHA	DMJM+Harris and ARUP
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
HLRP	Housing of Last Resort Plan
IFP	Invitation for Proposal
IPS	Integrated Project Schedule
<i>LF</i>	<i>Linear Feet</i>
MEP	Mechanical, Electrical, Plumbing
MTACC	Metropolitan Transportation Authority – Capital Construction
N/A	Not Applicable
NTP	Notice to Proceed
NYCDEP	New York City Department of Environmental Protection
NYCT	New York City Transit
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
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency

SSPP	System Safety Program Plan
TBD	To Be Determined
TBM	Tunnel Boring Machine
TCC	Technical Capacity and Capability Plan
TIA	Time Impact Analyses