

PMOC MINI MONTHLY REPORT

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

August 1 to August 31, 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 years

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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. Maximum progress of slightly over 100 LF per day has been achieved. 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:

- Negotiation and approval of AWO#92 Contract C-26002 (1) which adds 2,209 lf of additional TBM mining in the west tunnel to Station 1150+00 (±). *This issue could become critical as progress on original contract scope in the west tunnel approaches 50% complete.*

- Coordination with Contract C-26005 (2A) for the tie-in of the 30” gas main and early access that will enable the contractor to accelerate performance of utility work between 94th and 95th Streets.
- The evaluation and award process for Contract C-26007 (4B) - (72nd Street Station Cavern and Heavy Civil Construction). *This package was not awarded in August 2010, as previously forecast. Further delays in award could have a significant, negative impact on the project schedule.*
- *Installation of the ground freeze system required for temporary ground support at the start of the east tunnel bore. The C-26002 (C1) contractor has started this work in advance of the execution of the AWO (#103). This work needs to be completed by November 15, 2010 to avoid delay to the start of TBM-2 (east tunnel).*
- *The bid opening for Contract C-26006 (63rd Street Station Upgrade) has been rescheduled to October 12, 2010.*
- *Forecast completion of all design (exclusive of construction support) remains September 30, 2010.*

MINI MONTHLY UPDATE

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

ELPEP SUMMARY

Status:

As of the end of August 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 month, implementation of the PMP Update Procedure and completion of the Technical Capacity and Capability (TCC) Implementation Plan review phase were priorities. Discussions of the TCC Implementation process on August 5 and 12, led to a debriefing by MTACC on August 26 in which MTACC provided updates regarding the early implementation of the PMP Update Process through training and participation in change control meetings and progress of the TCC review culminating in review matrices and Candidate Revisions. The MTACC goal to identify all of their Candidate Revisions (CRs) and prioritize them by the end of August 2010 was met and several CR write-ups were completed, the remainder of which are in process. The top 10 CRs will next be implemented to comply with the Acceptance Letter during September 2010. MTACC has submitted a revised draft Cost Management Plan and Cost Contingency Management Plan, which the PMOC and FTA are reviewing. FTA is finalizing the draft Schedule Management Plan Acceptance Letter.

The PMOC, FTA, MTACC and SAS staffs held weekly update meetings on August 5, 12, 19 and a Bi-weekly on August 26, 2010. Based on the ELPEP effective date of January 15, 2010, the following items are overdue for completion:

- *MTACC will finalize the Cost and Cost Contingency Management Plan for the SAS project in conformance with ELPEP requirements.*
- *MTACC will complete the implementation of the PMP Revision Process.*
- *MTACC 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 SAS contract package (4B). MTACC will provide the FTA with a plan to demonstrate similar ELPEP conformance on all other un-awarded contract packages for both projects except for construction risk mitigation capacity.*

Observation:

Based on ELPEP requirements, the overall progress remains behind schedule, however this month MTACC has made good progress in the implementation of the PMP Update Process and the completion of the TCC PMP review.

FTA and MTACC continue to participate in a cooperative process to produce the deliverables described in the ELPEP. The weekly ELPEP progress meetings have been replaced by Bi-Weekly reviews which serve to review progress and look ahead to upcoming milestones. MTACC has completed its TCC Implementation Plan PMP decision point reviews and has identified all Candidate Revisions and made good progress in writing up the CRs. This process will be followed by implementation based on the MTACC priority for the CRs. This approach is in line with the Acceptance Letter. This month, the SAS Project Team has continued to be proactive in the support of the ELPEP implementation effort.

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

- *August 26 – Completed TCC Implementation PMP review and identification of Candidate Revisions*
- *August 2010 – Implemented the PMP Update process at the respective project Change Control Meetings*

Concerns and Recommendations:

The PMOC has recommended that the MTACC review the PMP Update procedures requirements that are summarized in the check-sheet distributed by the PMOC, in order to ensure that the process is carried out and that the organization structure described in the MTACC Plan is in place. The PMOC and MTACC have also discussed the need for a definition of the requirement for MTACC to demonstrate conformance with the Traceability and Risk Mitigation requirements of the ELPEP.

Table 1 Project Budget/Cost Table

	FFGA			FFGA Amendments	MTA's Current Working Budget (CWB)		Expenditures as of <i>August 31, 2010</i>	
	(\$ Millions)	(%) Grand Total Cost	Obligated (\$ Million)	TBD	(\$ Millions)	(%) Grand Total Cost	(\$ Millions)	% of Grand Total Cost
Grand Total Cost:	4,866.614	100	1,599.773		5,489.614	100	\$1,032.567	18.53
Financing Cost	816.614	16.78			816.614	14.88		
Total Project Cost:	4,050.000	83.22	1,599.773		4,673.000	85.12	\$1,032.567	18.53
Total Federal share:	1,350.693	27.75	353.991		1,350.693	24.60	278.630	5.07
Total FTA share:	1,300.000	96.25	325.898		1,300.000	94.62	275.637	5.03
5309 New Starts share	1,300.000	100	325.898		1,300.000	94.62	275.637	5.03
Total FHWA share:	50.693	3.75	28.093		50.693	5.38	2.460	0.04
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	0.04
Total Local share:	2,699.307	55.47	1,245.782		3,322.307	60.52	753.937	13.56
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 #49, data date of August 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**
- b) Staff Qualifications**
- c) Grantee Staffing Plan**
- d) Grantee's Physical Resources**
- 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**
- b) Grantee's Approach to FFGA and other FTA/Federal Requirements**
- c) Grantee's Approach to Community Relations, Asset Management, and Force Account Plan**
- d) Grantee's Approach to Safety and Security**

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

- a) Uniform Property Acquisition and Relocation Act of 1970**
- b) Local Funding Agreements**

1.1.4 Scope Definition and Control

1.1.5 Quality

1.1.6 Project Schedule

Status:

A summary of project schedule information is as follows:

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

Observations:

The project has experienced delays beyond the current FFGA Revenue Service Date of June 30, 2014 that realistically cannot be recovered. Over the last six 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 (float) to ensure achievement of its current forecasted date of December 30, 2016.

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 *August 31, 2010*.

Table 1-2 Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru <i>August 31, 2010</i>
NY-03-0397	\$4,980,026	\$4,980,026	\$4,980,026
NY-03-0408	\$1,967,165	\$1,967,165	\$1,967,165
NY-03-0408-01	\$1,968,358	\$1,968,358	\$1,968,358
NY-03-0408-02	\$24,502,500	\$24,502,500	\$24,502,500
NY-03-0408-03	0	0	0
NY-03-0408-04	0	0	0
NY-03-0408-05	\$167,810,300	\$167,810,300	<i>\$165,088,298</i>
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	<i>\$77,664,283</i>
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	<i>\$278,630,451.00</i>



* Denotes American Recovery and Reinvestment Act (ARRA) funds

A total of *\$1,032,567,076* has been expended on the project through *August 31, 2010*, of which *\$393,648,136* has been spent on design and *\$342,754,990* on construction (MTACC's monthly financial input).

Observation:

Local funds totaling *\$753,936,625* (*\$1,032,567,076* - *\$278,630,451*) have been spent as of *August 31, 2010*.

Concerns and Recommendations:

None

1.1.8 Project Risk Monitoring and Mitigation

1.1.9 Project Safety

Status:

The July 2010 OSHA recordable incident rate for the project is 2.52, and the lost time accident rate is 1.10. Both rates are well below the national averages of 4.2 and 2.2 respectively.

Observation:

SAS has an effective and proactive safety program.

Concerns and Recommendations:

None

1.2 FTA Compliance Documents

1.2.1 Readiness to Enter PE

1.2.2 Readiness to Enter Final Design

1.2.3 Record of Decision (ROD)

1.2.4 Readiness to Execute FFGA

1.2.5 Readiness to Bid Construction Work

Status:

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

- *Scheduled and conducted two internal progress meetings per week and prepared and issued meeting minutes for SAS 4B Contract review, and general information on other SAS contract reviews to be performed;*
- *Distributed additional package-level design documents directly, through internal server access, and through an FTP server to OP53 Review Team;*
- *Assembled and distributed additional guidance documents for OP53 review team;*
- *The OP53 review of the 4B package continued with the research of needed documents in the EDMS system, and assembly of available documents for chronology development;*
- *Prepared development of Contract 4B Management and Control of Procurement evaluations.*

Observation:

None

Concerns and Recommendations:

None

1.2.6 Readiness for Revenue Operations

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 #49, dated August 1, 2010.

Table 2-1 Design Completion Dates

Contract	Description	IPS Update #48	IPS Update #49
Contract -26010 (2B)	96 th Street Station Finishes and (MEP)	09/23/2010	09/30/2010
Contract-26011 (4C)	72 nd Street Station Finishes and MEP	06/02/2010A	06/02/2010A
Contract-26008 (5B)	86 th Street Station Cavern Construction	09/03/2010	09/03/2010
Contract-26012 (5C)	86 th Street Station Finishes and MEP	09/30/2010	10/01/2010
Contract-26009 (6)	Systems –Track, Power, Signals and Communications	09/30/2010	10/01/2010

Observation:

NYCT user groups have requested several design changes which may impact completion of the design effort:

- *All PA equipment to be located in the main communication room versus the distributed/split PA system currently designed. This design dates back to PE. Significant changes to station conduit and PA design will be required if this change is implemented.*
- *SCADA will be a distributed I/O design versus the present design which has an RTU/PLC in every power facility. Changes to station conduit and SCADA design will be required if this change is implemented.*

If implemented, these changes will extend the currently forecast design completion of September 30, 2010.

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.

The PMOC is concerned about the cost, schedule and quality issues associated with major, last-minute design revisions. The MTACC has indicated they will review these requests in detail during September 2010. The PMOC recommends that a thorough cost & schedule/benefit analysis be conducted during this time. Any decision to increase project cost or schedule should be thoroughly justified and formally approved.

2.1.2 Procurement

Status:

Construction procurement experienced several delays during August 2010.

- *Construction Contract C-26007(C4B) was not awarded on 08/27/10 as forecast last month. Reportedly, the second low-bidder (SSK) has requested a reduction in the Disadvantaged Business Enterprise participation. The Contractor's request is currently under review by NYCT's Office of Civil Rights. Based on a 08/27/10 award, this contract's most critical path has approximately 78 WD of schedule float. Most of the activities of this package have substantial schedule float.*
- *Based on IPS Update #48, the two-part RFP process for Contract C-26009 (C6) was scheduled to start during August 2010. This did not occur. MTACC has decided to re-evaluate its decision to utilize the RFP procurement process. Resolution is anticipated to occur in September 2010.*
- *The construction Contract C-26006 (C3) bid date was extended from 09/14/10 until 10/12/10. This change was not included in the IPS and the cause of this delay is not understood at this time. This contract has over one year of schedule float; incidental delays of this nature are not a threat to the project critical path. IPS Update #49 suggests the award of this package has over one year of schedule float. This package requires substantial coordination with other packages and is dependent on their progress. In this situation, schedule float can be rapidly consumed and should therefore be conserved to the greatest extent possible.*

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): 63 rd Street Station Upgrade			
C3 PR25	Procurement (IFB) Advertise & Bid	06/24/10A	MTACC has delayed bid opening until 10/12/10. This info not included in IPS Update #49
C3 PR30	Open Bids	09/14/10	
C3 PR40	Award Contract C3	10/26/10	
Contract C-26007 (4B): 72 nd Street Station Cavern & Heavy Civil			
C4B PR20	Procurement (Open bids)	06/10/10A	Award of this contract has been delayed. Forecast award date not included in IPS Update #48.
C4B PR30	Award Contract 4B	08/27/10	
Contract C-26008 (C5B): 86 th Street Station Cavern & Heavy Civil			
C5B 20m	Procurement – Advertise C5B Bid Package	09/15/10	No change in advertisement or bid opening dates this period.
C5B 25d	Procurement (IFB) Open Bids	01/07/11	
Contract C-26009 (C6): Systems			
SYPR 25f	Procurement – Final Design Sign Off & Issue RFP	10/05/10	Initial advertisement postponed. No change to

Activity #	Description	Date*	Comment
SYPR 30a	Prepare Proposals	11/10/10	contract award is forecast.
SYPR 40	Award Contract	05/03/11	

* Note: All dates reference IPS Update #49 (DD=08/01/10)

Observations and Analysis:

Delays to the bid opening for Contract C-26006 (C3) have been based on requests by the bidders. Postponing the bid date should improve the quality and competitiveness of bids. Adequate float exists in the schedule to support this decision.

Concerns and Recommendations:

Construction procurement progress during this period was not satisfactory.

MTACC did not award C-26007 (4B) as previously forecast. No updated forecast was included in the IPS #49 update. MTACC has stated this package will be awarded in early September 2010. Prompt resolution of outstanding administrative issues and award of this package is becoming "critical".

Some delay in advertising C-26009 (C6) occurred this period. Senior management has questioned the proposed RFP procurement versus the IFB method. Obtaining senior management "buy-in" for fundamental decisions such as this is critical in avoiding project delays. The methodology for procuring construction Contract C-26009 (C6) needs to be resolved and the procurement process started as quickly as possible.

2.1.3 Construction

Status:

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

- **Contract C-26002(C1) – TBM tunnels from 92nd Street to 63rd Street**
 - *TBM tunneling is continuing. Tunnel currently just south of 84th St. at Station 1201+45 (approximately 1,993 LF mined to as of September 1, 2010).*
 - *California switch installed. Permanent mucking system and two trains now in place. Trouble shooting of some startup issues at the switch continuing.*
 - *Ground freezing operations continue between 90th and 91st Street above east TBM-2 alignment. Drilling and installing freeze pipes is underway.*
 - *Completed exterior cellar tie work on west side between 94th and 95th Streets.*
 - *Excavation of the pressure relief manhole at 78th Street is still on hold due to steam main interference. Con Edison scheduled to remove steam main section.*
 - *69th Street shaft wall lining and decking are complete and the contractor is demobilizing and withdrawing from the area.*
 - *Early access has been provided to C2A to advance utility work between 94th and 95th Streets (west side).*
- **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.
 - Completed Con Edison manholes 97-1, 99-6 and 99-10.
 - Completed excavation and sheeting of sewer manhole 97-3 and sewer chamber SC 98-2.
 - Completed Phase 1 stabilization work at building 1873 with exception of basement partitions and ceiling.
 - Completed trial jet grouting program at Ancillary 2.
 - Area between 94th and 95th Streets released by C1 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**
- North Shaft – Completed installation of new 12" water main interconnection and electrical ducts across 2nd Avenue at 87th Street (north side).
 - South Shaft – Work to replace gas service to buildings 300 and 303 East 83rd Street is complete.
 - Con Ed layout drawings issued for tie-in of relocated gas service to existing 30" main for Bldgs at 305 East 86th St., 1660 2nd Ave., 250 East 87th St., and 1659 2nd Avenue.
 - Con Ed approved contractor's plan to install tie-in legs for the 30" gas main around the North Shaft.

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 08/31/10, TBM progress can be summarized as follows:

Second Avenue Subway TBM Summary – IPS Projection							
Date	Station	Total Progress	Unit	Period Progress	Work Days/Period	Progress/Period	Unit
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				
Total To Date		1928.0	LF		56	34.43	LF/WD
IPS Scheduled To Date		2951.2	LF		56	52.70	LF/WD
Net Ahead (+) Behind (-)		(1023.2)	LF		(19)		WD

While TBM production improved substantially during August 2010, overall progress still lags that predicted by the IPS by approximately 1,023 LF, which equals approximately 19 WD at the scheduled production rate.

- *As previously reported, the contractor has accepted responsibility for 85 WD of delay through June 1, 2010. To date, no Recovery Plan or other indication how the Contractor intends to recover this time has been presented.*
- *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. However, the IPS forecasts the completion of the freeze plant to occur on September 14, 2010. This will clearly not occur.*

For Contract C2A:

- *Implementation of the schedule recovery plan for this contract is currently dependent on two key external factors; 1) Con Ed's approval of Contract 1's proposed tie-in for the 30-inch gas main south of 95th Street and, 2) coordination with Contract 1 for access to the 94th/95th Street area.*
- *Stabilization of 1873 2nd Avenue is necessary to avoid possible delays to the work.*
- *Implementation of the west side soil grouting plan to allow utility installation at 1867, 1869, 1871 and 1873 2nd Avenue.*

For Contract C5A:

- *Approval of utility amplifying drawings for water and sewer by DEP in the area of the North Shaft.*
- *DOT approval for MPT revisions and temporary lane closures required to support the current schedule.*
- *Coordination agreement with Con Ed for cable pulling and splicing schedule improvement at the north end for the Chase Bldg.*
- *DOT approval to shut down the east side of the 87th Street/2nd Avenue intersection as required in order to complete tie-in of the 30" gas main.*

Concerns and Recommendations:

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

2.1.4 Operational Readiness

2.2 Third-Party Agreement

2.3 Contract Packages and Delivery Methods

Status:

Contract packages and the proposed methods of procuring and delivering construction services have not changed this period.

2.4 Vehicles

Status:

NYCT has stated in their Rail Fleet Management Plan and at project progress meetings that the purchase of vehicles for the SAS program may be cancelled based on NYCT projections for their fleet requirements to support the service including the SAS Phase 1 project. FTA and the PMOC have requested analysis to back up the NYCT calculations which according to the RFMP are based on a change to the NYCT fleet spare factor. *A revised RFMP is due which NYCT has indicated will expand the justification to include service reductions in the calculation of fleet requirements.*

Observations:

The following issues are under discussion with NYCT:

- Scheduled Maintenance Interval (SMI) Extension Tests. This initiative was confirmed to be primarily a cost-savings and efficiency improvement effort. NYCT will submit a written summary report on the matter, which will finalize their response.
- Fleet Spare Ratio. The PMOC explained that vehicles for SAS Phase 1 Service must be provided with no net effect on fleet operation and maintenance. NYCT stated that a decision to supply cars for SAS Phase 1 from the existing fleet had already been made. The upcoming R179 purchase was also identified as another near-term source of new vehicles.

Following discussions in May and follow-up in June 2010, NYCT agreed to submit a report on extended SMI intervals in July 2010. The report was submitted on July 14. The PMOC provided their comments to FTA on July 27. The PMOC believes that the report does not demonstrate that operational safety and reliability would not be negatively impacted by adapting the extended SMI intervals. *The PMOC met with NYCT on August 25 to review this matter. NYCT agreed to submit additional information.*

NYCT advised in August 2010 that a revised Rail Fleet Management Plan will be signed off by the end of August.

Concerns and Recommendations:

PMOC does not consider the SMI periodicity to be the only factor to affect NYCT ability to support an increase to the service requirement for the Second Avenue Subway; however, the RFMP provides this change to maintenance practices as justification for no new associated procurement of vehicles for the SAS project. Following an acceptable justification for the extension of SMI intervals is provided, a broader discussion to include fleet requirements to include SAS Phase 1 service can be held.

2.5 Property Acquisition and Real Estate

Status:

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

Real Estate acquisitions and relocation activities, commercial and residential, continue for the subway entrances and ancillary facilities at 96th Street, 86th Street, 72nd Street and 63rd Street. A summary of acquisition activity to date includes:

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

Observations:

All temporary relocations for 5 of the 6 required buildings have been completed as of September 3, 2010. The 6th building has to be vacated by September 11 for approximately 60 days. There will also be a temporary closure of 2 retail business for this same period of time.

All relocations on the 72nd Street Station are due to be completed by September 30, 2010.

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

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:

None

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 consists 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.

Observation:

MTACC is behind schedule in developing and implementing its revised procedures. These procedures will, in many cases, replace the procedures that are currently referenced in the PMP. In that the procedures will be replacing previous procedures of the same type, the review and update of the PMP through the ELPEP process is not contingent upon the completion of these procedures.

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 #49 was received on August 31, 2010 and is based on a Data Date of August 1, 2010. Update #49 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 August 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 forecast to occur during the week of September 13, 2013. Bid opening for the 63rd Street package has been rescheduled to October 12, 2010.

Observations and Analysis:

Section 1.0 of the SAS Schedule Narrative submitted with Update #49 states the following:

“For the current period, the Integrated Project Schedule (IPS) realized a potential 27 wd schedule exposure as a result of an unforeseen delay related to design issues with 30-inch gas main work for Contract C-26013. As a result of this issue, the SAS Revenue Service date potentially could experience a critical path schedule delay that with this exposure would reflect an updated forecast date of 23-Aug-16. MTACC and the CCM are evaluating mitigation measures in an effort to recover the exposure and will report on the success of the recovery next period....”

The PMOC reviewed this issue with the project team in detail. The PMOC’s evaluation of how this matter is being handled includes:

- *C5A has experienced a 27-workday delay resulting from additional design work required to support the relocation of a 30-inch gas main.*
- *This delay is on the project critical path and will impact the RSD on a 1-to-1 basis.*
- *The project team is exploring mitigation alternatives. It is their intent to examine the various options and implement during the upcoming period.*
- *For Update #49, the handoff between C5A and C5B was adjusted by -27 workdays to offset the effect of the delay, thereby holding the calculated RSD at July 15, 2016.*
- *MTACC has identified and reported the delay in a contemporaneous manner. They propose to formally incorporate both the delay and the mitigation effort in one step (in Update #50) as contrasted to reporting the delay and the mitigation in two steps, over two separate updates.*

The PMOC considers this one-step method of delay and mitigation incorporating somewhat irregular, but also recognizes advantages to this approach. The PMOC will monitor MTACC's handling of this delay and further evaluate when the matter has been resolved.

MTACC is using a similar approach to model the relationship between C2A and C2B. The handoff between these packages has been adjusted by -82 workdays to model the anticipated effects of C2A's schedule recovery efforts. The PMOC will review the actual status of this recovery initiative next month to evaluate the validity of this approach.

TBM production rates contained in the IPS are unchanged. Production rates during the first two months of mining have varied dramatically and forecasting based upon these rates would be speculative at best. However, the current "15-day rolling average" appears to be stabilizing and a useful reforecast may be possible next period.

Installation of the freeze plant is underway, however the forecast completion of this work (September 14, 2010) will clearly not be achieved. MTACC needs to update portion of the IPS based upon the actual status of the work and develop a more accurate forecast of its completion.

Concerns and Recommendations:

The SAS project team is very cognizant of the overall project schedule requirements and is actively using the IPS as a tool with which to manage the project schedule. Schedule management includes expending resources to recover lost schedule time and develop additional schedule contingency ("float") where needed as well as using available float to benefit other project elements.

MTACC's proposed method of incorporating delays to the IPS (discussed above) may present challenges in presentation and explanation in the future, when additional, multiple delays are encountered. The PMOC will monitor this situation and advise if the current methodology no longer serves the needs of the project.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update #49, which was received this period, major activities that can be anticipated over the upcoming 90 days include the following:

Table 4-2 90-Day Look – Ahead Schedule

Activity ID	Start	Finish
C1- TBM Construction – Tunnel 96th Box (91st to 95th)		
TBM 1 st Run – Mine West Tunnel from 96 th Street Launch Box to 65 th Street	05/27/10A	12/16/10
Complete Installation of Freeze Plant		11/15/10
Develop Freeze Zone		01/19/11
C3 - 63rd Street Station Upgrade (IFB)		
Bids Due		10/12/10
Award Contract		11/09/10
C4B – 72nd St. Station Existing Demo/Mining & Lining (IFB)		

Activity ID	Start	Finish
Bid Opening		06/10/10A
Notice of Award (Estimated)		09/15/10
C5A – 86th Street Station Open Cut/Utility Relocation (C-26013)		
Con Ed Issues Layout Drawings for Gas Main Changes – CRITICAL DELAY-		08/20/10
C5B – 86th St. Station Mining & Lining (IFB)		
Advertise	09/15/10	
<i>Bid Opening</i>		01/07/11
<i>Award</i>		02/25/11
C6 – Systems (RFP)		
RFP Available	10/05/10	
CM1188 – Design Services MOD #57		
PE/FD for Ancillary #2 @ 86 th St Station; Contract 5A	05/10/10A	08/06/10
PE/FD for Ancillary #2 @ 86 th St Station; Contract 5B	05/17/10A	08/19/10
PE/FD for Ancillary #2 @ 86 th St Station; Contract 5C	05/24/10A	09/24/10
Systems	06/21/10	09/27/10

Observations and Analysis:

Delays involving supplemental design for gas main relocations represent a critical delay to the entire project. Without subsequent mitigation, this delay will impact the Revenue Service Date on a day-for-day basis. This delay is forecast to be resolved on August 20, 2010. Further discussion of this delay is included in Section 4.1 of this report.

Completion of design work for Packages 5A, 5B, 5C and 6 is generally proceeding according to schedule. The anticipated award of Package 4B is now mid-September 2010. The advertisement of Package 5B in September 2010 has held schedule during this period.

The Bid Date for Contract 3 was further extended to October 12, 2010 by request of numerous bidding contractors. This contract has substantial float. Extending the bid date should enhance competition and is in the best interests of the project.

Concerns and Recommendations:

Ongoing delays to the award of Contract C4B. Cavern excavation performed by this contract is within 90 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 following table summarizes the critical path as calculated in this schedule:

Table 4-3 Critical Path Activities

Activity ID		Original Duration	Start	Finish
C5	86th Street Station			
C5A	DELAY – Con Ed design for gas main relocation		01-AUG-10	20-AUG-10
C5A	Stage 2 – N/S Cut & Cover		21-AUG-10	16-SEP-10
C5A	Stage 3 – N/S Cut & Cover		17-SEP-10	16-MAR-11
C5A	Stage 4 – N/S Cut & Cover		17-MAR-11	01-JUL-11
C5A	Stage 5 – N/S Cut & Cover		05-JUL-11	06-OCT-11
C5B	South Cavern Exc. Support & Mining (1)		30-AUG-11	03-APR-12
C5B	South Cavern Concrete & Civil Const		04-APR-12	16-OCT-13
C5C	Station Concrete		16-OCT-13	06-FEB-14
C5C	Arch Finishes & MEP (Mezzanine & Platform)		07-MAR-14	15-DEC-14
C6	Systems			
C6	Communication System Inst (86th Street Station)		30-DEC-14	27-JUL-15
C6	Local MEP Testing @ 86 th St. Stn.		05-MAY-15	06-MAY-16
NYT	Pre-Revenue Operation Testing; Stations and Systems		21-MAR-16	15-JUL-16
	Contingency		16-JUL-16	31-DEC-16

Observations:

The critical path generally remains as previously reported, beginning with utility work associated with Contract C5A. Upon completion of the utility work, drill and blast work for the South Access shaft is completed at the SW quadrant, followed by the SE quadrant, then the South Center of the access shaft where upon achieving Substantial Completion of Contract C5A, the South Shaft is handed over to C5B to begin drill and blast mining operations at the south end of the cavern into cavern concrete work. The critical path then continues from C5B to C5C Mezzanine concrete work, then into 1st and 2nd Fix MEP works in the Public Area. From C5C it travels to C6 Systems MEP installation, testing, and commissioning work in the 86th Street Station. Upon completion, it is handed over to NYCT for Pre-Revenue Operations Testing.

The IPS identifies the handoff date from the Systems Package to NYCT for testing as 23-MAY-16; however NYCT Systems Testing is scheduled to start on 21-MAR-16 and is critical to project completion. This 2-month discrepancy should be explained or resolved in the next update.

Note the negative offset at the handoff between C5A and C5B. As previously discussed, this adjustment has been added to offset the impact of the delay currently impacting C5A Stage 2 Utility Work. This offset will be removed in the next IPS update, with mitigation measures and/or the net impact of the delay fully incorporated into the schedule.

The difference between the calculated RSD of July 15, 2016 and December 30, 2016 is the best measure of schedule contingency currently available. Schedule contingency forecast by IPS update #48 is 165 calendar days.

Concerns and Recommendations:

As noted in the July 2010 monthly report, the SAS Critical Path spans a period of approximately 78 months. Of that duration, approximately 65 months are modeled in the IPS using the preliminary schedules developed by MTACC during the design phase(s). The accuracy and reliability of the IPS is particularly sensitive to the content and completeness of these schedules.

This period, the PMOC conducted a schedule review of the C5C contract. Review comments were forwarded to the MTACC. Concurrently, the MTACC was conducting its 100% Design Constructability Review and Schedule Update for the C5B Package. Incorporation of these comments is underway. IPS enhancements and refinements resulting from these efforts should significantly improve the reliability of IPS forecasts. A similar review process will be applied to all remaining SAS construction packages.

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. 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) is based on an initial quarterly analysis with subsequent tracking. Item 4.3(c) was not applicable to this update. Products documenting this type of effort are anticipated next period.*

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. One proposed enhancement this period involved the addition of activities modeling the “dustoff” phase for Contracts 2B, 4C and 5C. The PMOC recommends this enhancement be incorporated in the IPS as soon as possible. Updating the design and obtaining utility agreements are critical to the timely procurement of these packages. 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	\$1,071,000,000
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:

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:

- *Construction bid prices exceeding budget cost estimates.*
- *Cost increases (AWOs) during construction.*

For packages bid to date, a summary of estimated vs. bid price cost indicates substantial cost growth.

Table 5-3 Bid Price Comparison

Package	Budget \$	Reference	Bid Price	+/- (%)
C1; TBM Tunneling	\$319,000,000	Estimate Rev. 5, 08/30/06	\$337,025,000	5.35
C2A; 96 th St. Station Utility & Heavy Civil	\$261,000,000	Estimate Rev. 6, 07/11/08	\$325,000,000	24.52
C5A; 86 th St. Station Utilities	\$25,000,000	Estimate Rev. 6, 07/11/08	\$34,070,000	36.00
C4B; 72 nd St. Station Heavy Civil & Mining	\$448,035,000	Estimate Rev. 7, 10/08/09	\$447,180,260	-0.19
	\$1,053,936,000		\$1,143,275,260	8.47
<i>C4B Bid Price assumes approval of second low bidder.</i>				

The bid variance of \$89,339,260 (8.47%) is significant. Budget \$ represents the sum of the package cost estimate and the allowance for indeterminates (AFI). Because the average bid has exceeded this value, contingency is being consumed at a faster-than-planned rate. MTACC has

previously stated that excess AFI would be used to cover any AWO overruns. Based on available information, this assumption appears flawed.

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

Table 5-4 AWO Summary

Contract	% Complete	Award	Exposure		Notes
			\$	% of Award	
C26002 (1)	74.30%	\$337,025,000	\$54,952,356	16.31%	AWO#92 is included in this evaluation
C26005 (2A)*	20.98%	\$325,000,000	\$9,025,220	2.78%	Options 1 & 2 included in award value
C26013 (5A)	35.23%	\$34,070,039	\$6,574,741	19.30%	
TOTAL	47.50%	\$696,095,000	\$70,552,317	10.14%	
TOTAL	47.50%	\$696,095,000	\$46,533,973	6.69%	w/o AWO#92

* Contract Option 1 added to award value for reporting consistency

Table 5-4 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.

Based on this performance data for the project to date, initial forecasts of contingency usage can be developed and are included in Section 6.5.1 of this report.

Conclusions and Recommendations:

1. Construction bids received to date have generally exceeded the sum of the estimated cost + AFI. This may be explained by the high-risk nature of the projects bid and the economic turmoil during the respective bid periods. If greater alignment between estimate and bids received for Contract 3 is not achieved, a further review of estimating procedures may be indicated.
2. Executed AWO Exposure has increased significantly over the recent periods.
3. With slightly less than half of construction complete for the three active packages, AWOs have exceeded the estimated 5% of contract award used in the budgeting process. MTACC should review the reasons for cost growth on these contracts and evaluate the use of a larger AWO percentage for pre-construction cost estimating.

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 August 31, 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	\$165,088,298
NY-03-0408-06	0	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	\$77,664,283
NY-95-X009-00	\$25,633,000	\$25,633,000	0
NY-95-X015-00	\$45,800,000	\$45,800,000	0
Total	\$353,991,170.00	\$353,991,170.00	\$278,630,451.00



* Denotes American Recovery and Reinvestment Act (ARRA) funds

Local

No change from last month.

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:

The Risk Management Meeting for August was held on August 5, 2010.

Observation:

An update of management actions and initiatives pertaining to specific risks includes:

- *Risk 15B Relationship with Utilities/Third Parties: Regularly scheduled interface meetings with utility companies have resulted in a more cooperative environment and approach. Issues are grouped and presented to the utility in an organized manner to which they can relate. Outages and construction support requirements are forecast and discussed on a global basis. “Lessons learned” are being recorded and will be used to improve the existing procedures.*
- *The relationship with utilities has improved significantly; however, significant challenges remain as the interests and objectives of the respective organizations are not well aligned.*
- *Risk 29 Contract Interfacing: The design team has identified the various interfaces within the design documents and categorized the interfaces as design, space sharing, construction, testing and commissioning. Schedule milestones have been developed where shared space requirements exist. Contract specifications relevant to construction interfaces have been prepared and distributed for review.*
- *Substantial progress has been made by the design team in mitigating this risk and providing the CM team with contractual tools with which to manage the risk. CCM input is now needed.*
- *Risk 35 Settlement of Existing Buildings: Two consultants (DHK and DHA) are engaged in field inspection of buildings susceptible to settlement in the vicinity of the 63rd, 72nd and 86th Street stations. Inspection and remediation design have been prioritized in accordance with the construction schedule.*

Conclusion and Recommendation:

The risk management process continues to make progress in the identification and management of risks.

6.4 Risk Mitigation Actions

Status:

Actions and activities relevant to risk mitigation during this period are discussed in the following section.

Observations:

- *Risk 15B: Relationship with Utilities/Third Parties: MTACC was unable to achieve its stated goal of 100% executed utility agreements prior to advertising Contract Package 3 and does not expect to be able to meet this goal prior to advertising Contract Package 5B. Current forecasts indicate that all utility agreements for these packages will be executed on or before the execution of the respective construction contract.*

- *Risk 35: Settlement of Existing Buildings. Inspection of buildings adjacent to the station construction sites is ongoing. These inspections, combined with improved contracting processes, will significantly mitigate the risk of schedule delay and construction cost growth experienced by other SAS contracts.*

Recommendations and Conclusions:

MTACC is actively pursuing risk mitigation strategies for identified risks.

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:

With approximately 12% of all construction work complete and procurement complete for four (4) of ten (10) packages, the PMOC believes that sufficient information exists to begin forecasting total contingency usage for the project. Data used in this effort was previously presented in Tables 5-3 and 5-4 of this report. Information considered in developing these forecasts is summarized as follows:

- 1. PMOC anticipates that Contract 4B will be awarded to the second low-bidder SSK, at a contract price of \$447,180,260.*
- 2. Based on bid results from four (4) packages, bid prices have exceeded the sum of estimate + AFI by approximately 8.5% (Table 5-3). The nature of the work and economic conditions at bid should be considered in evaluating this result.*
- 3. With approximately 50% of work complete on the three (3) active construction packages, AWO exposure currently equals 6.69%.*

This information is used to develop a range of contingency usage by developing “optimistic” and “pessimistic” forecasts:

Table 6-1 Cost Contingency Forecast

<i>Category</i>	<i>Optimistic Forecast</i>	<i>Pessimistic Forecast</i>
<i>Construction Subtotal</i>	<i>\$2,935,000,000</i>	<i>\$2,935,000,000</i>
<i>AWO Contingency</i>	<i>\$178,000,000</i>	<i>\$178,000,000</i>
<i>Exec Reserve</i>	<i>\$160,000,000</i>	<i>\$160,000,000</i>
<i>Construction Budget</i>	<i>\$3,273,000,000</i>	<i>\$3,273,000,000</i>

<i>Category</i>	<i>Optimistic Forecast</i>	<i>Pessimistic Forecast</i>
<i>Contracts Awarded</i>	<i>\$1,143,275,299</i>	<i>\$1,143,275,299</i>
<i>Est. Cost-Contracts to be Awarded w/ AFI</i>	<i>\$1,790,456,024</i>	<i>\$1,790,456,024</i>
<i>Total Contingency</i>	<i>\$339,268,677</i>	<i>\$339,268,677</i>
<i>Bidding History (contracts to be bid)</i>	<i>0</i>	<i>\$89,522,801</i>
<i>AWO Forecast</i>	<i>\$146,686,566</i>	<i>\$264,035,819</i>
<i>Available Contingency</i>	<i>\$192,582,111</i>	<i>(\$14,289,943)</i>

Assumptions in the “optimistic” forecast:

- *For the remaining six (6) packages to be bid, it is assumed that the bid price will equal the sum of the estimate + AFI.*
- *Average AWO cost for the entire project will equal 5% of the estimated construction cost of the project (.05 x (Contracts Awarded + Est. Cost w/AFI)).*

Assumptions in the “pessimistic” forecast:

- *For the remaining six (6) packages to be bid, it is assumed that (on average) the bid price will exceed the sum of the estimate + AFI by 5%.*
- *Average AWO cost for the entire project will equal 9% of the estimated construction cost of the project (.09 x (Contracts Awarded + Est. Cost w/AFI)).*

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” 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 Contingency Management Plan. Development of the plan is substantially complete. MTACC is in the process of aligning 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 6-2 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	
Contingency (CD)						
RSD=12/31/2016	115*	165	165	165	127	
RSD=02/28/2018	539	589	589	589	551	

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

As previously discussed, MTACC has forecast a 27 workday delay which currently impacts C5A utility relocation work. MTACC will evaluate mitigation measures and formally incorporate both the delay and mitigation measures in the next IPS update.

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.

6.5.2 AWO Processing Review

Status:

The Authorized Work Orders (AWOs) document files, from the C-26002 contract, were reviewed and evaluated to determine if the project team followed procedures prescribed in the Project Management Procedure (PMP), Processing Construction additional Work Orders, dated September 4, 2007, revision 11.2. Additionally, the same set of AWO files were reviewed to determine if the files sufficiently included supporting documentation, such as request for proposals, contractor proposals, estimates, and other required documentation.

Observations:

The following AWOs were selected, reviewed, and evaluated.

AWO	Description	Amount
22	Utility Amplifying Drawings Set #7 - Sewer MH at 94th St. and Connection to Existing Sewer at 95th St. West Side of 2nd Ave	\$205,000
26	30" Suspended Gas Line Con Ed Requirements	\$658,000
29	East Side Sewer Profile and Foundations	\$1,837,200
43	Revised Tie-Ins for 48" and New IJ & Chamber for 36" Water Mains	\$655,000
45	New 12" DIP Water Main Crossing at 95th Street	\$145,000
51	Lining of Sewers, East of 2nd Avenue	\$248,000

<i>AWO</i>	<i>Description</i>	<i>Amount</i>
62	<i>Critical Tilt Meters, Slurry Wall area 93rd-95th St, E-side of 2nd Ave</i>	<i>\$98,900</i>
84	<i>Monitoring of 1770, 1772 and 1766-68 2nd Ave During Blasting</i>	<i>\$57,000</i>
103	<i>Ground Freezing Above East Tunnel</i>	<i>Not available</i>

The review of these AWO document files showed that they were consistent with the procedures outlined in the PMP, with few deviations from the requirements.

During the review of the AWOs, three items were noted that should be addressed. The first item related to the MTACC estimates included in the AWO file. The estimate appeared to be a summary level of the detailed estimate. These estimates should be reviewed at a later date to determine if the estimates were performed acceptably.

The “Record of Negotiations” was included in every AWO file reviewed. According to the PMP, the Procurement Manager is required to prepare a report detailing the negotiations with the Contractor, “recording any deviations from the in-house estimate.” The “Record of Negotiations,” however, did not provide any detail discussion of the negotiations or record any deviations.

Concerns and Recommendations:

As a result of this review and evaluation of the estimates found in the AWO document files, it is requested that the PMO have the opportunity to review the detailed estimates of the sample AWOs that were reviewed.

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	<p>The PMOC is concerned that in several cases agreed upon design and scope of work has been revised when later reviewed by other personnel within the agencies.</p> <p>Update: MTACC has stated that no design packages would be considered 100% complete unless formal agreements with utilities had been executed.</p> <p>Update: MTACC has been unable to immediately achieve this goal, but is making efforts to obtain agreements in a timely manner.</p>	2

Number with Date Initiated	Section	Issue/Recommendation	Criticality
SAS-09-Jan10	3.1 PMP	<p>The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP.</p> <p><u>PMOC Recommendation:</u> Update the PMP and its sub-plans within the timeframes established in the ELPEP.</p> <p><u>Update:</u> This effort is underway. MTACC has initiated new management processes in the areas of schedule, cost and risk management in advance of the formal completion of new plans or procedures.</p>	2
SAS-10-Jan10	3.2 PMP Sub-Plans	<p>MTACC is required to develop and finalize a Cost and Schedule Management Plan, and a Cost and Schedule Contingency Management Plan for the SAS in conformance with ELPEP requirements within 60 days of January 15, 2010. The PMOC is concerned that the 60 day requirement may not be met.</p> <p><u>Update:</u> This process is ongoing. Schedule Management Plan is essentially complete; Cost Management Plan is in progress.</p>	2
SAS-11-Jan10	3.3 Procedures	<p>The PMOC is concerned whether the new procedures will actually be utilized by the different operating agencies within the MTACC, given that NYCT will implement SAS, and the procedures of the SAS PMP reflect the NYCT quality management system.</p> <p><u>PMOC Recommendation:</u> The PMOC recommends that the MTACC develop a process to assure itself that all of these procedures are in use on all of its projects. An example of such a process would be a new procedure distribution system that would require the recipients (the individual Project Managers) to acknowledge receipt of each new procedure as it is released for implementation. This system could be monitored by the parent MTACC to assure implementation across all its organizations and provide it with the opportunity to correct any non-conformances as they develop.</p>	2

8.0 GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS

Priority in Criticality column

1 – Critical

2 – Near Critical

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

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
SAS-A18-Aug08	ELPEP Updates	<p>The change in the Contingency Drawdown Curve, particularly the latent contingency, needs to be clarified.</p> <p>Update: At the quarterly meeting, a new contingency drawdown curve was presented. Management of the contingency is being addressed in the newly required Cost Contingency Management Plan.</p> <p>Update: The latest submission of the Cost Contingency Management Plan is under review. MTACC has initiated contingency management and reporting which generally conforms to the requirements of the ELPEP.</p>	2	6/30/10

APPENDIX A -- LIST OF ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
AWO	Additional Work Order
BCE	Baseline Cost Estimate
BFMP	Bus Fleet Management Plan
CCM	Consultant Construction Manager
CD	Calendar Day
CMAQ	Congestion Mitigation and Air Quality
CPM	Critical Path Method
CPRB	Capital Program Review Board
CR	Candidate Revision
DHA	DMJM+Harris and ARUP
DOB	New York City Department of Buildings
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
FD	Final Design
FEIS	Final Environmental Impact Statement
FPGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
HLRP	Housing of Last Resort Plan
IFP	Invitation for Proposal
IPS	Integrated Project Schedule
MEP	Mechanical, Electrical, Plumbing
MTACC	Metropolitan Transportation Authority – Capital Construction
N/A	Not Applicable
NTP	Notice to Proceed
NYCDEP	New York City Department of Environmental Protection
NYCT	New York City Transit
PE	Preliminary Engineering
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PQM	Project Quality Manual
RAMP	Real Estate Acquisition Management Plan
RFMP	Rail Fleet Management Plan
RFP	Request for Proposal
ROD	Record of Decision
ROD	Revenue Operations Date
RSD	Revenue Service Date
S3	Skanska, Schiavone and Shea
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