PMOC COMPREHENSIVE REPORT

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

September 1 to September 30, 2010

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, OP 41, OP53, OP54

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Length of time on project: 0.5 years

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APPENDICES

Certain information presented in this report has been supplied by the New York City MTA, the MTACC and/or the Second Avenue Subway Project team. Prior to including such information in this report, the PMOC has reviewed and evaluated same. Within the limits of this assignment and unless specifically noted otherwise, the PMOC considers this information accurate.

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

PROGRESS AND ISSUES

Contract C-26002 continued Tunnel Boring Machine (TBM) mining activities this month with improved production. Mining progress of over 55 linear feet (LF) per day has been for each of the last two months. The Consultant Construction Manager (CCM) is working with the contractor to further optimize production and achieve a more consistent, sustainable production rate.

Key Issues to be monitored during the upcoming period:

- *Several schedule recovery and improvement initiatives for Contracts C1, C2A and C5A are currently under various stages of consideration for implementation. These initiatives must be validated to ensure they will provide the proposed benefits to both the package and project schedule.*

- *Negotiation and approval of AWO #92 Contract C-26002 (1) which adds 2,209LF of additional TBM mining in the west tunnel to Station 1150+00 (±). To date, negotiations with the contractor have not been successful. The issue has been elevated to the MTACC President/Contractor Executive level for resolution.*
- The award process for Contract C-26007 (4B) - (72nd Street Station Cavern and Heavy Civil Construction). This package was not awarded in *September 2010*, as previously forecast. Further delays in award could have a significant, negative impact on the project schedule.
- *The bid opening for Contract C-26006 (63rd Street Station Upgrade) has been rescheduled to October 19, 2010. This additional delay is not anticipated to impact the project schedule.*

ELPEP SUMMARY

Status:

As of the end of September 2010, MTACC continued to work cooperatively with the FTA to produce Management Plans as called for in the Enterprise Level Project Execution Plan (ELPEP). This period, the ELPEP implementation effort was focused on finalization of the TCC Implementation Procedure review of the PMP, implementation of the PMP Update procedure, review of the Cost Management Plan and definition of ELPEP Risk Mitigation Capacities. The TCC Implementation procedure was completed by SAS in late August and by ESA in early September 2010. FTA/PMOC have received the listing of Candidate Revisions (CRs), rankings of the top 10, and draft CRs. Comments on the Cost Management Plan were provided by the PMOC on September 16. MTACC is revising their Cost and Cost Contingency Management Plan for final draft submission to FTA.

A separate meeting was held to review MTACC Risk Mitigation Capacity and Risk Retainage on September 23, 2010.

SAS have submitted its proposed Recovery Plans for FTA/PMOC review on September 14, 2010.

The regular weekly meeting schedule has been changed to a Bi-weekly meeting. The PMOC, FTA, MTA and SAS staffs held bi-weekly update meetings on September 16 and 30, 2010. Based on the ELPEP effective date of January 15, 2010, the following items are past due, and therefore scheduled to be completed in the next 30 days:

- MTA will develop and finalize the Cost Management Plan for the ESA and SAS projects in conformance with ELPEP requirements.
- MTA will 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 (CM014) contract package and one active SAS (4B) contract package. MTA will demonstrate full conformance to all mitigation capacities on these two packages. MTA will provide FTA with a plan to demonstrate similar ELPEP conformance on all other un-awarded contract packages for both projects.
- MTA to demonstrate an ELPEP conformant Construction Risk mitigation capacity for active awarded contracts for ESA and SAS.
- *MTA achieves full, across the board, ELPEP conformance within 270 days.*

Observation:

The goals set for completion of several elements of the ELPEP implementation, as well as the overall goal of complete ELPEP compliance originally set for October 15, 2010, will not likely be met. The PMOC continues to support the FTA and MTA efforts to implement this agreement, and much progress has been made in each of the identified ELPEP areas. MTACC has completed their review of the PMP with respect to the plan in the TCC Implementation procedure. PMOC OP 53 review process has developed findings related to the management of Risk and MTACC mitigation capacities that have and will continue to be shared with the MTACC staff. PMOC is supporting FTA's review of the SAS and ESA Recovery Plans.

This month, the PMOC made good progress in the performance of project package OP 53 reviews.

The following summarizes the intermediate deliverables and final plans submitted during this update period:

- *September, 2010 – results of TCC Implementation Plan PMP review.*

Concerns and Recommendations:

The MTACC has received feedback regarding its TCC Implementation Plan, Cost Management Plan and Risk Mitigation Capacity Procedures from the PMOC and FTA this month. The PMOC will continue to work with MTACC to expedite reviews of products to meet FTA requirements in preparation for the FFGA amendment process.

Table 1 Project Budget/Cost Table

	FFGA			FFGA Amendments	MTA's Current Working Budget (CWB)		Expenditures as of *September 30, 2010*	
	($ Millions)	(%) Grand Total Cost	Obligated ($ Million)	TBD	($ Millions)	(%) Grand Total Cost	($ Millions)	% of Grand Total Cost
Grand Total Cost:	**4,866.614**	**100**	***3,592.911***		**5,489.614**	**100**	***1,053.077***	***19.18***
Financing Cost	816.614	16.78			816.614	14.88		
Total Project Cost:	**4,050.000**	**83.22**	***3,592.911***		**4,673.000**	**85.12**	***1,053.077***	***19.18***
Total Federal share:	**1,350.693**	**27.75**	***628.911***		**1,350.693**	**24.60**	***282.558***	***5.15***
Total FTA share:	**1,300.000**	**96.25**	***600.818***		**1,300.000**	**94.62**	***280.098***	***5.10***
5309 New Starts share	1,300.000	100	*600.818*		1,300.000	94.62	*280.098*	*5.10*
Total FHWA share:	**50.693**	**3.75**	28.093		**50.693**	**5.38**	**2.460**	***0.05***
CMAQ	48.233	95.15	25.633		48.233	96.67	0	***0***
Special Highway Appropriation	2.460	4.85	2.460		2.460	3.33	2.460	*0.05*
Total Local share:	**2,699.307**	**55.47**	***2,964.000***		**3,322.307**	**60.52**	***770.519***	***14.03***
State share:	450.000	16.67	100.000		450.000	13.54		
Agency share:	2,249.307	83.33	1,145.782		2,872.307	86.46		
City share:	0	0			0	0		

Data for this table was obtained from the Transportation Electronic Award Management (TEAM) system and MTACC's grant management department.

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 #50, data date of September 1, 2010.

* From ELPEP

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

a) Grantee's Organization

Status:

The organizational structural of the SAS project is still consistent with the structure defined in Section 2 of the PMP.

Observation:

The SAS project is being implemented through the coordinated efforts of various organizations and responsible parties who are working as an integrated team providing multiple levels of oversight. The team primarily includes staff from MTACC, NYCT, design consultant (DHA), and construction consultant management (PB America). The team also consists of other key support and oversight organizations such as the MTA. The organizational structure appears appropriate and adequate. Different elements have expanded and contracted as appropriate to meet the current requirements of the project.

Concerns and Recommendations:

None

b) Staff Qualifications

Status:

Key individuals continue to meet the qualifications defined in Section 2.3.1 of the SAS PMP.

Observation:

The project team has substantial knowledge and experience in all relevant technical disciplines as a result of working on various capital projects.

Concerns and Recommendations:

None

c) Grantee Staffing Plan

Status:

Key positions are being staffed to support the release dates of the various construction contract packages. As the design phase winds down, the design team is demobilizing.

Observations:

Adequate support is being provided for the various activities occurring during this phase of the project.

Concerns and Recommendations:

The PMOC recommends that the staffing plan be revised to reflect the latest schedule update.

d) Grantee's Physical Resources

Status:

MTACC and the design consultant staff are co-located to provide effective communication and decision making. Field offices have been established for each of the active construction contracts. As each construction contract is awarded, MTACC plans to open and staff field offices to support the construction management.

Observation:

As the design phase winds down, the project office is being consolidated. It is anticipated that all remaining staff will relocate to 2 Broadway by the end of the calendar year.

Concerns and Recommendations:

None

e) History of Performance, Adequacy of Management Systems

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

a) Adequacy of Project Management Plan and Project Controls

Status:

During the 3rd Quarter, various workshops continued with the MTA, FTA, and PMOC in order to implement the required management processes and strategies described in the ELPEP. The integration of these into the SAS PMP is on-going.

Observation:

Candidate revisions have been identified for each section of the PMP and the individual responsible for the update of each section has been assigned. Cost Management and Cost Contingency Plans have been developed and are currently being reviewed by the PMOC.

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. The workshops are beneficial in helping all to understand the processes.

Concerns and Recommendations:

The PMOC is concern that the processes might not be fully documented in the management plans in time to support an amended to the FFGA. Update of the plans should be a high priority and recourses should be made available to do so.

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 has 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:

As part of its community relations program, MTACC conducts extensive public and community outreach. The community relations representative supports the bi-weekly job progress meetings and makes known any concerns of the community that need to be addressed.

Observation:

MTACC continues to hold regular meetings with involved NYC Community Boards and has included them in much of the decision-making that affects local residents.

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. As of August 31, 2010 the OSHA Recordable Accident Rate increased to 3.77 from the May rate of 1.98. The OSHA Lost Time Rate also increased from 1.32 to 1.45. The national average is 4.2 and 2.2 respectively.

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:

Each construction contractor is proactive in implementing its safety program. Safety concerns identified by CCM safety personnel and the OCIP representative are quickly addressed by the contractor. Monitoring and training is ongoing and effective as reflected in recordable and lost time rates.

Due to the sensitive nature of the security effort, the proposed 2010-2014 Capital Program identifies a single budgetary reserve of $250 M 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 Polices Act of 1970, as amended, and FTA real estate requirements 5010.1C.

b) Local Funding Agreements

Local funds totaling $770,519,714 have been spent as of September 30, 2010. MTA's approved 2000-2004 and 2005-2009Capital Programs included $1,050 million and $1,914 million respectively for SAS Phase 1. The proposed 2010-2014 Capital Program budgets $1,487 million to complete the SAS Phase 1 project.

1.1.4 Scope Definition and Control

Status:

The scope of the SAS Project is defined by the FEIS, ROD and the FFGA.

The scope was originally subsequently allocated into six construction contract packages. The project scope was subsequently reallocated into eleven construction packages. In early 2010, in response to delays in property acquisition, the scope of work for the 72nd Street Station was consolidated into two packages instead of three, resulting in ten contract packages for the project.

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. The plan is currently being reviewed by the FTA and PMOC.

Observation:

The process of utilizing the Configuration Control Board (CCB), the change control process, the Technical Advisory Committee (TAC) and issuing Technical Memorandums is effective in managing scope changes and transfers between construction packages.

Concerns and Recommendations

None

1.1.5 Quality

Status:

The C5A contractor's quality program requires them to conduct an internal audit of their Quality System every year. The contractor, J. D'Annunzio & Sons, Inc. (JDSI), never had a

quality program until they prepared one for the C5A contract. The only person in Quality in JDSI is the Quality Manager on the C5A contract and he could not audit himself so JDSI's NYC-Division Executive Manager assigned himself the task of performing the audit. He conducted research, prepared a checklist, and brought his entire staff to the audit. In addition to having the Quality Manager respond to some questions on the checklist, he asked the Project Manager, Field Superintendent, and Utilities Manager to answer others. The audit concluded that the quality program was functioning satisfactorily.

Observations:

Having a corporate executive conduct a quality audit is highly unusual and the PMOC was very interested in how it would turn out. Since this executive was thoroughly prepared and involved the entire project staff in his audit, the result was a significant emphasis in quality throughout the contractor's organization. In a subsequent conversation with the project executive, the PMOC learned that JDSI was considering adopting the C5A quality program throughout their company.

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	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	May 23, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

Observations:

The project has experienced delays beyond the current FFGA Revenue Service Date of June 30, 2014 that realistically cannot be recovered. Over the last three months, the MTACC has actively managed the schedule in an effort to eliminate or mitigate additional delays and potentially recover some of the previous delay time, as well as develop additional schedule contingency.

These efforts have resulted in the forecast completion date of December 30, 2016 to remain unchanged during the 3rd Quarter of 2010. The impact of one major delay has been successfully mitigated. The results of a major schedule recovery initiative (C2A/C2B) should be fully incorporated in the October 2010 IPS update.

Recommendations and Conclusions:

None

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 *September 30, 2010*.

Table 1-2 Appropriated and Obligated Funds

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru *September 30, 2010*
NY-03-0397	$4,980,026	$4,980,026	$4,980,026
NY-03-0408	$1,967,165	$1,967,165	$1,967,165
NY-03-0408-01	$1,968,358	$1,968,358	$1,968,358
NY-03-0408-02	$24,502,500	$24,502,500	$24,502,500
NY-03-0408-03	0	0	0
NY-03-0408-04	0	0	0
NY-03-0408-05	$167,810,300	$167,810,300	*$167,810,300*
NY-03-0408-06	$274,920,030	0	0
NY-17-X001-00	$2,459,821	$2,459,821	$2,459,821

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru *September 30, 2010*
NY-36-001-00*	$78,870,000	$78,870,000	*$78,870,000*
NY-95-X009-00	$25,633,000	$25,633,000	0
NY-95-X015-00	$45,800,000	$45,800,000	0
Total	$628,911,200.00	$353,991,170.00	*$282,558,170.00*

* Denotes American Recovery and Reinvestment Act (ARRA) funds

A total of $1,053,077,884 has been expended on the project through September 30, 2010, of which $403,040,593 has been spent on design and $350,402,778 on construction (MTACC's monthly financial input).

Observation:

Local funds totaling $770,519,714 ($1,053,077,884 - $282,558,170) have been spent as of September 30, 2010. MTA's approved 2000-2004 and 2005-2009 Capital Programs included $1,050 million and $1,914 million respectively for SAS Phase 1. The proposed 2010-2014 Capital Program budgets $1,487 billion to complete the SAS Phase 1 project.

Concerns and Recommendations:

None

1.1.8 Project Risk Monitoring and Mitigation

Status:

Risk mitigation meetings are being held for the purpose of identifying the specific risks, developing and implementing specific risk mitigation strategies. A risk assessment of Contract 5B (C-26008 86th St. Station Cavern and heavy Civil Structural will be held from October 6 through October 8, 2010. The risk assessment will be facilitated by a representative from Golder Associates.

Observation:

MTACC utilization of a multi-discipline team to participate in the risk assessment process is effective. The risk register is being adequately maintained.

Concerns and Recommendations:

None

1.1.9 Project Safety

Status:

Through August 31, 2010, 1,378,160 construction man hours have been logged on the project. There have been 26 OSHA recordable accidents and 10 OSHA lost time accidents. Per 200,000 man hours worked, the OSHA Recordable Accident Rate is 3.77 and the OSHA Lost Time Accident Rate is 1.45. Both rates are below the industry rates of 4.2 and 2.2 respectively.

Observation:

Twenty-two of the 26 recordable accidents and 7 of the 10 lost time accidents are associated with Contract 1. Contract 1 rates are still below the industry rates. SAS has an effective and proactive safety program.

Concerns and Recommendations:

None

1.2 FTA Compliance Documents

Status:

No change this period.

All documents required for approval of a FFGA were issued. As the project has advanced through different phases of development, decisions have been made which requires the PMP and sub-plans to be updated. [Ref: SAS-A17-Aug08]

Note: Throughout this report, any [Ref: SAS-XX] refers to the table in Section 7.0 and any [Ref: SAS-AXX] refers to the table in Section 8.0.

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 (ROD)

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:

For a detailed discussion, see Appendix G, Readiness to Bid Construction Work.

1.2.6 Readiness for Revenue Operations

Status:

- Concept of Operation Plan has been approved.

- System Testing Plan is under development and has been reviewed by NYCT.
- *The system safety analysis has been completed as part of the design effort. Safety and Security Conformance Checklist for each station has been developed and submitted to NYCT for approval.*
- Preliminary testing and commissioning activities have been included in the IPS to ensure adequate time for this function.

Observation:

Preparatory activities that will support revenue operations have progressed satisfactorily to date and support the currently forecast Revenue Service Date.

Concerns:

None at this time.

2.0 PROJECT SCOPE

2.1 Status & Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

The following table summarizes Final Design Completion Dates as reported by the MTACC via the most recent update of the *Integrated Project Schedule (IPS) update #50, dated September 1, 2010.*

Table 2-1 Design Completion Dates

Contract	Description	IPS Update #49	*IPS Update #50*
Contract-26010 (2B)	96th Street Station Finishes and (MEP)	09/30/2010	*09/30/2010*
Contract-26011 (4C)	72nd Street Station Finishes and MEP	06/02/2010A	*06/02/2010A*
Contract-26008 (5B)	86th Street Station Cavern Construction	09/03/2010	*09/03/2010*
Contract-26012 (5C)	86th Street Station Finishes and MEP	10/01/2010	*09/30/2010*
Contract-26009 (6)	Systems –Track, Power, Signals and Communications	10/01/2010	*09/30/2010*

Observation:

Design work has been substantially completed. The majority of remaining work involves design and constructability reviews, development of 100% design cost estimates, IPS updates and obtaining all required approvals.

Concerns and Recommendations:

Minor delays to station finish packages (2B, 4C, 5C) are not anticipated to affect the overall project schedule. Judicious use of schedule float to enhance the quality or bidding competition for these packages is in the best overall interest of the project.

2.1.2 Procurement

Status:

Construction procurement experienced several delays during September 2010.

- *Construction Contract C-26007(C4B) was not awarded as forecast last month. Based on the current IPS #50 forecast of a 09/30/10 award, this contract's most critical path has approximately 54 WD of schedule float, a loss of 24 WD. MTACC currently forecasts the award of this contract in early October, 2010.*
- *MTACC reports Contract C-26009 (C6) will be procured using the RFP process. Based on IPS Update #50, this two-part process was started on September 10, 2010.*
- *The construction Contract C-26006 (C3) bid date was previously extended to 10/12/10. MTACC subsequently further extended it to 10/19/10. This change was not included in the IPS Update #50. This contract has over one year of schedule float; incidental delays of this nature are not a threat to the project critical path.*

A summary of procurement "milestones" for 2010 are summarized as follows:

Table 2-2: Construction Procurement Milestones

Activity #	Description	Date*	Comment
Contract C-26006 (C3): 63rd Street Station Upgrade			
C3 PR25	Procurement (IFB) Advertise & Bid	06/24/10A	Current dates established in late August. No change this period.
C3 PR30	Open Bids	*10/12/10*	
C3 PR40	Award Contract C3	*11/23/10*	
Contract C-26007 (4B): 72nd Street Station Cavern & Heavy Civil			
C4B PR20	Procurement (Open bids)	06/10/10A	Award of this contract has been delayed.
C4B PR30	Award Contract 4B	*09/30/10*	
Contract C-26008 (C5B): 86th Street Station Cavern & Heavy Civil			
C5B 20m	Procurement – Advertise C5B Bid Package	*09/30/10*	*Bid opening delayed approximately 1-1/2 months*
C5B 25d	Procurement (IFB) Open Bids	*02/25/11*	
Contract C-26009 (C6): Systems			
SYPR 25f	Step 1 Advertisement	09/10/10	Initial advertisement postponed. No change to contract award is forecast.
SYPR 30a	Step 2 Advertisement	11/10/10	
SYPR 40	Award Contract	05/25/11	

* Note: All dates reference IPS Update #50 (DD=09/01/10)

Observations and Analysis:

Incidental delays in C-26006 procurement can be absorbed by the project schedule as substantial float is available for this package.

Contract C-26008 (C5B) is on the critical path. Although the procurement of this package has been delayed approximately 1-1/2 months, the critical path is not affected. The critical path "handoff" from C5A to C5B is currently forecast to occur on October 11, 2011, providing

approximately seven (7) months of float between forecast C5B contract award and "need date" to commence cavern excavation work.

Concerns and Recommendations:

Construction procurement progress during this period was not satisfactory. MTACC did not award C-26007 (4B) as forecast. Administrative delays exclusive of the withdrawal of the low bidder, have consumed approximately 40 WD of float. Maintaining the project schedule and Revenue Service Date requires improved administrative support for the project.

Some delays in bidding C-26006 (C3) and advertising C-26009 (C6) have occurred. These delays do not appear to adversely impact the project schedule.

2.1.3 Construction

Status:

There are three active construction contracts on the SAS project. Construction progress on these contracts through *September* 2010 includes:

- **Contract C-26002(C1) – TBM tunnels from 92nd Street to 63rd Street**
  - *TBM tunneling is continuing. Tunnel currently just north of 80th St. at Station 1192+07 (approximately 2,982 LF mined to as of September 29, 2010).*
  - *Installation of the ground freezing system between 90th and 91st Streets above east TBM-2 continues with approximately 45 of 102 freeze pipes installed as of September 29, 2010.*
  - *Interior cellar tie rod installation continues at 1834, 1830, 1808 and 1802, on the east side of 2nd Avenue.*
  - *Excavation and preparation of 30" gas line for purging gas is underway in preparation for the Contract 2A gas main tie-in.*
- **Contract C-26005 (C2A) 96th Street Station heavy civil, structural and utility relocation**
  - *Continued installation of 30" gas main on east side of 2nd Avenue between 95th and 96th Streets.*
  - *Completed construction of sewer chamber SC 95-1, and excavation and sheeting of sewer manhole 97-3 & sewer chamber SC98-2.*
  - *Completed Con Edison manholes 97-1, 99-6 and 99-10.*
  - *Full access granted to commercial and residential tenant locations at 1873 2nd Avenue.*
  - *Completed compaction grouting program between 96th and 97th Streets.*
  - *C1 released area between 94th and 95th Streets to allow C2A to commence utility relocation and slurry wall construction as part of C2A's schedule recovery plan.*
- **Contract C-26013 (C5A) 86th Street Station excavation, utility relocation and road decking**
  - *Con Ed completed tie-in of 30" gas main at South Shaft on 09/03/10.*
  - *Con Ed completed tie-in of south leg of 30" gas main on 09/15/10 and one north leg on 09/24/10.*

- *Tie-in of building services at 305 E. 86th / 1660 2nd Avenue / 250 E. 87th Street & 1659 2nd Avenue completed on 09/10/10.*
- *Switched work zone to southwest side of 2nd Avenue @ 87th Street on 09/13/10 to resume Con Ed electrical work at Chase Bldg.*
- *DHA completed review of redesigned north shaft SOE on 09/08/10.*

- ***Contract C-26007 (C4B) 72nd Street Station Cavern Mining & Lining***
  - *Contract award and construction Notice-to-Proceed are anticipated in early October.*

Observations:

Key elements of work or issues requiring resolution in the near future to avoid delays to the work include:

For Contract C1:

- As of 09/29/10, TBM progress can be summarized as follows:

Second Avenue Subway
TBM Summary - PMOC Projection

	Date	Station	Total Progress	Unit	Period Progress	Work Days/ Period	Progress/ Period	Unit
Actual	5/27/2010							
	6/8/2010	Sta 1221+89.0	0					
					261	16	16.31	LF/WD
	6/29/2010	Sta 1219+28.0	261	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	LF				
					1054	17	62.00	LF/WD
	9/29/2010	Sta 1192+07	2982	LF				
	Total To Date		2982.0	LF		73	40.85	LF/WD
	IPS Scheduled To Date		3847.1	LF		73	52.70	LF/WD
	Net Ahead (+) Behind (-)		(865.1)	LF		(16)		WD
Forecast					2024	40	50.00	LF/WD
	10/26/2010	Sta 1172+09	5006	LF				
					2209	44	50.00	LF/WD
	12/27/2010	Sta 1150+00	7215	LF				
	1/24/2011					20		
	2/28/2011					25		
	2/28/2011	Sta 1221+89	0	LF				
					7827	157	50.00	LF/WD
	10/5/2011	Sta 1143+80	7827	LF				

- *While TBM production over the past two months has actually exceeded the rate used in the IPS, overall progress still lags that predicted by the IPS by approximately 865 LF, which equals approximately 16 WD at the scheduled production rate.*
- *With approximately 60% of the original scope of TBM-1 (west tunnel) complete, it does not appear that the planned average production rate of 50 LF/WD will be achieved. IPS Update #50 has been revised with reduced TBM production assumptions. Refer to Section 4.0 of this report for further information.*
- *Design and construction related to ground freezing in support of east tunnel mining (AWO #103) has commenced in advance of execution of the contract modification. The Contractor's willingness to proceed with this work without a formal contract modification has resulted in a high degree of confidence that this work will be completed in advance of the start of TBM-1.*
- *The Contractor is currently responsible for approximately 101 WD of schedule delay. To date, no Recovery Plan or other tangible commitment to schedule improvement has been submitted.*
- *MTACC is considering transferring the East Bore concrete lining from 72nd Street to 86th Street from C1 to either C4B or C5B as a means of better coordinating the work of adjacent construction contracts and to reduce the risk of delay from conflicting operations.*
- *Negotiation of AWO #92, the extension of TBM-1 (west tunnel) to 65th Street has reached an impasse. The MTACC's President has become involved and is addressing the matter with the Contractor's Executive Management.*

For Contract C2A:

- *The recovery plan for this contract will mitigate delays associated with unforeseen field conditions (utility relocations and building stabilization). These delays are the responsibility of the MTACC and a contract modification will be required. The effects of this recovery plan are currently modeled in the IPS via a 113 WD "negative lag". Details of the recovery plan need to be incorporated into the IPS as soon as possible to provide the accuracy needed for reliable forecasting and planning.*

For Contract C5A:

- *Approval of utility amplifying drawings for water and sewer by DEP in the area of the North Shaft.*
- *Coordination agreement with Con Ed for cable pulling and splicing schedule improvement at the north end for the Chase Bldg.*
- *Schedule improvements that will support performing Stage 4S and 5S center sewer work concurrently.*
- *DOT approval of short-term additional lane closure to support earlier completion and turnover of South Access Shaft.*

For Contract 4B:

- *No construction issues to date.*

Concerns and Recommendations:

It is the general opinion of the project team that the C1 contractor will not undertake any specific schedule acceleration effort to mitigate delays. If additional delays to TBM mining occur, the contractor's unwillingness to accelerate could result in a delay to the overall project. TBM progress will be monitored closely; further deterioration of its schedule may require executive management intervention to maintain the current schedule.

No specific concerns or recommendations at this time. MTACC continues to make progress in resolving problem issues and avoiding major construction delays.

a) Force Account (FA) Contracts

Status:

As of September 30, 2010, $140,773 of the $33,000,000 FA budget has been expended.

Observation:

The Force Account requirements are documented in the SAS Force Account Plan. The plan gives a description and a cost estimate of the NYCT services required to support construction activities for each individual contract.

Concerns and Recommendation:

None

2.1.4 Operational Readiness

Status:

NYCT has developed an 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 (Reference IPS update #50 dated August 2010).*

Observation:

See Section 2.4

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.

2.2 Third-Party Agreement

2.3 Contract Packages and Delivery Methods

Status:

Phase 1 of the Second Avenue Subway will be delivered via ten separate construction packages. All construction contract packages will be delivered through a design-bid-build process utilizing a fixed price construction contract. Competitive procurements are based on NYCT standard procedures. Specific procurement procedures for each contract package are shown in the following table.

Table 2-1 Construction Procurement Method and Status

			Procurement	
No.	***Contract***	***Description***	***Type***	***Status***
C1	C-26002	TBM Tunnels from 92nd St. to 63rd St.	IFB	Awarded
C2A	C-26005	96th Street Station Structure and Heavy Civil	RFP	Awarded
C2B	C-26010	96th Street Station: construction of the entrances and ancillary facilities, architectural finishes and MEP equipment.	RFP	Design
C4B	C-26007	72nd Street Station: construction of the cavern and the G3/G4 tunnels to the existing 63rd St. /Lexington Avenue Station.	IFB	To be awarded October1, 2010
C4C	C-26011	72nd Street Station: construction of ancillary finishes, station finishes and MEP equipment.	RFP	Design
C3	C-26006	63rd Street Station: renovation of existing station involving open-cut excavation for the construction of entrance and ancillary facilities.	IFB	Advertised
C5A	C-26013	86th Street Station: utility relocation, open excavation and road decking that will prepare the site for construction.	RFP	Awarded
C5B	C-26008	86th Street Station: construction of the station cavern, entrances and access shafts.	IFB	Design
C5C	C-26012	86th Street Station: construction of the ancillary facilities, station finishes and MEP equipment.	RFP	Design
C6	C-26009	Systems, Power, Signals and Communications; includes the installation of the low-vibration track, aluminum rail, way-side signals, and all communication components, integration of the communication network with the NEP SCADA system and commissioning the system for revenue service.	RFP	Design

Observation:

Construction packages are primarily location-based and consist of one line-section package, eight station packages and one systems package. The project scope has been allocated to the various contract packages in a logical manner to facilitate a reasonable and efficient construction

sequence. MTACC has proactively adjusted scope among the contract packages in response to delay mitigation or schedule acceleration opportunities as they have arisen.

Concerns and Recommendations:

None

2.4 Vehicles

Status:

NYCT has stated in their Rail Fleet Management Plan (RFMP) 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, generated by NYCT and currently under review by the PMOC NYCT, has indicated it will expand the justification to include 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 Scheduled Maintenance Inspection intervals to the availability of vehicles for the SAS Phase I service. Instead, NYCT now indicates that the 80 R-179 Option 2 cars is NYCT's preferred choice for satisfying Phase 1 of SAS, pending funding availability. The RFMP now assumes that recent service cuts remain in effect, and, further vehicle orders to meet fleet growth on other "B" division lines will necessarily be postponed. Additional cars to support the "Q" line rerouting portion of SAS would reassign service reduction cars as necessary.

Concerns and Recommendations:

The PMOC noted that the total requirement for SAS Phase I service is 132 cars based on additional vehicles for the "W" service. This issue, combined with the inclusion of vehicle orders that are not funded, is likely to 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:

MTA Real Estate is in the process of acquiring all property needed for the Contract 4B (72nd Street Station) construction contract except for the acquisitions at 233 E 69th St. Acquisitions target to be complete by end of October 2010. The 233 E 69th St acquisition is on hold due to the pending National Environmental Protection Act (NEPA) *lawsuit. The schedule for the law suit is as follows:*

October 8, 2010 - FTA to file administrative record with court

January 11, 2011 - Oral arguments to be presented to the judge

In addition, MTA RE is in the process of appraising the real estate takings associated with Contract 3 - 63rd Street Station. Pending FTA review and approval of appraisals and appraisal

reviews, it is anticipated that the Contract 3 properties will be acquired by the end of 2010. The final acquisition in process is for Permanent Easements and Temporary Easements at 250 East 87th Street - Contract 5. Upon receipt of finalized metes and bounds, MTA RE will solicit appraisal and proceed with the acquisition.

# of Parcels Identified	# Parcels Closed	# Parcels Under Contract	# Parcels In Negotiation	# Parcels In Appraisal	# Parcels In Condemnation	# Parcels Right of Occupancy
95	*76*	*0*	*15*	*4*	*94*	*88*

Observations:

There are 15 active condemnation parcels currently. All relocations on the 72nd Street Station are complete. PMOC proposes to review the Property Management Plan for compliance with OP23 during the fourth quarter, 2010.

Concerns and Recommendations:

PMOC will continue to closely monitor cost to cure issues. The risk of both schedule and cost increases involving the cost to cure issues is significant, depending on owner cooperation.

2.6 Community Relations

Status:

A Community Board 8 meeting has been scheduled for October 12, 2010. Each construction contractor will give a presentation of the work being performed by his company and the major accomplishments. Members of the SAS Project Management Team will be present also to address any concerns of the community.

Observations:

The project continues to be responsive to the needs of the community. Residential and commercial personnel have access to the project via e-mail, hotlines, and direct contract. Time has been allocated at each contract job progress meeting to present any concerns affecting the community.

Concerns and Recommendations:

None

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

Update of the Project Management Plan is ongoing. During August 2010, MTACC identified Candidate Revisions for each section of the PMP and documented the required changes on Candidate Revision Forms. The updates were subsequently prioritized and the individuals responsible for updating the sections were identified. The objective is to have the top ten Candidate Revisions completed by October 2010.

Observations:

The SAS Project Management Team is being proactive in updating the PMP in that all Candidate Revisions were identified ahead of schedule. Utilization of the Candidate Revision Forms, which identifies the originator, sponsor, the reason for the change, motivating factor for the revision, notes, comments and approvals, is an effective tool in assuring compliance with the ELPEP.

Concerns and Recommendations:

The PMOC is concerned that the processes might not be fully documented in the management plans in time to support an amended to the FFGA. Update of the plans should be a high priority and recourses should be made available to do so.

3.2 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, and Quality Implementation Procedure.

Concerns and Recommendations:

None

3.3 Project Procedures

Status:

As part of the Candidate Revision process for the update of the PMP, relevant MTA, MTACC or NYCT procedures will be referenced in the section of the PMP, which relates to its subject matter.

Overall, MTACC progress in updating the Project Procedures remains behind schedule. Although the MTACC had committed to complete the development of the 75 new procedures by June 30, 2010, they have regressed in their recent progress and only produced a total of 14 new procedures during the second and third quarters of 2010 (for a total of 59) As a result, they have approximately 16 procedures which remain to be implemented. The MTACC has informally projected that the remaining procedures will be implemented by October 29, 2010.

Observation:

Based on their most recent past performance, the PMOC agrees that the MTACC can meet this date, but the PMOC also believes that this date might also be optimistic. More realistically, the PMOC anticipates that the MTACC will have all the new procedures implemented by November 30, 2010. Previously, the FTA had requested and MTACC had agreed that the revision of procedures will be coordinated with ELPEP activities. The MTACC, however, decided to move forward with the development of all procedures to be modified in the future as required.

Concerns and Recommendations:

The PMOC will review procedure updating and implementation concurrently with its review of the PMP update. As previously noted, the top ten SAS PMP Candidate Revisions are scheduled to be completed by October 2010.

4.0 PROJECT SCHEDULE STATUS

4.1 Schedule Status

Status:

IPS Update #50 was received on October 1, 2010 and is based on a Data Date of September 1, 2010. Update #50 contained a narrative report, a schedule variance report, a schedule revision log and "PDF" versions of several schedule reports. Project schedule status was essentially unchanged for this period. MTACC continues to forecast a 07/15/16 RSD, 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 September 2010, progress continued on the three (3) active construction packages: C-26002 (C1) TBM Tunneling and 96th Street Box, C-26005 (C2A) 96th Site Work and Heavy Civil, and C-26013 (C5A) Open Cuts and Utility Relocation; and the IFB Procurement Process continued for Contract C-26006 "63rd Street Station Upgrades" and C-26007, 72nd Street Station Cavern Mining & Lining." *As of the writing of this report, award of the 72nd Street package is currently forecast to occur in early October 2010. Bid opening for the 63rd Street package has been rescheduled to October 19, 2010.*

Observations and Analysis:

Section 4.3 of this report provides a detailed discussion of the SAS IPS critical path and changes incorporated during September 2010. There are several "near-critical" paths which also require upgraded monitoring. In the PMOC's opinion, either could become "critical" in a relatively brief period and impact the Revenue Service Date (RSD) of the project.

1. Contract C1: TBM Mining:

During August and September 2010, TBM production has improved substantially, averaging approximately 72 LF/WD and 62 LF/WD respectively. However, this improved production has not been sufficient to overcome the initial several months of lower-than-planned production. Average TBM production since early June 2010 is slightly less than 41 LF/WD, compared with

an estimated IPS production rate of 52.7 LF/WD. As of September 29, 2010, TBM production is 865 LF behind and 16 WD later than initially forecast by the IPS.

IPS Update #50 incorporates some of this experience-to-date in their forecast of TBM production and schedule. Table 4-2 compares TBM production as forecast by both IPS Update #49 (August 2010) and #50 (September 2010).

Table 4-2 Comparison of TBM Schedule Dates

	Early Finish Dates	
	Update #50	*Update #49*
Mine West Tunnel; Launch Box -> 72nd St.	*26-Oct-10*	*21-Oct-10*
Mine West Tunnel; Launch Box -> 65th St.	*18-Jan-11*	*16-Dec-10*
Disassemble/Back-up TBM; West Tunnel	*18-Feb-11*	*19-Jan-11*
Reposition & reassemble TBM for Drive #2	*25-Mar-11*	*23-Feb-11*
Mine East Tunnel; Launch Box -> 86th St.	*03-May-11*	*19-Apr-11*
Mine East Tunnel; Launch Box -> 72nd St X-Over	*29-Jul-11*	*23-Jun-11*
Mine East Tunnel; 72nd St X-Over -> 63rd St Stn	*13-Oct-11*	*12-Aug-11*
TOTAL FLOAT	*57 WD*	*75 WD*

The tabulation in Table 4-2 reveals an apparent discrepancy. In each Update, the calculated completion date of the schedule was the same (December 30, 2016). Update #50 added approximately 40 WD to the TBM activity path. As such, total float should have been reduced on this path by approximately 40 WD vs. the 18 WD of actual change shown. This apparent discrepancy will be resolved over the upcoming period to validate the integrity of the IPS and the updating process.

Additional PMOC schedule concerns for this package include:

- *If the contractor is unable to maintain the re-forecast production rates, further float degradation could occur.*
- *Concern has been expressed over the adequacy of the durations forecast for the extraction of the TBM from the west bore and repositioning/reassembly for the east bore (22 and 25 WD respectively). Delays to either of these activities could rapidly consume available float.*
- *The contractor has not initiated any efforts to recover the schedule delays for which it is responsible (approximately 100 WD). This suggests that it will be equally unwilling to accelerate to overcome future delays (if any).*

2. Contract C2A: Recovery Implementation

As discussed in the SAS August 2010 Monthly Report, significant schedule delays are being reported in the IPS/Monthly Schedule Narrative, but their impact on the schedule is being "masked" through insertion of "negative lags" while mitigation methods are explored and implemented. This is the process currently being used at the handoff between packages C2A and C2B. Delays to C2A are "masked" through the insertion of a -113 WD "negative lag" between

the C2A/C2B handoff while a mitigation plan is implemented. Insertion of this lag results in +43 days of schedule float on this path.

MTACC explains the -113 WD lag as an "estimate" of the impact of the proposed mitigation. To date, no substantiation of this estimate has been provided.

C2A has been delayed as a result of a variety of utility and fragile building related issues. MTACC has been actively engaged in developing a mitigation strategy for several months which includes resequencing utility and excavation activities between 94th and 95th Streets so they can be performed at an earlier time, concurrent with other scheduled activities. The majority of the delays are the result of unforeseen field conditions, and a contract modification will be required to formally incorporate a schedule mitigation plan.

This mitigation effort is significant. If this mitigation is unsuccessful (and the -113 WD lag is removed from the schedule and the full effect of the delay is modeled in the schedule), the project critical path would be affected and the forecast Revenue Service Date would be revised to October 21, 2016, leaving only 70 calendar days of schedule contingency.

Concerns and Recommendations:

The PMOC generally agrees with the MTACC's "three-step" approach to schedule management:

- *Report schedule delays as they occur*
- *Developing a mitigation plan*
- *Formally incorporating both delay and mitigation into the IPS*

To avoid questions and concerns regarding the integrity and reliability of the IPS, this process must be executed in a timely fashion. MTACC has reported the C2A schedule recovery initiative since Update #47. The PMOC recommends this issue be formally incorporated into Update #51. If the mitigation is incomplete, the delay and any mitigation should be incorporated "as-is" with follow-up action as needed.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update #50, which was received on October 1, 2010, major activities that can be anticipated over the upcoming 90 days (±) include the following:

Table 4-3 90-Day Look – Ahead Schedule

Activity ID	Start	Finish	*Note*
C1- TBM Construction – Tunnel 96th Box (91st to 95th)			
TBM 1st Run – Mine West Tunnel from 96th St Launch Box to 65th St.	05/27/10A	*01/19/11*	*1.*
Complete Installation of Freeze Plant		11/15/10	
Develop Freeze Zone		01/18/11	*2.*
TBM 2nd Run – Mine East Tunnel from 94th St Launch Box to 86th St	*03/28/11*		*3.*

Activity ID	Start	Finish	*Note*
C3 - 63rd Street Station Upgrade (IFB)			
Bids Due		10/12/10	
Award Contract		11/10/10	
C4B – 72nd St. Station Existing Demo/Mining & Lining (IFB)			
Bid Opening		06/10/10A	
Notice of Award (Estimated)		09/30/10	*4.*
C5A – 86th Street Station Open Cut/Utility Relocation (C-26013)			
Con Ed Issues Layout Drawings for Gas Main Changes – CRITICAL DELAY-		*08/20/10A*	
C5B – 86th St. Station Mining & Lining (IFB)			
Advertise	*09/30/10*		*5.*
Bid Opening		01/21/11	
Award		02/25/11	*6.*
C6 – Systems (RFP)			
Begin Procurement	*09/22/10*		*7.*
Submit Proposals	*02/04/11*		
CM1188 – Design Services MOD #57			
PE/FD for Ancillary #2 @ 86th St Station; Contract 5A	05/10/10A	*09/21/10*	
PE/FD for Ancillary #2 @ 86th St Station; Contract 5B	05/17/10A	*09/10/10*	
PE/FD for Ancillary #2 @ 86th St Station; Contract 5C	05/24/10A	09/24/10	
Systems	06/21/10	09/27/10	

Observations and Analysis:

90-Day Look-Ahead Notes:

1. *TBM forecast durations updated with actual production data. Result is one-month forecast delay to TBM-1 (west tunnel).*
2. *Note that there now exists a 2-month period between completion of the freeze zone and the start of TBM-2. Additional costs may result from this delay to the completion of the ground freeze activity.*
3. *By basing the TBM reforecast upon actual production date, one additional month is forecast for TBM-2 (east tunnel) for a total forecast duration increase of approximately two months.*
4. *As of the writing of this report, this contract package had not been awarded.*
5. *As of October 4, 2010, this package had not been advertised on the MTACC Procurement web site.*
6. *Contract award date has held despite approximately ½ month delay in advertisement.*

7. *C26009 listed as an "Upcoming Solicitation" on the MTACC Procurement web site with a forecast release of October (2010).*

MTACC has mitigated previously reported delays involving supplemental design for gas main relocations (C5A) have been mitigated. Refer to Section 4.3 of this report for details.

It is anticipated that the Bid Date for Contract 3 will be further extended to approximately October 19, 2010 in order to avoid the Columbus Day Holiday (October 12). This contract has substantial float. Extending the bid date is expected to enhance competition and is in the best interests of the project.

Concerns and Recommendations:

There are ongoing delays to the award of Contract C4B. During September 2010, the MTACC again advised that this package would be awarded "any day". Cavern excavation performed by this contract is now within 54 WD of the project critical path. Resolution of outstanding administrative issues and award of this contract should be expedited to avoid consumption of valuable schedule float.

4.3 Critical Path Activities

Status:

The IPS critical path remains as reported last period with critical 30-inch gas main work in Stage 2S (now completed) at the south end of Contract C5A. Upon completion of Stage 2S and Stage 3S utility work (electrical and ECS), drill and blast work for the South Access shaft would be completed at the south west quadrant, closely followed by South access shaft work in the south east quadrant (Stage 4S). The path then goes to the South Center portion (Stage 5S) of the access shaft. Upon completion, the C5A South Shaft is formally handed over to C5B to begin mining operations at the south end of the cavern followed by cavern concrete work. The critical path then travels from C5B into Contract C5C mezzanine concrete work, followed by concrete and first and second fix work in the south Ancillary (No. 1). From C5C, the critical path travels to C6 Systems work including 86th Street Station Signal and Traction Power installation. Testing and Commissioning of the Traction Power system within the 86th Street Station would be the last task before handing over to NYCT for Pre-Revenue Operations Testing.

Table 4-4 Critical Path Activities

Activity ID		Update #49 Duration	Update #50 Duration	Start	Finish
C5	**86th Street Station**	**1270**	**1286**	**1-Oct-10**	**4-Sep-15**
C5A	86th Station - Excavation & Utility Work	254	262	1-Oct-10	11-Oct-11
C5B	86th Station - Mining & Lining	556	551	11-Oct-11	20-Nov-13
C5C	86th Station - Architectural & MEP Finishes	450	435	20-Nov-13	24-Jul-15
C6	System Installation (86th Street Station)	170	170	12-Jan-15	4-Sep-15
C6	**Systems (Track, Signal, Traction Power & Communication)**	**195**	**185**	**7-Sep-15**	**23-May-16**
C6	Construction	195	185	7-Sep-15	23-May-16
NYCT	Pre-Revenue Operation Test &	85	85	21-Mar-16	15-Jul-16

Activity ID		Update #49 Duration	Update #50 Duration	Start	Finish
	Revenue Service				
	Phase 1 Substantial Completion	0	0	15-Jul-16	15-Jul-16
	Phase 1 Schedule Contingency	120	120	18-Jul-16	30-Dec-16
	Completion w-Schedule Contingency	120	120	18-Jul-16	30-Dec-16

Observations:

In August 2010, the MTACC reported a 29 calendar day delay to the SAS project critical path resulting from a delay involving supplementary design work required to support the relocation of a 30" gas main. (C5A). As noted at that time, the project team was exploring mitigation options, which would be implemented and reported on subsequently. In the September 2010 IPS Update (#50), MTACC reports that they have successfully mitigated the impacts of this delay. Schedule recovery is based on the following modifications:

1. ***Activity C5C MF020 "Set / Install 1st Fix Station MEP"***
   Mitigation: Duration decreased from 192 WD to 145 WD.
   This activity was on the critical path where the driving work within the summary activity is related to electrical installation within the 86th St Station. The duration was developed based on three (3) crews of three (3) electricians working two shifts. Based on this relatively low number of people, MTACC has increased the crew size from three to four where as a result of the additional work crew hours, the duration was decreased proportionately.

2. ***Activity C5C MF280 "Set / Install 3rd Fix MEP" predecessor (C5C MF250)***
   Mitigation: Relationship was adjusted from a Finish-to-Start to a Finish-to-Finish.
   Upon review, it was discovered that the relationship was not consistent when compared to UD29 Rev3. It is noted that all of the C5C package or 86th Street Station Finishes/MEP contract will undergo a thorough constructability review upon submission of the 100% design documents at the end of September 2010. The review will target increasing visibility with added activity detail similar to the review completed on C5B 86th Street Station Mining & Lining.

3. ***Activity C5B S110a duration was decreased from 88 WD to 82 WD***
   Activity C5B S110b duration was increased from 68 WD to 70 WD
   Because of delays with the handover from C5A to C5B at the south Access Shaft, the quantity of mechanical mining within the TBM mining window decreased significantly. Recognizing this, 6 wds of mechanical mining work or 270 cy (45 cy/wd x 6 days) moved to blasting work equating to 2 WD (270 cy/200 cy/wd= 1.35 days).

Concerns and Recommendations:

The PMOC has reviewed the mitigation plan proposed by MTACC for the C5A 30" Gas Main relocation delay. The PMOC is satisfied that this delay has been accurately incorporated (and subsequently mitigated) in the IPS. In this instance, the delay was reported and mitigation actions implemented and incorporated the following month.

The PMOC recommends the process used in reporting, mitigating and formally incorporating the net impact of the issue in the IPS be memorialized as a Candidate Revision (CR) to the PMP.

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, and issue 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 to facilitate the review. This worksheet is included with this report as an Appendix. A summary of the review conducted this period:

- *MTACC "Conforms" to 21 of 24 performance measures*
- *MTACC "Does Not Conform" to 1 of 24 performance measures*
- *Information was incomplete on 2 of 24 performance measures. Item 2.3(a) will be based on an initial quarterly analysis with subsequent tracking. Item 4.1 was not applicable to this update as no scope transfer between construction packages occurred.*

In general, the PMOC notes that MTACC has continued to make progress in implementing its Schedule Management Plan, is realizing the beneficial outcomes established by the ELPEP and currently "Conforms" to the requirements established by the ELPEP.

Concerns and Recommendations:

MTACC has demonstrated its intent to continue to enhance the IPS and use it as an integral part of managing the project.

Additional activities representing the "dustoff" phase for Contracts 2B, 4C and 5C were not added this period. The PMOC recommends this enhancement be incorporated in the IPS as soon as possible. The visibility afforded to these tasks by including them in the IPS significantly reduces the risk of an omission or delay in their completion.

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

Standard 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 MTACC's current Estimate at Completion for the Second Avenue Subway is summarized as follows:

Table 5-2 Current Estimate at Completion

Component	FFGA Budget	Current MTA EAC
Design Services	$410,000,000	$445,000,000
Construction	$2,601,211,756	$2,935,000,000
Soft Costs & Misc.	$1,038,788,244	$1,071,000,0000
Subtotal	$4,046,810,188	$4,451,000,000
Finance Cost		$816,614,000
TOTAL		$5,267,614,000

Source: Current Budget Summary, prepared by MTACC, as of June 30, 2010

The Estimate at Completion has not changed this period and no cost events have been identified that pose a significant risk to this value. The PMOC notes that this EAC omits any cost for new

Rolling Stock and that this budget modification has not been approved by the FTA. MTACC EAC values have otherwise been used in this discussion for clarity.

Observation and Analysis:

A further breakdown of the MTACC EAC for SAS construction is contained in Table 5-3

Table 5-3 Construction Estimate at Completion

	Contracts	Direct Costs	Avg. Esc.	Direct Escalated	AFI %	AFI	Contract $
	Awarded Contracts	Actual					
1	TBM Tunneling	$337,025,000	1.00	$337,025,000			
2A	96th Street Station Heavy Civil, Structural and Utility Relocations	$325,000,000	1.00	$325,000,000			
C4B	72nd Street Station Heavy Civil, Mining and Lining, G3/G4 Tunnels			$447,180,000			
5A	86th Street Station Open Cuts and Utility Relocations	$34,070,000	1.00	$34,070,000			
	Subtotal of Awarded Contracts:	$696,095,000		$1,143,275,000			
	IN DESIGN / PRE-BID PROCESS	in 2010 $					
2B	96th Street Station Shell Concrete, Backfill, Permanent Utilities and Street Restoration	$324,120,598	1.16	$374,642,836	11.00%	$41,211,000	$415,853,836
3	63rd Street and Lexington Avenue Station	$143,590,672	1.10	$157,949,739	11.03%	$17,421,000	$175,370,739
4C	72nd Street Station, Ancillary and Entrance Concrete, Architectural Finishes and MEP	$214,099,000	1.19	$253,964,234	11.00%	$27,935,000	$281,899,234
5B	86th Street Station Mining and Lining	$297,205,602	1.11	$330,968,158	11.00%	$36,405,000	$367,373,158
5C	86th Street Station Architectural, Conveying Systems, Mechanical, Electrical and Plumbing	$215,379,788	1.22	$261,772,594	11.00%	$28,795,000	$290,567,594
6	Track, Signal, Power, Communication & MEP System Equipment	$198,073,000	1.18	$232,973,463	11.34%	$26,418,000	$259,391,463
	Subtotal of Pre-Bid Contracts:	$1,392,468,660		$1,612,271,024	11.05%	$178,185,000	$1,790,456,024
	Awarded Contracts:						$1,143,275,000
	TOTAL:						$2,933,731,024
	ROUNDED:						$2,935,000,000

As shown, the AFI Contingency is approximately 11% of the escalated, estimated construction cost. Guidance and direction pertaining to the AFI can be found in the following project references:

PCI 3.0.5.3 Allowance for Indeterminates

> *"Whereas contingency addresses known uncertainties, AFI accounts for elements that cannot reasonably be anticipated. For the Conceptual Design Cost Estimate, NYCT directives require the AFI to be between 20 to 25 percent of the total construction cost. The AFI is reduced in a prescribed manner as design progresses. These reductions are based on NYCT past experience; reduction is in concert with the development of more detailed design and reduction of procurement risks.*
>
> *The AFI, which is 20 percent of the total direct construction cost at Conceptual Design, will be reduced to 15 percent at the end of Preliminary Design* ***and then to 7 percent at the end of Final Design."***

PMG 201, Section 4.7

> *"Allowance for Indeterminate (AFI) - the Project Estimator selects the AFI based on the percentage of design completion, percentage completed on quantities and other factors. The following percentages are to be used as a guideline for major cost accounts and overall project at the various stages of design:*

Design Progress	*AFI*
Budget Estimate (if required)	*20%*
Preliminary Design Estimate	*12%*
Final Design Estimate	*5%*
Bid Estimate	***3%***

> *Major cost accounts such as civil, electrical, etc., should be evaluated individually to determine the overall AFI."*

The SAS Project Teams use of an AFI Contingency averaging more than 11% of the escalated, estimated cost is not supported by the Project Management Plan and its accompanying sub-plans. The PMOC recognizes the complicated and unpredictable nature of the current construction marketplace; however, the PMOC does not consider the use of an unusually high AFI Contingency to be the best way to address the issue. The PMOC offers the following as potential alternates to the existing practice described above. The SAS Project Team's final choice(s) should be memorialized as a Candidate Revision (CR) to its PMP.

1. *A substantially reduced AFI, in the range of 3% to 5%, should be applied to packages C2B, C4C and C5C. A lower rate should be appropriate due to the nature of the work and substantially lower geotechnical and utility interfaces and risks than previous packages.*
2. *A debriefing of the C4B contractor should be conducted to gain a better understanding of its perception of construction risk factors and critical cost elements. This information should be used to refine the 100% design estimate, including AFI, for C5B.*

3. *After calculating the reduced AFI Contingency, any remaining AFI should be either included as an unallocated contingency or transferred to the AWO Contingency to balance the construction budget of $2.935B.*

Construction cost is clearly the most significant and volatile components of the project budget. The risk of increase construction cost can be segregated into two major components:

1. Construction bid prices exceeding budget cost estimates.
2. Cost increases (AWOs) during construction.

During September 2010, no additional construction packages were bid or awarded. No updates to the project estimate were completed. As such, there are no new budget variances to report based on Item (1) above. For the active construction contracts, AWOs to date are summarized as follows:

Table 5-3 AWO Summary

Contract	% Complete	Award	Exposure		Notes
			$	% of Award	
C26002 (1)	*76.97*	$337,025,000	*$53,461,619*	*15.86%*	AWO#92 is included in this evaluation
C26005 (2A)*	*23.92*	$325,000,000	*$9,241,378*	*2.84%*	Options 1 & 2 included in award value
C26013 (5A)	*38.87*	$34,070,039	*$6,634,550*	*19.47%*	
TOTAL		$696,095,000	*$69,337,547*	*9.96%*	
TOTAL		$696,095,000	*$46,767,919*	*6.72%*	w/o AWO#92 ($22,569,628)

* Contract Option 1 & 2 added to award value for reporting consistency

Table 5-3 incorporates AWO#92 from Contract C-26002. This AWO represents a transfer of scope from Package 4B to Package 1. Its value must be considered in any estimate-at-completion analysis, but will not be included in the forecast of AWO exposure.

During September 2010, relatively few AWOs were identified or formally incorporated in a construction contract. Total AWO Exposure for active construction contracts was reduced by $1,214,770 (.18%). Incidental fluctuations of this type are reasonable, based upon revised cost estimates and successful negotiations of final AWO cost.

Conclusions and Recommendations:

Based on financial performance data collected during September 2010, there are no significant changes to the currently forecast EAC.

The PMOC will evaluate financial performance data reported by MTACC each month. New data that has the potential to impact the Estimate at Completion will be evaluated and its impact demonstrated.

5.2 Cost Variance Analysis

5.3 Project Funding Status

Federal

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

Table 5-5 Appropriated and Obligated Funds

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru *September 30, 2010*
NY-03-0397	$4,980,026	$4,980,026	$4,980,026
NY-03-0408	$1,967,165	$1,967,165	$1,967,165
NY-03-0408-01	$1,968,358	$1,968,358	$1,968,358
NY-03-0408-02	$24,502,500	$24,502,500	$24,502,500
NY-03-0408-03	0	0	0
NY-03-0408-04	0	0	0
NY-03-0408-05	$167,810,300	$167,810,300	*$167,810,300*
NY-03-0408-06	$274,920,030	0	0
NY-17-X001-00	$2,459,821	$2,459,821	$2,459,821
NY-36-001-00*	$78,870,000	$78,870,000	*$78,870,000*
NY-95-X009-00	$25,633,000	$25,633,000	0
NY-95-X015-00	$45,800,000	$45,800,000	0
Total	$628,911,200.00	$353,991,170.00	*$282,558,170.00*

* Denotes American Recovery and Reinvestment Act (ARRA) funds

Local

Local funds totaling $770,519,714 ($1,053,077,884 - $282,558,170) have been spent as of September 30, 2010. MTA's approved 2000-2004 and 2005-2009 Capital Programs included $1,050 million and $1,914 million respectively for SAS Phase 1. The proposed 2010-2014 Capital Program budgets $1,487 billion to complete the SAS Phase 1 project.

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period.

6.2 Risk Updates

Status:

Draft results from the risk assessment of Contract Package 3, conducted on July 29, 2010 were scheduled to be available in late August 2010. As of the writing of this report, these results have not been made available to the PMOC.

Observation:

None

Conclusion and Recommendations:

None

6.3 Risk Management Status

Status:

At the SAS Quarterly Meeting held on September 14, 2010, it was noted that AWOs resulting from utility-related issues account for a disproportionately high percentage of all AWOs. When questioned about the probability of this trend continuing, the MTACC noted the following:

- *Construction contracts awarded to date have contained large utility scopes. This is not constant across all construction contracts.*
- *MTACC has improved their management of utility issues, providing some mitigation of cost and schedule related impacts.*
- *Utility-related AWOs are not forecast to continue at the current rate, although no analysis or documentation supporting this position was offered.*

Observation and Analysis:

AWO exposure related to utility work is summarized in Table 6-1. The PMOC has extracted this information from AWO Tracking Logs for each construction package, which are provided by the MTA on a monthly basis. For active construction packages, AWOs involving utilities represent over 46% of all AWOs.

In an effort to forecast total AWO exposure related to utility conflicts, the PMOC has prepared an analysis summarized in Table 6-2.

Table 6-1: AWO Exposure Involving Utilities

Pkg.	***AWO $ - Utility Exposure***		
C1	*$*	*14,158,836*	
C2A	*$*	*1,907,096*	
C5A	*$*	*5,709,210*	
TOTAL :	*$*	*21,775,142*	
All AWOs:	*$*	*46,767,919*	*(1)*
%		*46.56%*	

(1) – C1, AWO #92 not included in total

Table 6-2: Utility Cost Growth Forecast

Package	*Est. Utility Cost*	*Total Est. Const. $*	*Awarded*
C1	*$ 38,199,891*	*$ 337,025,000*	*$ 337,025,000*
C2A	*$ 23,627,821*	*$ 325,000,000*	*$ 325,000,000*
C2B	*$ 21,686,598*	*$ 415,853,836*	
C3	*$ 1,154,344*	*$ 175,370,739*	
C4A	*$ 1,451,163*	*$ 447,180,000*	
C4B	*$ 401,222*		
C4C	*$ 529,747*	*$ 281,899,234*	
C5A	*$ 10,535,856*	*$ 34,070,000*	*$ 34,070,000*
C5B	*$ 0*	*$ 367,373,158*	
C5C	*$ 0*	*$ 290,567,594*	
C6	*$ 0*	*$ 259,391,463*	
	$ 97,586,642	*$ 2,933,731,024*	*$ 696,095,000*
	3.33%	*Utility work as a % of total construction cost*	
	$ 72,363,568	*Utility work awarded to date*	
	74.15%	*% Utility work awarded to date*	
	3.13%	*Utility AWOs as % of active contracts*	
	30.09%	*Utility AWOs as % of total Utility work awarded*	
	$ 25,223,075	*Remaining Utility work to be awarded*	
	35%	*Forecast utility AWOs as % of utility work*	
	$ 8,828,076	*Forecast utility AWOs for work to be awarded*	
	$ 29,365,094	*EAC for utility-related AWOs*	

Based on this analysis, the PMOC makes the following observations:

- *Estimated utility costs for C4A and C4B reference cost estimate Revision 7. These costs do not appear in estimate Revision 7.3, wherein packages C4A and C4B were combined into C4B. For this analysis, the estimated utility costs were retained. This matter will be evaluated in greater detail as part of the OP-53 Evaluation for C4B.*
- *MTACC's comments at the September 14, 2010 Quarterly Meeting are confirmed. Packages awarded to date (C1, C2A, C5A) representing approximately 24% of all construction, contain approximately 74% of all utility work.*
- *Future cost growth due to utility-related AWOs will be substantially less due to the reduced volume of this type of work.*
- *One component of construction contingency can be estimated as 25-30% of the estimated cost of utility relocation.*
- *The forecast EAC for utility-related AWO cost growth is $29,365,094. This forecast should be periodically updated based upon receipt of additional information.*

Conclusion and Recommendation:

This forecast of utility indicates a reduced risk of exposure to utility relocation-related cost growth as the project progresses. This analysis should be considered appropriately when making forecasts of construction cost. This analysis will be updated periodically.

6.4 Risk Mitigation Actions

Status:

No updates for this period. The next Risk Mitigation Meeting is scheduled for October 12, 2010.

Observations:

None this period.

Recommendations and Conclusions:

None this period.

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:

The PMOC developed a Construction Cost Contingency Forecast contained in Table 6-3 for the August 2010 Monthly Report.

Table 6-3 Cost Contingency Forecast

Category	Optimistic Forecast	Pessimistic Forecast
Construction Subtotal	$2,935,000,000	$2,935,000,000
AWO Contingency	$178,000,000	$178,000,000
Exec Reserve	$160,000,000	$160,000,000
Construction Budget	$3,273,000,000	$3,273,000,000
Contracts Awarded	$1,143,275,299	$1,143,275,299
Est. Cost-Contracts to be Awarded w/ AFI	$1,790,456,024	$1,790,456,024
Total Contingency	$339,268,677	$339,268,677
Bidding History (contracts to be bid)	0	$89,522,801
AWO Forecast	$146,686,566	$264,035,819
Available Contingency	$192,582,111	($14,289,943)

During September 2010, no significant changes have occurred that impact this forecast. It is expected that the bid prices for Contract 3 (current bid date October 19, 2010) will impact this forecast. The PMOC expects to update this forecast in the October 2010 Monthly Report.

Concerns and Recommendations:

MTACC appears to be managing and reporting on cost contingency in general conformance with the requirements of the ELPEP. Available contingency currently exceeds the threshold value established by the ELPEP.

Forecasts similar to that developed in this section combine performance history to date with informed estimates of future performance to anticipate project results and develop corrective actions if the forecast results deviate too far from established goals. Construction cost growth is the most volatile component of project financial performance and the PMOC recommends updating forecasts "at completion" cost or contingency usage on a regular basis for the remainder of the project.

6.5.1 Schedule Contingency

Status:

The MTACC has agreed to the requirements of the ELPEP to develop a Schedule and Contingency Management Plan. Development of the plan is substantially complete. *MTACC has aligned its schedule management and reporting processes to conform to these requirements.*

Concurrently, the PMOC has developed formalized evaluation criteria against which MTACC compliance will be evaluated. This evaluation is discussed in detail in Section 4.4 of this report.

Observations:

Tracking the available schedule contingency will be accomplished via the accompanying data set, using either a tabular or graphic presentation.

Table 6-4 Schedule Contingency

IPS Update #	45	46	47	48	49	*50*
Data Date	04/01/10	04/30/10	06/01/10	07/01/10	08/01/10	*09/01/10*
Contingency (CD)						
RSD=12/31/2016	115*	165	165	165	127	*165*
RSD=02/28/2018	539	589	589	589	551	*589*

*Estimated by PMOC based on schedule Update #45, provided by MTACC

As previously discussed, MTACC has mitigated 27 WD delay which impacted C5A utility relocation work. This mitigation effort restored 165 days of contingency to the updated IPS.

In order to provide an accurate evaluation of available schedule contingency, the PMOC will incorporate the effect of the delay reported this period in the tabulation above.

Concerns and Recommendations:

None at this time.

7.0 LIST OF ISSUES AND RECOMMENDATIONS

Priority in Criticality column

1 – Critical

2 – Near Critical

Number with Date Initiated	Section	Issue/Recommendation	Criticality
SAS-08-Jan10	2.2 Third Party Agreements	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. **Update:** MTACC has stated that no design packages would be considered 100% complete unless formal agreements with utilities had been executed. **Update:** MTACC has been unable to immediately achieve this goal, but is making efforts to obtain agreements in a timely manner. ***Update:*** *MTACC has not achieved the original goal; however they have not bid or awarded a construction package without all executed agreements or approvals. The C3 package bid date was recently postponed for this reason.*	2
SAS-09-Jan10	3.1 PMP	The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP. PMOC Recommendation: Update the PMP and its sub-plans within the timeframes established in the ELPEP. **Update:** 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.	2

Number with Date Initiated	Section	Issue/Recommendation	Criticality
SAS-10-Jan10	3.2 PMP Sub-Plans	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. **Update:** This process is ongoing. Schedule Management Plan is essentially complete; Cost Management Plan is in progress. ***Update**: MTACC is generally conforming to the Schedule Management Plan "as-written". Formal approval pending. Next update of Cost Management Plan is expected to substantially achieve goals.*	2
SAS-11-Jan10	3.3 Procedures	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. 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.	2

8.0 GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS

Priority in Criticality column

1 – Critical

2 – Near Critical

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
SAS-A17-Aug08	2.4 Vehicles	The PMOC requested additional information regarding certain statements in the draft Rail Fleet Management Plan: ▪ NYCT should provide a test plan for increasing the period between inspections of the new technology fleet. ▪ NYCT should explain why, in light of the ongoing state of good repair fleet replacement program, the cars financed under the SAS project are no longer needed. ▪ MTACC should explain why they are considering removing the vehicles from the project scope without reducing the project funding. **Update:** The supply of vehicles for SAS Phase 1 will be addressed in the Draft Fleet Management Plan, scheduled for distribution in July 2010. **Update:** A Draft Fleet Management Plan was not submitted during July 2010. This item remains open. **Update:** *A Draft Fleet Management Plan has been submitted and is being reviewed by the PMOC.*	2	7/30/10

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
SAS-A18-Aug08	ELPEP Updates	The change in the Contingency Drawdown Curve, particularly the latent contingency, needs to be clarified. **Update**: At the quarterly meeting, a new contingency drawdown curve was presented. Management of the contingency is being addressed in the newly required Cost Contingency Management Plan. **Update:** 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.	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
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
IEC	Independent Engineering Consultant
IFP	Invitation for Proposal
IPS	Integrated Project Schedule
MEP	Mechanical, Electrical, Plumbing
MTA	Metropolitan Transportation Authority
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
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

APPENDIX B-- PROJECT OVERVIEW AND MAP

(Project Map is transmitted in a separate file)

Date: *September 30, 2010*

Project Name: Second Avenue Subway

Grantee: Metropolitan Transportation Authority

FTA Regional Contact: Mr. Hans Point du Jour

FTA Headquarters Contact: Mr. Dale Wegner

Scope

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

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

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

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

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

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

Schedule

12/20/01	Approval Entry to PE	06/12	Estimated Rev Ops at Entry to PE
04/18/06	Approval Entry to FD	03/14	Estimated Rev Ops at Entry to FD
11/19/07	FFGA Signed	06/30/14	Estimated Rev Ops at FFGA
12/30/16	Revenue Operations Date at date of this report (MTA schedule)		

11.91%	*Percent Complete Construction at September 30, 2010*
33.3%	Percent Complete Time based on Rev Ops Date of December 30, 2016

Cost ($)

3,839 M	Total Project Cost ($YOE) at Approval Entry to PE (w/o Financing Costs)
3,880 M	Total Project Cost ($YOE) at Approval Entry to FD (w/o Financing Costs)
4,866 M	Total Project Cost ($YOE) at FFGA signed (w/ $816 M Financing Costs)
4,673 M	Total Project Cost ($YOE) at Revenue Operations (w/o Financing Costs)
5,489 M	Total Project Cost ($YOE) at date of this report including $ 816 M in Finance Charges
1,053M	*Amount of Expenditures at date of this report from Total Project Budget of $4,673M*
22.53	*Percent Complete based on Expenditures at date of this report*
*	Total Project Contingency remaining (allocated and unallocated contingency)

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

APPENDIX C – LESSONS LEARNED

Lessons Learned Table for 3rd Quarter 2010

#	Date	Phase	Category	Subject	Lessons Learned
1	Oct-09	Construction	Schedule	Delays to excavation caused by adjacent Fragile Buildings	The PMOC recommended and MTACC adopted a plan to review the stability of all of the buildings affected by the Second Avenue Subway project. MTACC instructed their Designer to review all the buildings along the project. Furthermore, they have the designer developing shoring plans for the fragile buildings and including this work in the future contracts. In this way the stabilization work cannot delay the contracts as it is part of the contract.
2	Nov-09	Construction	Schedule	3rd Party Utilities changed the size of an electric volt after construction began.	The PMOC recommended that MTACC get the utility companies to agree that once they have approved the plans, they cannot make major changes after award. MTACC's SAS Project Executive is meeting with the utilities to work out this problem.
	March 10	Construction		No new lessons learned this period.	
	June 10	Construction		No new lessons learned this period.	
	Sept 10	*Construction*		*No new lessons learned this period.*	

APPENDIX D – PMOC STATUS REPORT

(This is a separate attachment covering both East Side Access and Second Avenue Subway projects)

APPENDIX E – SAFETY AND SECURITY CHECKLIST

Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Rail		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Design and Construction		
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGC, etc.)	Design/Bid/Build		
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan	7041.01.007308-0	11/15/07	Approved by FTA
Safety and Security Certification Plan			Certification by New York State Public Transportation Safety Board (NYSPTSB)
System Safety Program Plan			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan		N	Each construction contractor is assigned the responsibility for developing a Construction Safety and Security Program Plan, as defined in the Contract Documents.
Safety and Security Authority			
Is the grantee subject to 49 CFR Part 659 state safety oversight requirements?	Y		
Has the state designated an oversight agency as per Part 659.9?	Y		NYSPTSB
Has the oversight agency reviewed and approved the grantee's SSPP as per Part 659.17?	Y		*The NYSTB issued a letter of recertification on September 2, 2010.*
Has the oversight agency reviewed and approved the grantee's Security Plan or SEPP as per Part 659.21?			
Did the oversight agency participate in the last Quarterly Program Review Meeting?	N		
Has the grantee submitted its safety	N		

Project Overview		
certification plan to the oversight agency?		
Has the grantee implemented security directives issues by the Department Homeland Security, Transportation Security Administration?	Y	
SSMP Monitoring	Y/N	**Notes/Status**
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	
Grantee reviews the SSMP and related project plans to determine if updates are necessary?	Y	
Does the grantee implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.	Y	
Does the grantee maintain a regularly scheduled report on the status of safety and security activities?	Y	Activity included in the monthly and quarterly reports from the grantee.
Has the grantee established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	Responsibilities during the design and construction phases identified
Does the grantee update the safety and security responsibility matrix/organizational chart as necessary?	Y	
Has the grantee allocated sufficient resources to oversee or carry out safety and security activities?	Y	
Has the grantee developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	Y	Included in Appendix F of the SSMP
Does the grantee implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?	Y	Frequency to be increased
Does the grantee monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	Three active construction contracts being daily monitored by the CCM with oversight being performed by the grantee.

Project Overview		
Does the grantee ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	Y	Hazard and Vulnerability Analysis
Has the grantee ensured the development of safety design criteria?	Y	Included in SAS project Design Criteria Manual
Has the grantee ensured the development of security design criteria?	Y	Included in SAS project Design Criteria Manual
Has the grantee ensured conformance with safety and security requirements in design?	Y	Ongoing part of design review process
Has the grantee verified conformance with safety and security requirements in equipment and materials procurement?	Y	
Has the grantee verified construction specification conformance?	Y	Reference Section D3.4 Construction Criteria Conformance of the SSMP
Has the grantee identified safety and security critical tests to be performed prior to passenger operations?	Y	Reference Section D3.2 Certification Items List of SSMP
Has the grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	NA	Project is currently in the Design/Construction Phase
Does the grantee evaluated change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	Y	Part of formal configuration control process
Has the grantee ensured the performance of safety and security analyses for proposed work-arounds?	NA	
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: Activation Plan and Procedures Integrated Test Plan and Procedures Operations and Maintenance Plan Emergency Operations Plan	Y	
Has the grantee issued final safety and security certification?	N	To be covered as part of the testing in Contract 6
Has the grantee issued the final safety and security verification report?	N	To be covered as part of the testing in Contract 6
Construction Safety		

Project Overview		
Does the grantee have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	
Does the grantee's contractor(s) have a documented companywide safety and security program plan?	Y	
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	Reference sections 011150 Safety Requirements and 011160 Security Requirements of the Contract Terms and Conditions
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	*OSHA Recordable and Lost Time accident rates are 3.77 and 1.45 respectively thru August 31, 2010*	National Average 4.2 and 2.2 respectively
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	NA	
Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y	
Federal Railroad Administration		
If shared track: has grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	NA	
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	NA	
Is the Collision Hazard Analysis underway?	NA	
Other FRA required Hazard Analysis – Fencing, etc.?	NA	
Does the project have Quiet Zones?	NA	
Does FRA attend the Quarterly Review Meetings?	NA	

APPENDIX F – ON-SITE PICTURES

91st-92nd St: General view of the launch box and tunnel portals (looking south)

84th-83rd St: TBM tunneling is continuing; currently at Station 1192+07 (2982 LF) and installing initial supports (looking south)

85th St: Completed installation of the California Switch

91st-90th St: Drilling for installation of freeze pipes for east tunnel (looking west)

APPENDIX G – READINESS TO BID CONSTRUCTION WORK (OP53)

Status:

The PMOC's implementation of the OP53 reviews during September, 2010 included the following actions:

- *Scheduled and conducted two internal progress meetings per week (excluding dates conflicting with FTA meeting reviews) and prepared and issued meeting minutes for SAS 4B, 5B, and 5C Contract review, and general information on other SAS contract reviews to be performed;*
- *Participated in a review meeting with FTA on OP53 products developed including Contract 4B chronology, on September 16, 2010 at 1 Bowling Green offices of FTA. Review of the Contract 4B Chronology report section was included;*
- *Distributed additional package-level design documents directly, through internal server access, and through an FTP server to OP53 Review Team;*
- *Assembled and distributed additional guidance documents for OP53 review team;*
- *The OP53 review of the 4B, 5B, and 5C package continued with the research of needed documents in the EDMS system, and assembly of available documents for chronology development;*
- *Requested and obtained a latest, "hard" copy, Contract 5C design drawing set from MTACC;*
- *Prepared development of Contract 5B Management and Control of Procurement evaluations.*
- *Developed chronology evaluation for Contract 5C;*

Observation:

- ***#1 PMOC observation from OP53, Part VIII review- Contract 4B Construction Terms & Conditions - Article 4.05 Extra Work Directive,*** *Paragraph B – 3rd sentence "During the pendency of any dispute hereunder, the Contractor must proceed with work as set forth in the Extra Work Directive unless otherwise advised by the Engineer's written instructions." The PMOC is suggesting that MTA revise this sentence to read as follows: During the pendency of any dispute hereunder, the Contractor must proceed with work as set forth in the Extra Work Directive and all other contract Work not part of the Extra Work Directive unless otherwise advised by the Engineer's written instructions.*
- ***#2 PMOC observation from OP53, Part III review-*** *Based on MTACC's recent experience on other projects, a reduction in contract package size was requested since 2008 Q3 as a means of increasing competition and addressing the market risks during the risk assessment process. The SAS Team agreed on a 12 contract packaging plan, which was approved by MTACC upper management and submitted to the FTA in July 2008. [Ref: SAS-A06-0208]. At the FTA's Quarterly Meeting held on August 12, 2008, MTACC accepted the action item to provide the*

FTA the benefits of breaking the scope into 12 contract packages [Ref: SAS-A13-0808].

Concerns and Recommendations:

- *Related to Observation #1, PMOC is specifically concerned that in the event of a dispute relating to extra work, change orders, schedule issue or any other issue that the contractor could close down activities and leave the site. The PMOC is suggesting that MTA add a specific article that requires the contractor to continue work through any and all disputes not just continue work through Extra Work Directive. For reference, PMOC identified that MTACC's terms and Conditions for Contract CM004, 44th Street Vent Plant and 245 Park Avenue Entrance, Article 12.02 G on Dispute resolution adds "…The Contractor shall continue with all the provisions of the Contract…".*
- *Related to Observation #2, PMOC has expressed its concerns regarding the additional coordination required as more contractors are brought on board, the number of contractors who would be required to work in the limited space and the possibility of additional claims if work areas are not available for follow-on contractors when scheduled. Judgment of the actual plan for 10 construction packages, which may have marketing benefits that outweigh the anticipated construction risks. If the scope is properly split, the total impact may be minimal. The packaging plan was be evaluated as part of the PMOC's 2007 Risk Assessment. However, delays in awarding construction contracts have heightened PMOC concerns expressed above, that careful planning of construction contract integration and coordination requirements flow through into contract language. PMOC has reviewed the Contract 5B Division 0 specifications, dated August 30, 2010, but did not find substantive requirements for construction contract coordination. PMOC has not received Contract 5C Division 0 specifications.*

APPENDIX H – SCHEDULE MANAGEMENT PLAN (SMP) CHECKLIST

(Transmitted in a separate file)