

PMOC MONTHLY REPORT

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

May 1 to May 31, 2011



PMOC Contract No. DTFT60-09-D-00007

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

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

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Length of time on project: 1 year

TABLE OF CONTENTS

| | Page No. |
|---|-----------------|
| SECOND AVENUE SUBWAY (SAS) | |
| EXECUTIVE SUMMARY | 1 |
| ELPEP SUMMARY | 3 |
| 1.0 GRANTEE'S CAPABILITIES AND APPROACH | 7 |
| 1.1 TECHNICAL CAPACITY AND CAPABILITY | 7 |
| 1.2 FTA COMPLIANCE DOCUMENTS | 13 |
| 2.0 PROJECT SCOPE..... | 17 |
| 2.1 STATUS & QUALITY: DESIGN/PROCUREMENT/CONSTRUCTION | 17 |
| 2.2 THIRD-PARTY AGREEMENT | 26 |
| 2.3 CONTRACT PACKAGES AND DELIVERY METHODS | 26 |
| 2.4 VEHICLES..... | 26 |
| 2.5 PROPERTY ACQUISITION AND REAL ESTATE..... | 26 |
| 2.6 COMMUNITY RELATIONS | 27 |
| 3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS..... | 29 |
| 3.1 PMP SUB PLAN..... | 29 |
| 3.2 PROJECT PROCEDURES | 30 |
| 4.0 PROJECT SCHEDULE STATUS | 30 |
| 4.1 SCHEDULE STATUS | 30 |
| 4.2 90-DAY LOOK-AHEAD..... | 33 |
| 4.3 CRITICAL PATH ACTIVITIES | 34 |
| 4.4 COMPLIANCE WITH SCHEDULE MANAGEMENT PLAN..... | 36 |
| 5.0 PROJECT COST STATUS | 37 |
| 5.1 BUDGET/COST | 37 |
| 5.2 COST VARIANCE ANALYSIS | 44 |
| 5.3 PROJECT FUNDING STATUS | 45 |
| 6.0 PROJECT RISK | 46 |
| 6.1 INITIAL RISK ASSESSMENT | 46 |
| 6.2 RISK UPDATES | 46 |
| 6.3 RISK MANAGEMENT STATUS | 46 |
| 6.4 RISK MITIGATION ACTIONS | 46 |

| | | |
|-----|---|----|
| 6.5 | COST AND SCHEDULE CONTINGENCY | 47 |
| 7.0 | LIST OF ISSUES AND RECOMMENDATIONS | 50 |
| 8.0 | GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS | 54 |

TABLES

| | | |
|------------|--|----|
| TABLE 1: | PROJECT BUDGET/COST TABLE | 5 |
| TABLE 2: | SUMMARY OF CRITICAL DATES | 6 |
| TABLE 1-1: | STANDARD COST CATEGORIES..... | 11 |
| TABLE 1-2: | APPROPRIATED AND OBLIGATED FUNDS | 11 |
| TABLE 2-1: | CONSTRUCTION PROCUREMENT | 18 |
| TABLE 4-1: | SUMMARY OF SCHEDULE DATES | 30 |
| TABLE 4-2: | SUMMARY SCHEDULE PERFORMANCE BY CONSTRUCTION PACKAGE..... | 31 |
| TABLE 4-3: | QUARTERLY SCHEDULE TARGET COMPARISON | 32 |
| TABLE 4-4: | 90-DAY LOOK-AHEAD SCHEDULE..... | 33 |
| TABLE 5-1: | ALLOCATION OF CURRENT WORKING BUDGET TO STANDARD COST CATEGORIES..... | 38 |
| TABLE 5-2: | AWO SUMMARY | 38 |
| TABLE 5-3: | APPROPRIATED AND OBLIGATED FUNDS (FEDERAL)..... | 45 |
| TABLE 6-1: | SCHEDULE CONTINGENCY | 49 |

APPENDICES

APPENDIX A – LIST OF ACRONYMS

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

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

Phase One of the project will include tunnels from 105th Street and Second Avenue to 63rd Street and Third Avenue, with new stations along Second Avenue at 96th, 86th and 72nd Streets and new entrances to the existing Lexington Ave./63rd Street Station at 63rd Street and Third Avenue.

COST BASELINE

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

SCHEDULE BASELINE

Key Milestones:

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

COMPLETION STATUS

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

- C26002 (Tunnel Boring) – 83.30%
- C26005 (96th Street Station) – 35.80%
- C26013 (86th Street Station) – 66.6%
- C26006 (63rd Street Station) – 0.9%
- C26007 (72nd Street Station) – 10.60%

Aggregate Construction % Completion:

- 37.0% of active construction contracts are complete
- 18.00% of all construction is complete

PROGRESS AND ISSUES

Through May 31, 2011, Contract C-26002 has mined approximately 2,842 LF (36.3%) of the 7,827 LF East Bore. Progress during May was generally better than predicted. Completion of TBM mining is currently forecast for late October/early November of 2011.

Procurement delays involving C5B low bidder were not resolved during May 2011. MTACC is currently forecasting a June 30, 2011 award of this package. For further discussion of this topic, refer to Section 4 of this report.

An additional delay has been reported to the procurement of construction package C-26009 (Systems). Proposals will now be received on June 30, 2011, with a forecast contract award date of October 27, 2011.

The C4B construction contractor has completed erecting the framing of the muck handling facility superstructure at the 72nd Street shaft. This system should be operational in mid-June 2011. Initial operation will start prior to erection of building cladding.

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:

Throughout May 2011, MTACC continued to work with the FTA to produce Management Plans and to demonstrate compliance with the Enterprise Level Project Execution Plan (ELPEP). As reported previously, the original schedule for accomplishment of portions of the ELPEP implementation has consistently not been met; however the many meetings and discussions that have been held have served as a catalyst for the incremental incorporation of many ELPEP concepts and processes by the respective ESA and SAS project teams. As the remaining elements of the ELPEP are finalized, this process is expected to continue.

The current status of each of the four (4) main ELPEP components is summarized as follows:

- **Technical Capacity and Capability** – Complete ESA PMP was recently submitted. The SAS PMP has been reviewed by the PMOC. Remaining tasks include:
 - The PMOC will review and compare its findings for the two projects.
 - The PMOC will review its findings for both projects with the FTA.
 - The PMOC and FTA will present findings and recommendations to the MTACC.
- **Schedule & Schedule Contingency Management Plan** – MTACC has incorporated the five (5) comments contained in FTA’s October 26, 2010 letter. Procedures supporting this plan have also been revised. The PMOC has verified SAS substantial compliance with the SMP since August 2010. *The process of transferring the verification process to the respective project teams was to be discussed at the May 19, 2011 ELPEP Meeting, but was deferred to a subsequent meeting in June 2011.*
- **Cost & Cost Contingency Management Plan** – At the May 19, 2011 ELPEP Meeting, the following Action Items, which were initiated at the April 7, 2011 ELPEP Meeting.

| # | Action Item | Status |
|-----------|--|---|
| FTA Items | | |
| 1. | Verify that the [ESA] procedures and management plans related to Force Account estimating and management satisfy ELPEP requirements as they relate to the CMP. | Conforms. |
| 2. | Verify that EV/Percent Complete calculation described in MTA Procedure CO.14 is satisfactory. If additional EV-related analyses are recommended, initiate meeting with project teams to discuss. | PMOC concurs and will verify with Region 2. |
| 3. | Verify that WBS-CSI-SCC interface shown in the appendix is adequate. If not, initiate meeting with project teams to discuss potential changes. | Existing interface is adequate. |
| 4. | Identify what, if any, additional information related to [SAS] soft costs are needed in the CMP. | Section 5.5 of the CMP addresses this issue – OK. |

| # | Action Item | Status |
|-------------|---|------------------------------------|
| MTACC Items | | |
| 1. | Identify when ELPEP-conformant forecasts will be included in the cost reporting | Open Item |
| 2. | Reconcile differences between Procedure CO20 and project practices related to escalation (mid-point of construction vs. year of expenditure) and revise CO 20. | Both use mid-point of construction |
| 3. | Identify the “product” that comes out of the Risk Assessment procedure (AD.07) to be used by the Project Controls Manager in the EAC forecast. Address how costs identified for potential risks (risk ranges) inform the EAC. Determine where best to present additional information – AD.07, Risk Management Plans or the CMP? | In progress |
| 4. | Determine whether a Scope Transfer Register would be useful in managing the projects. | Open Item |
| 5. | Determine whether there should be a procedure for EAC forecasting | Open Item |
| 6. | Discuss whether contingency calculations should be based on executed/negotiated AWOs or AWO exposure. | Open Item |

MTACC will review and revise the CMP accordingly and resubmit a “clean” copy in June. At that time the remaining open issues will be identified and refined with a goal of producing an “approved as noted” letter, similar to the SMP.

- **Risk Mitigation Capacity Plan** – Outstanding comments to this plan were briefly reviewed at the May 19 meeting. Most issues on the tracking log have been reconciled. Development of a conditional approval, similar to the CMP approach described above, will be the plan moving forward.

Observation:

MTACC has proposed that incorporation of risk assessment and updated status of realized risks in total project EAC reporting be considered a “prototype”, where the actual product will be developed and tested concurrently or in advance of the completion of the Cost & Cost Contingency Management Plan. The PMOC has seen the preliminary efforts that are part of this effort and has no objection to this approach, as long as meaningful progress continues to be made.

Concerns and Recommendations:

Although overall implementation of the ELPEP is somewhat behind schedule, the MTACC has begun implementation of schedule, cost and risk management plans. Both projects have updated their PMPs to support these management documents. The PMOC has noted numerous instances where benefits conferred by these enhanced management tools have been realized.

The PMOC recommends development of a formal implementation verification process for each of these ELPEP elements that will provide documented record of compliance. Development of such a process is anticipated to begin in June 2011.

Table 1: Project Budget/Cost Table

| | FFGA | | | FFGA Amend | MTA's Current Working Budget (CWB) | | Expenditures as of May 31, 2011 | |
|-------------------------------|------------------|----------------------|------------------------|------------|------------------------------------|----------------------|---------------------------------|-----------------------|
| | (\$ Millions) | (%) Grand Total Cost | Obligated (\$ Million) | TBD | (\$ Millions) | (%) Grand Total Cost | (\$ Millions) | % of Grand Total Cost |
| Grand Total Cost: | 4,866.614 | 100 | 4,137.911 | | 5,489.614 | 100 | 1,248.180 | 22.73 |
| Financing Cost | 816.614 | 16.78 | | | 816.614 | 14.88 | | |
| Total Project Cost: | 4,050.000 | 83.22 | 4,137.911 | | 4,673.000 | 85.12 | 1,248.180 | 22.73 |
| Total Federal share: | 1,350.693 | 27.75 | *628.911 | | 1,350.693 | 24.60 | 365.751 | 6.66 |
| Total FTA share: | 1,300.000 | 96.25 | 600.818 | | 1,300.000 | 23.68 | 354.639 | 6.46 |
| 5309 New Starts share | 1,300.000 | 100 | 600.818 | | 1,300.000 | 23.68 | 354.639 | 6.46 |
| Total FHWA share: | 50.693 | 3.75 | 28.093 | | 50.693 | 0.92 | 11.112 | .20 |
| CMAQ | 48.233 | 95.15 | 25.633 | | 48.233 | 0.88 | 8.652 | .16 |
| Special Highway Appropriation | 2.460 | 4.85 | 2.460 | | 2.460 | 0.04 | 2.460 | .04 |
| Total Local share: | 2,699.307 | 55.47 | **3,509.000 | | **3,509.000 | 63.92 | 882.429 | 16.07 |
| State share | 450.000 | 16.67 | 100.000 | | 450.000 | 8.20 | | |
| Agency share | 2,249.307 | 83.33 | 1,145.782 | | 3,059.000 | 55.72 | | |
| City share | 0 | 0 | | | 0 | 0 | | |

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

Table 2: Summary of Critical Dates

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

(1) SAS Phase 1 Integrated Project Schedule, Revision 3; Update #58, and data date of May 1, 2011.

* From ELPEP

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

The Project Office has been relocated from 20 Exchange Place to Two Broadway effective May 23, 2011. Construction field offices supporting individual packages are not affected by this move. The project organization (updated November 2010) is unaffected by this move.

Observation:

The current physical configuration of a Project Office and satellite offices to support specific construction packages is well integrated, cohesive and is capable of supporting the needs of the project in an efficient manner.

With respect to the current organization, the PMOC has the following observations:

- Staff for the project is currently sourced from MTACC, NYCT, two prime consultants, each with multiple sub consultants and several IDIQ consultants. SAS Senior Management has done an excellent job creating a seamless and cohesive project organization from these numerous independent sources.*
- SAS Senior Management has actively managed and shifted staff as needed to adapt to changing requirements based upon the progression of the design and construction activity on the various packages.*
- The Program Controls Manager position is currently being filled by the Scheduling Manager on an acting basis.*

Concerns and Recommendations:

The PMOC considers the dual responsibility of Project Controls Manager and Scheduling Manager to be more than one individual can reasonably perform at this time. This conclusion takes into account the support staff available for each position and the degree of involvement and complexity of the respective positions. It is the PMOC's opinion that each of the project control functions (schedule, cost, risk,) would be enhanced by this increase in staffing.

The PMOC recommends that SAS Senior Management consider available staffing options to upgrade the project controls organization.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

PMOC review of the updated SAS Project Management Plan (Revision 8) has been completed.

Observation:

The PMOC will review its findings with the FTA and compare finding with the corresponding PMP review which is currently underway for the East Side Access Project. After these tasks are complete, the PMOC and FTA will present findings and recommendations to the MTACC.

Concerns and Recommendations:

Any concerns will be documented as comments and tracked for resolution prior to PMOC's recommendation for FTA's approval of the revised PMP.

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

Status:

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

Observation:

Efforts are underway to amend the FFGA because the baseline cost and schedule have been exceeded. *No update this period.*

Concerns and Recommendations:

See section 1.1.2 a

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

Status:

No changes this period.

Observation:

None.

Concerns and Recommendations:

None

d) Grantee's Approach to Safety and Security

Status:

No change in status this period.

Observation:

During May 2011, each construction contractor continued being proactive in implementing its safety program. Weekly tool box meetings were conducted to keep the workforce informed on various safety topics. Root cause analysis is being performed to assure that the actual cause of an incident has been identified and positive corrective actions implemented to prevent recurrence. *The lost time rate and OSHA Recordable Accident Rate from the start of the project until March 30, 2011 are 1.68 and 4.42, respectively. The lost time rate is 0.52 below the national average of 2.2 and the OSHA Recordable Accident Rate is 0.22 above the national average of 4.2.*

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

Concerns and Recommendations:

None

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

a) Uniform Property Acquisition and Relocation Act of 1970

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

b) Local Funding Agreements

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

1.1.4 Scope Definition and Control

Status:

The scope of the SAS Project is defined by the FEIS, ROD and the FFGA. The project scope will be delivered via ten (10) construction packages, with support from NYCT for rail systems installation and overall operating systems inspection and testing.

Observation:

The process of utilizing the Configuration Control Board (CCB), the change control process, the Technical Advisory Committee (TAC) and issuing Technical Memorandums has proven to be an effective means of controlling scope and managing the transfer of scope between construction packages. *This process continues to be used to manage scope refinements and to adjust package scope to react to unanticipated field conditions.*

Concerns and Recommendations:

Technical processes involving the modification or transfer of scope between construction packages are well-established and have been proven effective. Management processes involving the cost and schedule impacts of scope changes and transfers is less developed. The WBS utilized on the project does not always include the level of detail necessary to support this type of analysis. The IPS is, by definition, a summary level schedule that may not directly support task-level changes.

The concept of a scope transfer register to accompany periodic cost reports has been introduced as part of the ELPEP Cost Management Plan development. The PMOC believes this concept deserves to be developed further and represents a potentially satisfactory WBS "functional equivalent" that will serve the needs of the project appropriately.

1.1.5 Quality

Status:

During May 2011, the CCM's Quality Assurance oversight activity for each construction contractor forced on: review and approval of contractor's Quality Work Plans; review of the contractor's Quality Management System (internal audit of contractors and external audit of subcontractors); participation in Preparatory Phase Sessions for construction processes; bi-weekly quality meetings with contractor's management and PMOC; and monitoring the control of non-conforming material.

Observations:

None

Concerns and Recommendations:

None

1.1.6 Project Schedule

Status:

A summary of project schedule information is as follows:

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

Observations:

While the Revenue Service Date (RSD), as forecast by Update #58 of the Integrated Project Schedule (IPS), has remained December 30, 2016, the calculated completion of Phase I construction has been delayed to September 26, 2016. As a consequence of the delays to construction, schedule contingency has been reduced from 165 CD to 97 CD.

The SAS project team utilizes the IPS as an integral part of their management of the process. Schedule issues and impacts are considered in all alternative analyses decision making. The IPS provides the input for schedule milestones contained in construction bid packages.

Conclusions and Recommendations:

The SAS Project Team has demonstrated the capacity and capability to actively manage and utilize the project schedule as a component of the overall project management process.

The PMOC has identified individual issues where the manner in which the IPS models specific processes may be questioned, the overall schedule management effort continues to be a positive component of the management effort.

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 May 31, 2011.

Table 1-2: Appropriated and Obligated Funds

| Grant Number | Amount (\$) | Obligated (\$) | Disbursement (\$) thru May 31, 2011 |
|---------------|----------------|----------------|-------------------------------------|
| NY-03-0397 | \$4,980,026 | \$4,980,026 | \$4,980,026 |
| NY-03-0408 | \$1,967,165 | \$1,967,165 | \$1,967,165 |
| NY-03-0408-01 | \$1,968,358 | \$1,968,358 | \$1,968,358 |
| NY-03-0408-02 | \$24,502,500 | \$24,502,500 | \$24,502,500 |
| NY-03-0408-03 | 0 | 0 | 0 |
| NY-03-0408-04 | 0 | 0 | 0 |
| NY-03-0408-05 | \$167,810,300 | \$167,810,300 | \$167,810,300 |
| NY-03-0408-06 | \$274,920,030 | \$274,920,030 | \$ 74,540,308 |
| NY-03-0408-07 | <i>Pending</i> | <i>Pending</i> | 0 |
| NY-17-X001-00 | \$2,459,821 | \$2,459,821 | \$2,459,821 |

| Grant Number | Amount (\$) | Obligated (\$) | Disbursement (\$) thru May 31, 2011 |
|---------------|-------------------------|-------------------------|--|
| NY-36-001-00* | \$78,870,000 | \$78,870,000 | \$78,870,000 |
| NY-95-X009-00 | \$25,633,000 | \$25,633,000 | \$8,652,432 |
| NY-95-X015-00 | \$45,800,000 | \$45,800,000 | 0 |
| Total | \$628,911,200.00 | \$628,911,200.00 | \$365,750,910.00 |

 * Denotes American Recovery and Reinvestment Act (ARRA) funds

A total of \$1,248,180,297 has been expended on the project through May 31, 2011, of which \$410,936,217 has been spent on design and \$458,263,643 on construction (MTACC's May 2011 Cost and Schedule Summary Input).

Observation:

Local funds totaling \$882,429,387 (\$1,248,180,297– 365,750,910) have been spent as of May 31, 2011. MTA's approved 2000-2004 and 2005-2009 Capital Programs provided \$2,964 million for SAS Phase 1 (\$1,050 million and \$1,914 million respectively). The proposed 2010-2014 Capital Program budgets \$1,487 million to complete the SAS Phase 1 project. Of the \$1,487 million, \$545 million was approved for the 2010-2011 timeframe. MTA needs to approve \$942 million for the 2012-2014 timeframe.

Concerns and Recommendations:

Availability of local funding has been identified as a major concern. Current funding appears to support SAS contract awards through mid-2012. Beyond that time, a detailed analysis of funding, obligations and expenditures is required to verify that the current construction schedule can be supported.

1.1.8 Project Risk Monitoring and Mitigation

Status:

Risk monitoring and mitigation is ongoing and being performed per the SAS Risk Management Program, which is documented in Section 6.0 of the PMP. Through May 2011, the project has held eight Risk Mitigation Meetings. A Risk Register has been developed and maintained on the Project since late 2002. *Throughout this period, retained risks have been reviewed and refined as part of the SAS Team's initiative to develop a risk-based cost management system.*

Observation:

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

Concerns and Recommendations:

None

1.1.9 Project Safety

Status:

The Lost Time Accident Rate and OSHA Recordable Accident Rate from the start of construction until April 31, 2011 are 1.61 and 4.42, respectively. The lost time rate is 0.51 below the national average of 2.2 and the OSHA Recordable Accident Rate is 0.22 above the national average of 4.2. The cumulative construction time worked since the project inception is 1,988,880 hours. Cumulative lost time injuries since project inception is 16 and the cumulative recordable injuries are 28.

Observation:

Each construction contractor conducts weekly tool box meetings to keep the workforce informed on various safety topics. *Safety status is reported on at each contract Job Progress Meeting. MTACC has expanded its safety program to include a monthly walk-thru of the various work zones by SAS Project Management team.* Safety concerns identified by CCM safety personnel and the OCIP representative are quickly addressed by the contractors. When an incident occurs, root cause analysis is performed to assure that the actual cause has been identified and positive corrective actions implemented to prevent recurrence.

Concerns and Recommendations:

None

1.2 FTA Compliance Documents

Status:

No change this period.

1.2.1 Readiness to Enter PE

Status:

Preliminary Engineering (PE) began in December 2001.

1.2.2 Readiness to Enter Final Design

Status:

Final Design began in April 2006.

1.2.3 Record of Decision

Status:

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

1.2.4 Readiness to Execute FFGA

Status:

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

1.2.5 Readiness to Bid Construction Work

Status:

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

- Scheduled and conducted two internal progress meetings per week and prepared and issued meeting minutes for SAS 2B and 5C Contract reviews and 4B updates and general information on SAS 6 contract reviews to be performed;
- Distributed additional package-level design documents directly, through internal server access, and through an FTP server to OP53 Review Team;
- The OP53 review of the 2B and 5C package design documentation continued as did review of procurement documents for the 5C and 6 packages;
- Continued updating Contract 4B Executive Summary report section format;
- Prepared additional updating, analyses and development of Contract 2B report sections pertaining to Demonstrated Management Capacity and Control in Procurement and Package Level Verification. Extended review of real estate and safety/ security activities.
- Followed up on requests to MTACC for 2B 100% Design Cost Estimate backup pricing, etc. in order to evaluate the process of estimate development and assumptions made. Proceeded further with evaluation of selected unit prices, together with potential schedule impacts from labor intensive finish installations.

Observations:

Procurement-

- The PMOC's review of the procurement documentation for 2B and compared the documentation to the New York City Transit Materiel Department Procedures (the Procurement section of the PMP refers to procurement will be in accordance w/NYCT's Procurement Policy and Instruction Manual that is actually termed NYCT Materiel Department Procedures). The 2B documents included the 95% Design Submittal, Information for Bidders (IFB) and related procurement documents dated June 2010 obtained through the MTACC-ESA EDMS document control system, resulted in the following observations:
 - The Manual, Section IV-B.6 allows withdrawals of bids; Schedule R, Form of Bid Bond, indicates that default regarding a Bid...damages in accordance to the IFB. If withdrawal is allowed, and it is a type of withdrawal that is allowed, then the IFB should spell out the damages. The PMOC could not find damages relating to bid withdrawal in the IFB
 - The Manual, Section IV-B.4, Bid Mistakes and Withdrawals, specifically covers the manner in which to process a bid mistake discussing apparent clerical mistakes, mistakes other than apparent clerical mistakes & evidence establishing the existence of a mistake, thus the bidder may be permitted to withdraw bid. The Information for Bidders, Paragraph 21, Bid Mistake, does not provide the same level of detail as the Policy and Instruction Manual as Paragraph 21, covers Bid Mistake relating to

withdrawal only. The MTA may want to consider adding some of the language from the MTA's Policy/Instruction Manual IV-B.4 to Paragraph 21 of the Information for bidders.

- *Terms & Conditions - Article 4.05 Extra Work Directive, Paragraph B – 4th sentence states “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 notes that this clause is silent on actions that are to be taken for all other contract Work not part of the Extra Work Directive during the dispute.*
- *The Manual, Section IV-B.3 Omnibus Procurement Act Section J. - Federal Equal Employment Opportunity Act states: “Bidders or Proposers are required to provide NYC Transit with assurance that they are in compliance with the Federal Equal Employment Opportunity Act of 1972 (P.L. 92-261). A certification of compliance is included in each boilerplate Bid Package. By signing the Bid, the Bidder is certifying that they are in compliance with EEO Act.” Terms & Conditions - Article 10.10 Omnibus Procurement Act of 1992 makes no reference to the required certification of compliance.*
- *The PMOC’s reviewed the 100% Final Design Submission Drawings and Status Report/Design Memorandum for 2B to MTACC on December 30, 2011. In the Executive Summary page I, it stated: “All outstanding items are to be resolved prior to Contract solicitation in 2011 or updated during construction. There were many significant items of work and coordination requiring decisions to permit design resolution as well as stakeholder approvals being sought. A summary of some of the more significant items is as follows:*
 - *There are several out-of-scope station design items requested by NYCT that were received too late to be incorporated into the final design, or are under consideration by MTACC.*

| <u>No.</u> | <u>Title</u> |
|------------|---|
| 1 | Replace PLC5 Logic with AB Control Logix PLC |
| 2 | Platform edge rubbing board |
| 3 | CCTV Fan Room |
| 4 | Public Area Platform Bench |
| 5 | Public Toilet Configuration |
| 6 | Add RAACS Remote Auxiliary Alarm and Control System at Pump Rooms |
| 7 | Granite Stair Replacement with Iron Tread on Concrete |
| 8 | VRLA Batteries |
| 10 | Fire Suppression (Inergen) Specification change to Division 19 |
| 11 | EMI/RFI Ballast |
| 12 | New Fan Plant Damper Actuator Wiring |
| 13 | Re-route traction power cable for kicker to Invert Slab |
| 15 | Con Edison Power to Concessions |
| 16 | Door Locking Mechanism |

- 19 *CCTV Cameras at Escalators*
 - 20/23 *Additional Communications Items*
 - 22 *Replace Damper Attenuator Drawings and Specification 23
82 30*
 - 24 *Add fall protection for maintaining light fixtures above
escalators*
 - 25 *Numbering of SAS Traction Power Breakers*
- *There were numerous work items noted to be resolved from Previous Contracts*
 - *The latest as-built and/or design drawings from Contracts C-26002 and C-600S*
 - *Changes to Contract 2B design due to contractor proposed changes, field conditions and NCRs from Contracts C-26002 and C-2600S.*
 - *The Contract 2B drawings cannot be updated for many of these changes until the design and as-built information is received from the previous contracts.*
 - *New street restoration limits were determined with MTACC and NYCDOT in a site visit on July 30, 2010 and have been submitted to NYCDOT. Approval is pending.*
 - *The restoration requirements at the NYCHA property have changed as a result of ongoing utility work due to field conditions. The new requirements will be incorporated in the contract in the pre-proposal update period.*
 - *Approval of the tree restoration along Second Ave is still required from NYCDPR. Input is still required from NYCDPR regarding procurement of tree restoration in areas outside the Second Avenue corridor, for inclusion in the Contract.*
 - *DEP Approval is required for the following discharge from the station:*
 - *Discharge of track drainage and sanitary sewers to the pressure relief manholes and then into street sewers.*
 - *Discharge of storm water from roofs of Ancillary buildings and Entrances into street sewers. DHA to prepare and submit applications to DEP during the pre-proposal update period prior to procurement.*

Concerns and Recommendations

The PMOC's OP53 reviews resulted in the following conclusions and recommendations:

Procurement-

- *Since Schedule R, Form of Bid Bond, references damages for default regarding a bid, then it should spell out terms pertaining to the damage. The PMOC recommends that MTACC Procurement add a clause such that "It is the MTA's sole decision to allow the withdrawal of bid which will result in the forfeiture of the bid security submitted by the contractor requesting the withdrawal." or similar provisions.*
- *Since the Information for Bidders, Paragraph 21, covers Bid Mistake relating to withdrawal only, the PMOC recommends that MTACC consider adding language from the Policy and Instruction Manual IV-B.4 to Paragraph 21 to better define options in evaluating levels of bid mistakes.*
- *Terms & Conditions - Article 4.05 Extra Work Directive, Paragraph B – The 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. Thus, the PMOC is suggesting that MTA add a specific article that requires the contractor to continue work through any and all disputes.

- *Terms & Conditions – Article 10.10 Terms & Conditions - Article 10.10 Omnibus Procurement Act of 1992 makes no reference to the required certification of EEO compliance. The PMOC recommends that language be added to Article 10.10 to require that the Bidders certify that they are in compliance with EEO Act.*

Technical Contract Documents-

- *There are several major stakeholder issues listed above, that can present significant schedule risks to 2B. Now that 2B has been delayed, the PMOC strongly suggests that MTACC and the design team resolve all outstanding items. MTACC should incorporate as many of these items if not all in the design documents prior to sending the package out to bid, thus, avoiding changes during and after the award of the construction contract.*

1.2.6 Readiness for Revenue Operations

Status:

No change this period.

Observation:

None

Concerns:

None

2.0 PROJECT SCOPE

2.1 Status & Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

MTACC reported the design phase of the SAS Project is to be 100% complete in late November 2010. The PMOC has reviewed the 100% Design Memorandums, which document outstanding issues and remaining work, and generally concur.

Observation:

During May 2011, the "dustoff" process for the C2B construction bid documents commenced. This process has been initiated significantly in advance of the scheduled advertisement date (October 10, 2011) and should provide adequate time to update all engineering documentation without adversely affecting the procurement process.

After a review of the actual effort required for this "dustoff" process, the IPS for C4C and C5C will be amended accordingly.

Concerns and Recommendations:

Engineering support of the project has remained adequate to support the ongoing construction effort and execute isolated design enhancements or modifications. No concerns at this time.

2.1.2 Procurement

Status:

Several issues involving construction procurement continue to adversely affect the project:

- **C-26008 (C5B): 86th Street Station Cavern & Heavy Civil** – bids were opened on February 4, 2011, at which time the joint venture of SKANSKA Civil and Traylor Bros. was identified as the apparent low bidder with a bid of \$301,860,000. *Award of this package has been delayed.*
- **C-26009 (C6): Transit & Rail Systems** – RFP documents were made available to the qualified proposers on March 7, 2011 and the pre-proposal meeting was held on March 31, 2011. *Receipt of proposals has been delayed from May 18, 2001 to June 29, 2011.*

Table 2-1: Construction Procurement

| Activity # | Description | Date* | Comment |
|--|-----------------------------|-----------|---|
| Contract C-26008 (C5B): 86th Street Station Cavern & Heavy Civil | | | |
| C5B 25d | Procurement (IFB) Open Bids | 02/04/11A | "Plug" award date of 6/30/11 currently used in IPS. Reliable forecast of this award or resolution of this issue is not available. |
| C5B PR40 | Award Contract 5B | 06/30/11 | |
| Contract C-26009 (C6): Systems | | | |
| SYPR 25t | Issue RFP (Step 2) | 03/07/11A | RFP Documents were made available to teams whose qualifications were deemed acceptable in Step 1. |
| SYPR30d | Submit Proposals | 06/29/11 | Proposal submission and subsequent contract award delayed approximately 1 month. |
| SYPR40 | Award Contract | 10/27/11 | |
| Contract C-26010 (C2B): 96th Street Station Concrete, MEP & Finishes | | | |
| This procurement has been postponed by approximately six months as a consequence of construction delays to C2A. Bid date is currently forecast for 01/11/12. Contract award is forecast for 04/23/12. <i>No change to these dates this period.</i> | | | |

* Note: All dates reference IPS Update #58 (Data Date as of 05/01/11) U.N.O.

Observations and Analysis:

- **Contract C-26008 (C5B):** *The current IPS assumes a contract award date of 06/30/11. Indications suggest this to be an optimistic forecast. Realistically, the earliest award date is mid to late July. The impact of this delay is on the project schedule is further discussed in Section 4.3 of this report.*

- **Contract C-26009 (C6):** Receipt of construction proposals was further delayed during May 2011, from June 2, 2010 to June 29, 2011, Although proposals have been received for NYCT (No. 7 Line Extension) Contract C-26505, it is unknown whether additional delays will be incurred as a result of MTA's intention to "coordinate" rail systems procurement among the three "mega-projects" The current IPS contains an estimated duration of 7 CD in which to negotiate this procurement with the most responsive proposers.
- **Future Procurements:** The next construction package scheduled for procurement is C2B (96th Street Structure & Finishes). Advertisement is currently scheduled for October 17, 2011.

Concerns and Recommendations:

The PMOC considers 7 CD to an inadequate duration in which to negotiate a technically complex, multi-million dollar procurement. The PMOC is consequently concerned about additional delays to the construction award for this package.

Procurement delays have been a major source of delay to the project over the recent past. The PMOC recommends that subsequent construction procurements be reviewed and scheduled to provide adequate contingency to avoid critical procurement delay to the station finish packages.

2.1.3 Construction

Status:

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

- **Contract C-26002(C1) –TBM tunnels from 92nd Street to 63rd Street**
 - Mining of the East tunnel is currently at 81st Street at station 1193+07.50. Approximately 2,842 feet mined to date (mining of the East tunnel commenced on 3/21/11).
 - Demolition of the freeze plant and grouting of freeze pipes left in place is complete.
 - An access shaft at 78th Street was excavated to facilitate concrete supply for upcoming concrete liner placement.
 - Surface preparation work for waterproofing in the West tunnel is still on-going (Shotcrete work commenced 5/17/11).
 - Cellar tie work at 1814 is on-going.
 - A post-construction survey still needs to be finalized at the shafts. Coordination with SSK's pre-construction survey is needed.

- **Contract C-26005 (C2A) 96th Street Station Heavy Civil, Structural and Utility Relocation**
 - *Installation of new fence along Westside of Work one between 99th and 100th Streets on 2nd Avenue.*
 - *Installation of gate valve and blow-off hole (AWO -0062) on the Westside of 2nd Avenue south of 99th Street.*
 - *Installation of manhole 98-2 on the Westside of 2nd Avenue and former 98th Street.*
 - *Installation of ECS conduit (AWO-0057) on the Westside of 2nd Avenue between 97th and 99th Streets.*
 - *Installation of 12" DIP water main (AWO-0080) on the Westside of 2nd Avenue between 97th and 99th Streets.*
 - *Installation of secant piles at Ancillary 2.*
 - *Removal of piles at Entrance 3 (AWO-0077) and additional piles on the Westside of 2nd Avenue between 95th and 96th Streets.*
 - *Completed excavation for installation of 60" sewer main (AWO-0069) at NWC of 95th Street and 2nd Avenue.*
 - *Completed installation of 36" and 60 In. water mains on 2nd Avenue.*
 - *Continued installation of sewer chambers at 96th and 97th Streets.*
 - *Continued secant pile installation for north, south and west walls of Ancillary 2; 59 of 105 Piles completed as of 4-30-11).*
 - *Started Phase I building stabilization at 1802 2nd Avenue.*
 - *Started assembly of 2 digging cranes and Gantry crane for Slurry wall work and rebar cage fabrication.*
- **Contract C-26006 – (C3) 63rd Street Station Upgrade**
 - *CPM Baseline Schedule Rev2 received May 9, 2011.*
 - *Proposed contractor's DCB submitted on 5/11/2011.*
 - *Asbestos Abatement Permits/Placards given on April.*
 - *Asbestos & Lead Abatement underway at Fan Plant; and Lower & Upper Platforms*
 - *Install work area barricades for the Upper Platform & installed temporary EDRs & Lightings (Area5)*
 - *Setup Work sites at Area 5 and Platforms Levels.*
 - *Commenced demolition of Architectural Finishes: Upper Platforms.*
- **Contract C-26007 (C4B) 72nd Street Station Mining and Lining**
 - *Main Cavern South (69th Street Shaft –center line station 1161+88.19) Center drift excavation progress –South (CCS#10) to station 1160+96.38, North to (CCN#21) to*

station 1163+30. West slash –South to station 1162+35 (3NW), North to 1161+46 (3SW)

- *Completed excavation of 69th St Cross Adit cavern and commenced excavation of top heading (center drift) progressing north and south from 69th St*
 - *Total rock excavation as of 5/17/11 (69th and 72nd St.) approximately 11,393 BCY.*
 - *Muck Enclosure (72nd St. Shaft) –Steel erection and assembly on-going. Schedule to be operational by 5/27/11.*
 - *Muck Enclosure (69th St. Shaft) –Activity scheduled to start on 5/31/11.*
 - *Ancillary 2 Support of Excavation wall at NW corner at 72nd St. construction on-going (rebar installation, form and pour)*
 - *72nd Street Utility Relocation (North side electric relocation –ConEd pulling cables and splicing to tie in new service. Schedule completion 6/3/11)*
 - *69th Street Utility Relocation (North side gas relocation –tie in scheduled to be completed on 6/7/11 and backfill and pave by 6/10/11)*
 - *Water Treatment Plant construction on-going final hookup (Commissioning of the plant now scheduled for 5/23/11)*
 - *Preconstruction Building Surveys south of 66th Street are on-going*
 - *Asbestos abatement of the buildings at Ancillary 2 location is on-going (roof 257, and 259 East 72nd St.). Projected completion is 5/27/11.*
 - *Asbestos abatement of the buildings at Ancillary 1 location is on-going (235, 1315, Drink and Peters Shoe Shop)*
- **Contract C-26013 (C5A) 86th Street Station Excavation, Utility Relocation and Road Decking**

North Area:

- *Con Edison completed electrical primary work.*
- *Completed installation of soldier piles for the North Shaft SOE.*
- *Installed toe pins for the soldier piles*
- *Excavated to locate secondary electrical cables that will need to be shifted to install cap beam.*
- *Completed installation of duct runs F to G, Q, J, and C, T to W, and service box 54743 and electric TS box 54749.*
- *Completed 12" water main north and south of 87th St.*
- *Completed street restoration work and moved traffic to west side.*

South Area:

- *Con Edison completed primary & secondary work at South area. Dead cables remain to be pulled.*

- Completed rock excavation (approx. 835 cy) at southwest Shaft. Deck panels installed and traffic switched to west side to start east side shaft work.
- Completed breakout of ECS duct bank across west side shaft, and wrapped ECS cables.
- Continued the installation of soldier piles and toe pins for the South Shaft east side SOE.
- Continued to excavate to locate existing ductbanks where they cross the South Shaft east side.

Observations:

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

For Contract C1 - As of May 31, 2011, TBM progress is summarized as follows:

| Second Avenue Subway TBM Summary - PMOC Projection | | | | | | | |
|---|----------------------|-----------------------|-----------|--|------------------|-----------------|-------------|
| Date | Station | Total Progress | Unit | Period Progress | Work Days/Period | Progress/Period | Unit |
| Actual | 6/8/10 | 1221+89.0 | 0.0 | | | | |
| | | | | 261.0 | 16 | 16.31 | LFWD |
| | 6/29/10 | 1219+28.0 | 261.0 | LF | 374.2 | 22 | 17.01 |
| | | | | | | | LFWD |
| | 7/29/10 | 1215+02.96 | 635.2 | LF | 1292.8 | 18 | 71.82 |
| | | | | | | | LFWD |
| | 8/31/10 | 1202+61.0 | 1928.0 | LF | 1054.0 | 17 | 62.00 |
| | | | | | | | LFWD |
| | 9/29/10 | 1192+07 | 2982.0 | LF | 769.0 | 24 | 32.04 |
| | | | | | | | LFWD |
| | 11/2/10 | 1183+85.72 | 3751.0 | LF | 877.0 | 20 | 43.85 |
| | | | | | | | LFWD |
| | 11/30/10 | 1175+09.17 | 4628.0 | LF | 368.0 | 4 | 92.00 |
| | | | | | | | LFWD |
| | 12/6/10 | 1171+93 | 4996.0 | LF | 392.0 | 6 | 65.33 |
| | | Original limit, TBM-1 | | | | | LFWD |
| 12/14/10 | 1167+48 | 5388.0 | LF | 883.5 | 18 | 49.08 | |
| | | | | | | LFWD | |
| 1/9/11 | 1158+65 | 6271.5 | LF | 943.5 | 12 | 78.63 | |
| | | | | | | LFWD | |
| 2/4/11 | 1150+00 | 7215.0 | LF | Completion of TBM-1 (West Bore) | | | |
| TBM-1 TOTALS | | 7215.0 | LF | | 157 | 45.96 | LFWD |
| 2/4/11 | Extract & Remobe TBM | | | | 45 | | |
| 3/21/11 | 1221+49 | 0.0 | LF | 283.0 | 11 | 25.73 | LFWD |
| 4/5/11 | 1218+66 | 283.0 | LF | 833.0 | 18 | 46.28 | LFWD |

| Second Avenue Subway TBM Summary - PMOC Projection | | | | | | | |
|---|-----------|----------------|------|-----------------|------------------|-----------------|------|
| Date | Station | Total Progress | Unit | Period Progress | Work Days/Period | Progress/Period | Unit |
| 4/30/11 | 1210+33 | 1116.0 | LF | | | | |
| | | | | 1726.0 | 24 | 71.92 | LFWD |
| 6/1/11 | 1193+07.5 | 2842.0 | LF | | | | |
| | | | | 4985.0 | 104 | 47.89 | |
| 10/24/11 | 1143+80 | 7827.0 | LF | | | | |

- *During May 2011, TBM mining progress has generally exceeded estimated production rates, resulting in a slight improvement in the PMOC forecast completion date of October 24, 2011. This forecast compares favorably with the forecast completion date of November 8, 2001. The PMOC forecast does not include holidays and similar non-work periods.*
- *Remediation plan required to rectify deficient concrete (honeycombing) in ground freeze zone interliner needs to be resolved.*
- *Excavation/mining of east side portion of pump room after TBM mining of east tunnel may present potential impact for access to C2A & blasting at 86th Station Cavern.*
- *S3TC submission of Composite TIA that includes AWO #103 (Ground Freezing), AWO #92 (TBM Extension), AWO #114 (Mining through freeze zone), and AWO #112 (CIP Lining Deletion).*
- *S3TC turnover of Work Zone area between 93rd and 94th Streets to C2A.*
- *Transfer of the concrete lining of the east bore (72nd to 86th Streets) from contract C1 to contract C5B is anticipated to satisfy New York City Fire Department (NYCFD) requirements and coordinate the work of these packages. To date, a proposal detailing the corresponding schedule reduction has not been submitted by the Contractor.*

For Contract C2A:

- *ECS manhole/slurry wall conflict at 95th Street: ECS approval of the design is needed.*
- *ECS manhole/slurry wall conflict at 96th Street: DHA submittal of the design for ECS approval is need.*
- *Entrance #3 Waiver Request: Redesign approved. DHA needs to finalize the design.*
- *Schedule Resequencing AWO #48: Plan is reflected in updates #16 thru #21. "Record of Negotiation" in review by CTJV legal. Scope meeting held on 4/12/11 to discuss cost and impact cost portion of this AWO.*
- *Stabilization of 1802 2nd Avenue: Construction methodology for pile removal needs to be resolved (DHA's recommendation versus CTJV's process).*
- *Utility Conflict (meetings are being held with utility agencies to address concerns):*

- Entrance 1 (gas, sewer, and ECS –DHA developing revised utility design)
- Entrance 2 (gas and sewer –DHA developing revised utility design)
- Ancillary 1 (high rock -decision on option and owner's approval of rock anchors at Waterford; gas –DHA developing revised utility design)
- High rock issue at Ancillary 1; Majority of issue mitigated by adjusting primary secant pile elevations and modifying drilling procedures.
- Building 1802 – repair/replace termite damaged wooden joists and repair east wall bricks.
- Coordination meeting(s) with Contract 1 (S3) –CTJV to send a letter stating that S3's "Hog House" must be removed.
- MTACC and CTJV are still trying to resolve the delays associated with AWO work and ConEd activity. Preliminary substantial completion is May 2013 based on ConEd work completion by 5/23/11. The original substantial completion was January 7, 2013.

For Contract C3:

- Access for Plaza area needed for staging area. Real Estate notified in order solve this issue ASAP.
- Contractor access to HAHNS Garage for installation of Instrumentation.
- Access to Pookie & Sebastian's (Entrance#1) denied by the owner.
- Completion and submission of the Detailed Baseline Schedule.

For Contract C4B:

- Blasting/excavation production rate is not achieving the forecast schedule rate. Current schedule indicates the project is approximately 21 WD behind schedule.
- The Option 1 work performed on the contract will be authorized and tracked utilizing the Allowance Work Request (AWR) process. Option 1 is for the construction of the below-ground excavation of Ancillary 1 Building and corresponding adits in the amount of \$16 million. All addition work will be accomplished utilizing the AWO process.
- Negotiation and execution of AWO #5 at Entrance 1 for MEP utility relocation work within 301 East 69th Street Condominium
- Completion of Building remediation prior to blasting within 100ft of the buildings at 72nd St Station cavern area
- SSK indicated that during check-out of the mucking facility at the 72nd Street shaft, the building would not be fully enclosed. Check out could take as much as 6 weeks. During the Community Board Meeting it was indicated that the facility would be fully enclosed during operation. CCM investigation is ongoing

For Contract C5A:

- *Good neighbor initiative ongoing. Due to budget cuts, DOS will not purchase the new garbage cans. MTACC is still looking into having an elected official sponsor the replacement of garbage cans on the corners where they have been removed around the job site.*
- *Completion of Con Edison work including;*
 - *Secondary cables work at North Shaft to facilitate cap beams installation and Shaft excavation*
 - *Removal of existing dead cables at southeast Shaft to facilitate completion of soldier pile installation.*
- *Remediation work for 4 Bldgs. west side of 83rd Street prior to blasting operations at the south east Shaft. Agreement reached with owner on 3/31/2011. Awaiting final signature of documents.*
- *Coordination and approval of blasting operations at North and South Shafts with C1 for concurrent TBM mining and CIP concrete lining placement.*

Concerns and Recommendations:

Although individual delays are encountered, the SAS project team has been diligent in resolving critical construction issues and avoiding extensive construction delays. No concerns at this time.

2.1.4 Force Account (FA) Contracts

Status:

During May 2011, no MTA Force Account expenditures were made.

Observation:

Force account involvement in the project has been very low to date. A substantial portion of Contract 3 will be performed during "General Outages". This will be the first significant Force Account expenditure.

Concerns and Recommendation:

None

2.1.5 Operational Readiness

Status:

NYCT has developed a Concept of Operations Plan for the SAS Project. Operational Readiness will be validated during NYCT's Pre-Revenue Service testing scheduled from March 21, 2016 to June 15, 2016. *No update this period.*

Observation:

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

Concerns and Recommendation:

None.

2.2 Third-Party Agreement

Status:

No change this period.

Observation:

None

Concerns and Recommendation:

None

2.3 Contract Packages and Delivery Methods

Status:

There was no change to the overall contract packaging plan or the delivery method for any of the construction packages during May 2011.

Observation:

None

Concerns and Recommendations:

None.

2.4 Vehicles

Status:

No change in status this period. FTA has accepted MTA's proposal to supply vehicles to support SAS Phase I through another source.

Observations:

None.

Concerns and Recommendations:

None.

2.5 Property Acquisition and Real Estate

Status:

1802 2nd Ave & 301 E 69th St – Temporary Residential Relocation-Temporary Commercial Shut-Down List of Property Addendum letter dated 5-24-11 sent to FTA.

260 E 72nd Street; official vesting is May 5, 2011

Observation:

Next group of property acquisitions – court date June 7, 2011

Contract 3:

- 1- 128 E 63rd St – TE - Air space above building needed for crane maneuvering
- 2- 124-126 E 63rd St – PE/TE in garage for rooftop mounted cooling tower
- 3- 186 E 64th St – PE in garage for exhaust shaft
- 4- 200-201 E 63rd St – PE/TE for entrance – commercial relocation required

Contract 5:

- 1- 250 E 87th St – PE/TE needed for ancillary facility

Remaining property acquisition:

Contract 4:

- 1- 233 E 69th St – acquisition pending NEPA lawsuit

Second Avenue Subway – Property Acquisition Summary

| <i># of Parcels Identified</i> | <i># Parcels Closed</i> | <i># Parcels Under Contract</i> | <i># Parcels In Negotiation</i> | <i># Parcels In Appraisal</i> | <i># Parcels In Condemnation</i> | <i># Parcels Right of Occupancy</i> |
|---------------------------------------|--------------------------------|--|--|--------------------------------------|---|--|
| 95 | 92 | 0 | 3 | 0 | 94 | 88 |

Concerns and Recommendations:

Based on information gathered during the PMOC Real Estate Consultant’s site visit (April 6 and 7, 2011) an independent estimate at completion for real estate acquisition is being developed to verify conformance with the project budget. Other follow-up tasks recommended by the PMOC include:

- Continue to monitor Real Estate acquisition to confirm execution in accordance with project schedule requirements.
- Perform an audit of select NYCT files during the 3rd Quarter 2011 to verify conformance with applicable requirements.

2.6 Community Relations

Status:

During May 2011, the Hunter College Department of Urban Affairs and Planning published “Second Avenue Subway: Lessons Learned”. The client for this effort is identified as U.S. Representative Carolyn Maloney. The objective of the study is to “propose recommendations for how the SAS construction process could be improved and propelled into future phases”.

Several members of the MTACC Project Team are acknowledged as sources. The FTA is not identified as a source of information for any portion of this study.

Observation:

This study expresses a generally positive toward the project. It identifies eight areas it considers in need of improvement and makes recommendations for improvements: and makes the following specific recommendations:

| Second Avenue Subway: Lessons Learned | | |
|--|---|---|
| No. | Finding | Recommendations |
| 1. | <i>Lack of communication, coordination, and oversight leads to construction delays and inefficiencies</i> | <ul style="list-style-type: none"> ➤ Designate oversight agency modeled on the Lower Manhattan Construction Command Center (LMCCC). ➤ Mandate compliance through funding legislation |
| 2. | <i>Subway construction will halt without continued political support</i> | <ul style="list-style-type: none"> ➤ Identify a "political champion" for each phase to build support for construction and advocate for funding□ |
| 3. | <i>MTA and other agencies fail to adequately engage the community</i> | <ul style="list-style-type: none"> ➤ Create a community-construction advocate ➤ Expand the existing community liaison position ➤ Mandate that both positions answer to the community rather than the MTA ➤ Create a Community Coalition and a Community Advisory Committee ➤ Adopt an incentive bonus system to reward contractors who address community concerns ➤ Request that the MTA hire an SAS-specific PR person to communicate through multiple platforms |
| 4. | <i>East Harlem is threatened with displacement</i> | <ul style="list-style-type: none"> ➤ Create a Second Avenue special zoning district ➤ Eliminate vacancy destabilization ➤ Increase affordable housing through a trust fund or mandatory inclusionary housing ➤ Develop an incentive program for long-term leases and commercial stabilization ➤ Limit the size of commercial units in portions of the East Harlem Special District |
| 5. | <i>Second Avenue stores face a difficult business environment</i> | <ul style="list-style-type: none"> ➤ Establish a Small Business Service outpost ➤ Provide on-site business consultant services |
| 6. | <i>Residents are displeased with non-contextual ancillary structure designs</i> | <ul style="list-style-type: none"> ➤ Create space for ground floor retail in ancillary structures ➤ Add design elements that relate to adjacent buildings |
| 7. | <i>Construction corridor is visually</i> | <ul style="list-style-type: none"> ➤ Incorporate specific expectations for street |

| <i>Second Avenue Subway: Lessons Learned</i> | | |
|--|--|---|
| <i>No.</i> | <i>Finding</i> | <i>Recommendations</i> |
| | <i>unappealing and unsafe</i> | <i>maintenance into construction contracts</i> ➤ <i>Use temporary art to improve construction sites and encourage community involvement</i> |
| 8. | <i>MTA has no funding plans for future phases of the SAS</i> | ➤ <i>Nominate a political champion to lobby for funding for future phases of the SAS</i> ➤ <i>Use legislative mandates tied to funding to implement recommendations in this report</i> |

Concerns and Recommendations:

The PMOC notes that the MTACC's "Good Neighbor Initiative" is directed towards items No. 5 and 7. Evaluation of item No. 7 is also underway. Items No. 2 and 8 are beyond the scope of MTACC/SAS project staff at this time. The PMOC will further investigate and evaluate items No. 1 and 3 and attempt to identify specific improvements (if any) that can be implemented in these areas.

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

Status:

The PMOC has completed its review of the Revision 8 submission of the draft SAS PMP (dated January 2011). The PMOC will present the results of its review to the FTA. Upon FTA's concurrence with the PMOC's findings and recommendations, the results will be transmitted to the MTACC SAS Project Team.

Observations:

In general Revision 8 of the SAS PMP was updated in accordance with the "PMP Update" process defined in the ELPEP. Candidate Revisions were issued and approved by the Technical Advisory Committee for all "Material Decisions", i.e., project decisions that affect scope, cost, schedule or funding.

Concerns and Recommendations:

None at this time

3.1 PMP Sub Plan

Status:

As part of the PMP review, the referenced Sub-Plans have been reviewed to confirm their conformance and consistency with the PMP.

Observations:

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

Concerns and Recommendations:

None

3.2 Project Procedures

Status:

No change in status this period.

4.0 PROJECT SCHEDULE STATUS

4.1 Schedule Status

Status:

IPS Update #58 was received and is based on a Data Date of May 01, 2011. Update #58 contained a narrative report, a schedule variance report, a schedule revision log and "PDF" versions of several schedule reports. Project schedule completion milestone dates remained essentially unchanged for this period; however MTACC now forecasts completion of all construction on 09/26/16, with 97 calendar days of contingency until its committed RSD of 12/30/16.

Table 4-1: Summary of Schedule Dates

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

During the month of May 2011, progress continued on five (5) active construction packages:

- C-26002 (C1) TBM Tunneling and 96th Street Box,
- C-26005 (C2A) 96th Site Work and Heavy Civil,
- C-20006 (C3) 63rd Street Station Rehabilitation
- C-26013 (C5A) Open Cuts and Utility Relocation, and
- C-26007 (C4B) 72nd Street station Cavern mining & Lining.

No significant additions, deletions or significant changes were made to the schedule during May 2011. Changes were limited to routine updating to reflect the current status of the ongoing activities

The IPS is a management level schedule that integrates all ten construction packages along with design, procurement, startup and other support activities. The current IPS update of May 1, 2011 indicates that the project is on schedule to achieve an RSD of December 30, 2016 and has

97 calendar days of float. Five of the ten contracts are in construction and the status of individual construction contracts is illustrated in the table below.

Table 4-2: Summary Schedule Performance by Construction Package

| <i>Pkg. #</i> | <i>Award Date</i> | <i>Contract S/C</i> | <i>Upd. #57 Forecast S/C</i> | <i>Upd. #58 Forecast S/C</i> | <i>% Complete</i> | <i>Status</i> | <i>Monthly Change (+/-)</i> |
|---------------|-------------------|---------------------|------------------------------|------------------------------|-------------------|---------------|-----------------------------|
| C1 | 3/20/07 | 7/20/10 | 04/10/12 | 03/30/12 | 83.3% | +88 Weeks | - 2 Weeks |
| C2A | 5/28/09 | 01/07/13 | 06/04/10 | 05/26/13 | 35.8% | +20 Weeks | - 1 Week |
| C2B | Future | 7/22/15* | | | | | |
| C3 | 1/13/11 | 5/13/14 | 05/14/14 | 05/14/14 | 0.9% | No Update | N/A |
| C4B | 10/1/10 | 10/31/13 | 11/25/13 | 12/04/13 | 10.6% | + 5 Weeks | + 1 Week |
| C4C | Future | 3/18/15* | | | | | |
| C5A | 7/9/09 | 1/7/11 | 10/05/11 | 10/13/11 | 66.6% | +37 Weeks | + 1 Week |
| C5B | Future | 3/25/14* | 3/25/14* | 6/23/14* | 0.00% | +12 Weeks | +12 Weeks |
| C5C | Future | 10/6/15* | | | | | |
| C6 | Future | 07/15/16* | | | | | |

1. * Denotes MTACC estimated dates based upon preliminary schedules.
2. Monthly Change reflects schedule gain/loss over most recent reporting period. Negative sign denotes time gain and positive sign denotes time loss.
3. The contracts marked as Future have not been bid or awarded.
4. The Contract 3baseline schedules has not been incorporated into the IPS and limited actual progress has occurred to date

Observations and Analysis:

At the request of the FTA, the PMOC has initiated quarterly tracking of major schedule activities and/or “milestones” that are in progress during that quarter as a means of reviewing and evaluating the project’s ability to achieve short-term schedule goals. Due to the one-month lag in reporting schedule update progress, the 2nd Qtr. 2011 baseline and intermediate results are published in this report and shown in the following table.

Table 4-3: Quarterly Schedule Target Comparison

| Second Avenue Subway | | | | | | | |
|--|--|--|-----------------------------|-----------------------------|--------------------|----------------|---|
| Quarterly Schedule Milestone Progress Review | | | | | | | |
| Phase | Act # | Description | IPS Upd. #57 DD=04/01/11 | IPS Upd. #58 DD=05/01/11 | Difference (CD) | Info Source | |
| Active Construction | C-26002; TBM Mining | | | | | | Schedule based on Contractor's CPM Schedule |
| | S9100c | Mine East Tunnel; 83rd Street Shaft to 72 nd St. X-Over | 02-Sept-11 | 10-Aug-11 | -23 | | |
| | S6A40 | Start Tunnel 1 "West" Conc. Launch Box to North Side of 86th Street Station. | 05-Jul-11 | 5-Jul-11 | 0 | | |
| | C-26005; 96th Street Station – Site Work/Heavy Civil | | | | | | |
| | A217 | Complete SOE Wall/Secant Pile Installation @ Ancil #2 | 16-Jul-11 | 19-Jul-11 | +3 | | |
| | 4S200 | Start Stage 4 Slurry Wall Installation 95 th -> 97 th Streets; West Side | 16-Jun-11 | 7-Jul-11 | +21 | | |
| | C-26013; 86th Street Station – Utility & Site Work | | | | | | |
| | 4S120 | Comp. Excavation/Lagging @ SE Pit | 29-Jul-11 | 29-Jun-11 | -30 | | |
| | HO2 | C5A->C5B Handoff; Mech. Mining @ North Shaft | 15-Aug-11 | 11-Aug-11 | -4 | | |
| | C-26007; 72nd Street Station – Cavern Exc./Heavy Civil | | | | | | |
| | G3S11005 | Begin G3/S1 Cavern 2 Excavation | 29-Jul-11 | 08-Jul-11 | -21 | | |
| | ANC1000 | Complete Asbestos Abatement. | 19-Jul-11 | 22-Jul-11 | +3 | | |
| Procurement | C-26008; 86th Street Station - Cavern Exc./Heavy Civil | | | | | | Prelim MTACC Schedule |
| | PR40 | Award Contract | 29-Mar-11 | 06/30/11 | +91 | | |
| | C-26009; Rail & Station Systems | | | | | | |
| | SYPR30d | Submit Proposals | 03-Jun-11 | 30-Jun-11 | +27 | | |
| SYPR40 | Award System Contract | 29-Sep-11 | 27-Oct-11 | +28 | | | |
| 1. "Baseline" schedule for this quarter is Update #57; DD=04/01/11 2. Elapsed time = 04/01/11 to 05/01/11 = 30 CD 3. Negative (-) value indicates current date is earlier date than baseline | | | | | | | |

Concerns and Recommendations:

QTR #2, 2011, schedule progress to date:

- *Better than forecast TBM progress*
- *Increased rate of progress of C4B*
- *Reduction in utility-related delays on C2A and C5A.*
- *Delays to both active construction package procurements.*

The current delay in award of the C5B package must be resolved promptly to avoid becoming a crippling delay. Similarly, the PMOC has concerns regarding the C6 procurement schedule.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#58 (DD=05/01/11), major activities that can be anticipated over the upcoming 90 days include the following:

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

| Activity ID | Start | Finish | Note |
|---|------------------|-----------------|-------------|
| <i>C1- TBM Construction – Tunnel 96th Box (91st to 95th)</i> | | | |
| <i>Completion of TBM-2 to the 83th St. shaft</i> | <i>05/05/11</i> | <i>05/20/11</i> | <i>1.</i> |
| <i>West Bore Concrete – 72nd St X-Over to 86th St. Station</i> | <i>05/20/11</i> | <i>08/15/11</i> | |
| <i>C2A – 96th Street Station Sitework & Heavy Civil</i> | | | |
| <i>Complete Stage 2 Utility Work (95th – 99th Streets)</i> | | <i>06/22/11</i> | |
| <i>Begin Slurry Wall Const. (Stage 4; 95th to 97th St, West Side)</i> | <i>07/11/11</i> | | |
| <i>C2B – 96th Street Station Concrete, Finishes & Utilities</i> | | | |
| <i>Complete Package Update w/all “dustoff” info including C2A construction “as-builts”</i> | <i>06/30/11</i> | <i>07/28/11</i> | |
| <i>Authorization to Advertise</i> | <i>09/19/11</i> | <i>09/23/11</i> | |
| <i>C4B – 72nd Street Station Mining & Lining</i> | | | |
| <i>Ancillary 2 – Asbestos Abatement</i> | <i>01/31/11A</i> | <i>05/26/11</i> | |
| <i>Ancillary 1 – Asbestos Abatement</i> | <i>04/25/11A</i> | <i>07/22/11</i> | |
| <i>G3/S1 Cavern 2 – Construct Access</i> | <i>05/02/11</i> | <i>05/25/11</i> | |
| <i>C5A-86th St. Station Sitework</i> | | | |
| <i>Complete Stage 3S (incl. SW Pit)</i> | | <i>05/03/11</i> | |
| <i>Drill/Blast/Exc. SE Pit</i> | <i>06/30/11</i> | <i>09/27/11</i> | |
| <i>North Shaft available for Mechanical Mining (C5B)</i> | | <i>08/11/11</i> | |

| Activity ID | Start | Finish | Note |
|--|----------|----------|------|
| C5B – 86th St. Station Mining & Lining (IFB) | | | |
| Contract Award | | 06/30/11 | 2 |
| C6 – Systems (RFP) | | | |
| Submit Proposals | | 06/30/11 | 3 |
| Proposer Presentations | 07/18/11 | 07/22/11 | |
| Negotiate with Selected Proposers | 08/04/11 | 08/12/11 | |

Observations and Analysis:

90-Day Look-Ahead Notes:

1. Revised dates reflect better-than-forecast TBM progress over recent periods.
2. Forecast award date in IPS. Mid-July is a more reasonable forecast for this award.
3. Additional delays are forecast.

Concerns and Recommendations:

The 90-day look-ahead is a reasonable forecast of construction activities. Extensive delays to procurement activities limit the usefulness and reliability of short-term scheduling.

No further concerns or recommendations for this section.

4.3 Critical Path Activities

Status:

As depicted in Update #58 of the Integrated Project Schedule, the critical path is initiated by pre-award activities leading to the award of Construction Package 5B (86th Street Cavern & Lining). As discussed elsewhere in this report, award of this package has been delayed. Immediately following award, the first construction activity, C5B-S110b, Excavate South Shaft Plus Anc. 1 for Top Heading – Blasting, is not allowed to start until 01-May-2012. This ten-month lag represents the “No Blast Restriction” contained in the C5B bid documents and results from the NYFD restriction on blasting while the CI TBM is south of the potential blast area, thereby creating a potential entrapment situation. This ten-month lag was added in IPS Update #57 and discussed in the April 2011 PMOC Monthly Report as a partially concurrent critical path. This month, as a result of the passage of an additional month, these activities have displaced C5A as the initial activities on the critical path and have resulted in a delay to the calculated completion of all construction from 15-July-2016 to 26-Sept-2016.

Observations:

The PMOC considers the delay in award to C5B to be an extremely important matter; one that will almost certainly delay the completion of the project. Resolution of this matter is truly CRITICAL. However, it is the PMOC’s opinion that the MTACC has overstated the significance of the issue in current update of the project schedule. In support of this position:

- *The ten-month "No-Blast Restriction" contained in the C5B bid documents represented a best available estimate of the remaining duration of C1 TBM mining activity as of the originally estimated C5B contract award date (29-March-2011).*
- *During the ensuing delay to the award of C5B, TBM mining has continued, effectively reducing the time required for the "No Blast Restriction". IPS Update #58 restricts the start of C5B blasting until 01-May-2012 even though the TBM is scheduled to be complete and extracted from the tunnel by 30-Dec-2011.*
- *A reduction in the duration of the schedule "lag" between contract award and start of excavation is needed to accurately update this particular situation.*
- *The PMOC questions the need for adding the schedule "lag" as the relationship between TBM mining and C5B cavern excavation was modeled via "hand-off" activity C1-S9135, Hand-off from C1 to C4B & C5B for Cavern Mining ((ES= 03-Jan-2012) and milestone C1-S9130, 86th street Station Available for Mining (EF=07-Dec-2011).*
- *MTACC has stated that adding the ten month "No Blasting Restriction"/schedule lag to the IPS was the result of the contract restriction contained in the C5B bid package. This rigid conformance to contract requirements position is not consistent with previous discussions regarding IPS philosophy and methodology. It is the PMOC's understanding that the IPS was emphasizing a realistic forecast of the project schedule and would contain the most accurate forecast possible and not be restricted by the time required to formally amend contracts.*

The PMOC has removed the schedule lags discussed above and allowed the schedule to model the construction sequences as previously intended. This model restricts the start of C5B blasting until 03=January-2012 via the "hand-off" activities already contained in the schedule. Based on this revised model, the most critical independent float paths are:

- *The project critical path (revised) is initiated by C5A construction of the Southeast Shaft including preparatory work, support of excavation, excavation (including blasting), support of utilities and installation of decking. This sequence of activities extends from the data date of 01-May-2011 to C5A Substantial Completion and handoff to C5B on 21-October-2011. This path then follows underpinning, excavation and lining of Entrance #1 through the handoff to C5C (86th Street Station Finishes) on 29-Nov-2013. Station concrete and MEP work dominate the critical path through 03-Aug-2015 although C6 signal and traction power installation are also critical from January to September 2015. System testing is critical from 15-Sept-2015 to 02-Nov-2015 followed by NYCT Pre Revenue Testing through 25-July 2016, which is the calculated completion of all construction.*

Note that this recalculated critical path results in only a ten (10) CD delay from the previous calculated completion of all construction (15-July-2016).

Several secondary, dependent float paths (+7/+9) are also initiated at the C5A Handoff and follows the C5B south shaft excavation, muck handling system installation, cavern

excavation, lining and waterproofing from 24-Oct-2012 through 18-Nov-2013 where it shifts briefly to additional C5C and C6 activities before rejoining the primary critical path.

There are numerous secondary paths with float in the range of 0 -> 50 WD. Many of these paths are secondary offshoots of larger paths. This situation is created by the use of multiple calendars, constraints and lags. The following will briefly describe the major, independent secondary paths within this modified schedule update.

- The second most critical independent path, with Total Float=12 is initiated by utility relocation work on Package C2A and extends through excavation support and excavation until the handoff to C2B on 29-May-2013. C2B concrete and MEP work controls this path through 23-April-2015 when local MEP testing activity starts. Local testing controls this path until 12-May-2016 when it rejoins the primary critical path.
- Pre-award activities leading to the award of Construction Package 5B (86th Street Cavern & Lining) initiate a +13 float path. After award, work on this path is restrained by the "Receive North Area" constraint until 02-Nov-2011. This path then follows C5B mining and lining work until 08-Nov-2013.
- The procurement of C5C initiates an independent +35 WD float path. The start of this procurement is constrained so that it cannot start before 03-Apr-2012.
- TBM mining initiated an independent +40 float path. This path merges with cavern excavation at 72nd and 86th Street station in early January 2012.
- Procurement of C6 (Systems Package) initiates a +85 float path although coordinating the procurement review with the MTA Board meeting schedule results in a loss of 22 days of float to the award of C6 on 27-Oct-2011. Pre-construction submittals will dominate the work of this contract from 28-Oct-2011 to 17-Oct-2012. The IPS assumes a staggered start of the manufacture of signal system components prior to the completion and approval of all submittals. The PMOC is concerned that this may be too aggressive and that manufacturers are commonly hesitant to start manufacture until the submittal/approval process is complete.

Concerns and Recommendations:

Differences of opinion regarding the interpretation of events and their impact on the project schedule is common. The PMOC will meet with SAS staff and resolve the difference in opinion regarding the effect of the delayed award of the C5B construction package on the project. Both interpretations of the schedule model indicate that this issue will have a significant impact on overall project execution and should be resolved with all possible haste.

The PMOC is concerned that the current IPS may lack sufficient schedule detail to reasonably represent rail and station systems preconstruction engineering and submittal activity. This work is a critical element of this package. The PMOC recommends development of further detail to this portion of the schedule as a means of enhancing the reliability of the IPS.

4.4 Compliance with Schedule Management Plan

Status:

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

Observations and Analysis:

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

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

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

- *MTACC “Conforms” to 18 of 24 performance measures.*
- *MTACC “Does Not Conform” to 6 of 24 performance measures.*

Concerns and Recommendations:

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

Specific concerns and recommendations include:

- *Excessive float remains a concern. This exists primarily for the station finish packages. This suggests incomplete integration of package schedule logic and represents a potential compromise to the reliability and accuracy of the IPS forecast.*
- *Package C6 preconstruction activities, generally consisting of contractor detail design and system verification and integration, are a key element in the success of this package. Most of the C6 preconstruction period is held open by a lag. The PMOC recommends development of additional schedule detail in this period as part of the overall risk assessment of this package.*

5.0 PROJECT COST STATUS

5.1 Budget/Cost

Status:

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

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

| Std. Cost Category (SCC) | Description | FFGA | MTA's Current Working Budget |
|--------------------------|--|------------------------|------------------------------|
| 10 | Guideway & Track Elements | \$612,404,000 | \$728,617,000 |
| 20 | Stations, Stops, Terminals, Intermodal | \$1,092,836,000 | \$1,276,632,000 |
| 30 | Support Facilities | 0 | \$562,000 |
| 40 | Site Work & Special Conditions | \$276,229,000 | \$537,621,000 |
| 50 | Systems | \$322,708,000 | \$247,627,000 |
| 60 | ROW, Land, Existing Improvements | \$240,960,000 | \$292,000,000* |
| 70 | Vehicles | \$152,999,000 | 0** |
| 80 | Professional Services | \$796,311,000 | \$885,941,000 |
| 90 | Unallocated Contingency | \$555,554,000 | \$482,000,000 |
| Subtotal | | \$4,050,000,000 | \$4,451,000,000 |
| Financing Cost | | \$816,614,000 | \$816,614,000 |
| Total Project | | \$4,866,614,000 | \$5,267,614,000 |

* Includes \$47M Cost-to-Cure ** FTA has not approved the removal of the vehicles from the scope of work.

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

Observation and Analysis:

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

Table 5-2: AWO Summary

| Contract | % Complete | Award | Exposure | | Notes |
|-------------|------------|-----------------|--------------|------------|---------------------------------------|
| | | | \$ | % of Award | |
| C26002 (1) | 83.3% | \$337,025,000 | \$44,434,932 | 13.18% | AWO#92 is included in this evaluation |
| C26005 (2A) | 35.8% | \$325,000,000 | \$22,656,421 | 6.97% | Options 1 & 2 included in award value |
| C26013 (5A) | 66.6% | \$34,070,039 | \$8,414,991 | 24.7% | |
| C26007 (4B) | 10.6% | \$447,180,260 | \$156,291 | .03% | |
| C26006 (3) | 0.9% | \$176,450,000 | \$21,500 | .01% | |
| TOTAL | 34.7% | \$1,319,725,000 | \$75,684,135 | 5.73% | |

| Contract | % Complete | Award | Exposure | | Notes |
|----------|------------|---------------|--------------|------------|---------------------------------------|
| | | | \$ | % of Award | |
| TOTAL | | \$696,095,000 | \$56,821,344 | 8.16% | w/o C26007, C26006 and C26002, AWO#92 |

AWO Review

Selected Authorized Work Orders (AWOs) document files, from the C-26002 (Contract 1) and C-26013 (Contract 5A) contracts, 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.

Before specific items of individual AWOs are discussed, the following duration statistics are presented. The source of this data was from the AWO status spreadsheets provided by the Construction Manager of the 2nd Avenue Program.

| Contract | AWO Type | Days Average (# of AWOs) | | |
|-----------------------|-------------------------|--------------------------|------------|-----------|
| | | 2009 | 2010 | 2011 |
| C-26002 (Contract 1) | Board | 234.5 (2) | 212.8 (4) | 309 (1) |
| | Non-Board | 43.8 (16) | 102.9 (9) | n/a |
| | Non-Board (Retroactive) | 316.5 (2) | 125.0 (2) | 172 (2) |
| C-26005 (Contract 2A) | Board | 127 (1) | 234 (1) | |
| | Non-Board | 27.1 (9) | 49.8 (14)* | |
| | Non-Board (Retroactive) | 172.0 (2) | 155.8 (10) | |
| C-26013 (Contract 5A) | Board | n/a | n/a | n/a |
| | Non-Board | n/a | 80.3 (19) | 117.3 (6) |
| | Non-Board (Retroactive) | n/a | 141.6 (8) | 167.9 (7) |

* AWOs 16 & 18 were not included with this calculation because the duration was substantially greater than the other AWOs. AWO 16 duration was 222 days and AWO 18 duration was 441 days. If these AWOs were included with the average calculation, the resulting average was calculated to be 85 days, an increased duration of 213.7%.

This table is reflective of the measurement between the RFP/AWO Issued date and the Notice to Proceed date as shown in the spreadsheets (E-A in the table below).

| A | B | C | D | E | (E-A) |
|----------------|--------------------------------|-------------------------------|-----------------------------|-------------------------|-------------------------|
| RFP/AWO Issued | Retroactive Variance Submitted | Retroactive Variance Approved | Direction To Proceed Letter | Notice To Proceed (NTP) | AWO Processing Duration |
| Date | Date | Date | Date | Date | Days |

The following table shows all the AWOs processed as of April 28, 2011.

| Table No. 2 | | | |
|-------------------------------------|---------------------------------|-------------|-------------|
| Average Days to Process AWOs | | | |
| For All Current Contracts | | | |
| AWO Type | Days Average (# of AWOs) | | |
| | 2009 | 2010 | 2011 |
| <i>Board</i> | 198.7 (3) | 217.0 (5) | 309 (1) |
| <i>Non-Board</i> | 37.8 (25) | 75.0 (42) | 117.3 (6) |
| <i>Non-Board (Retroactive)</i> | 244.3 (4) | 147.0 (20) | 168.8 (9) |

Based on Table No. 2, it appears that the overall duration to process AWOs has grown for all AWO types. The AWOs, requiring Board approval, are understood to require a substantial amount of time because of the value and scope magnitude for these AWOs, as well as having the ability to have the AWOs entered on to the Board's agenda for its monthly meeting.

However, the duration growth of the Non-Board AWOs appears to have required unexplained added time. This trend is not expected, especially when the CCM has experience with the processes of AWO.

Evaluation of AWOs

The following AWOs were selected, reviewed, and evaluated.

| Contract | AWO | Description | Amount |
|-----------------|------------|---|---------------|
| C-26002 | 107 | Aggregate Launch Box Delays | \$0.00 |
| | 114 | Mining Through Freeze Zone | In progress |
| | 117 | Freeze Zone Instrumentation | \$249,318 |
| C-260013 | 004 | Con Ed Electrical Layouts for East-Side Stage | \$130,000 |
| | 016 | close-up Work due to Unscheduled West Side Stage | \$225,000 |
| | 034 | Tie-in of 12" Gas Main to 30" Gas Main in the South Shaft Cut & Cover Box (83 rd Street) | \$198,000 |

C-26002 (Contract 1)

AWO-107 - Aggregate Launch Box Delays:

In a June 14, 2010 memorandum, it was noted:

The MTACC, CCM and S3TC have met on numerous occasions to discuss the aggregate delays in the Launch Box area resulting from various alleged Differing Site Conditions (DSCs), additional Work Orders (AWOs) and delays in permissions to commence blasting. Formal negotiations were held on February 17, and March 2, 2010. Both parties have made their positions clear.

After considerations of the information discussed with S3TC, MTACC has developed its final offer for these delays ..., totaling 89 work days excusable delay to Milestone #1 and Substantial Completion, of which 42 work days are impactable. ... MTACC forwarded its final positions to S3TC in letter MTACC-S3 - 0610 on April 19, 2010. S3TC's replay in letter S3-MTACC-0794 dated April

23, 2010 declined to accept the offer. This offer has also been presented in negotiations with S3TC, who have stated clearly that they will not accept the offered time entitlement package. Therefore, this time extension will be processed as directive an AWO.

The scope of this AWO incorporates into the Contract Milestone #1 and Substantial Completion dates the excusable delays associated with delays in Launch Box excavation, and identifies the number of those days that are considered impactable. Impact costs will be conveyed in a separate future AWO based on the pre-negotiated daily impact costs for the following AWOs:

- 43 – Revised Tie-ins, IJ and Chambers for 36-inch and 48-inch Water Mains (11/14/08);
- 50 – Repair Brick Sewer, Water Main BFV & Chambers 91st St (12/09/08);
- 52 – Stabilize ECS MH 132-70907 (10/22/08);
- 76 – Stabilization of 1766/1768 2nd Avenue (9/14/09);
- 78 – Added Bldg. Survey & Instruments @ Launch Box Area (1/11/10);
- 80 – Cellar Tie Rods for eight buildings on 2nd Avenue (10/29/09);
- 84 – Monitoring of 1770, 1772, and 1766-68 2nd Avenue during blasting (12/27/09); and
- 87 & 90 – Mechanical excavation of Contract Rock in the Launch Box (2/1/10).

The time period for which the time extension addressed appeared to start from the RFP date for AWO 52, October 8, 2008, and ended with AWO 87, dated February 1, 2010, 481 calendar days of contract time.

MTACC and CCM performed a schedule analysis for all the AWOs indicated in the AWO 107. The method of schedule analysis, based on the written discussion within the AWO 107 folder, was a contemporaneous schedule analysis, using the updated schedules that were in effect at the time when the AWO affected the critical path and the contract completion date. However, only the time extension was addressed in AWO 107. An agreement between MTACC and S3TC to determine the impact cost of the time extension would be evaluated and negotiated under a separate AWO.

Regarding the processing of this AWO, the issue are an accumulation of a number AWOs where only time remained as an issue to be resolved. The parties appeared to defer addressing the time impacts from the AWOs. Although it is preferred to address time at the time AWO is processed and negotiated, MTACC and the contractor have decided to analyze the effects of the AWO by inserting the changed work into the contemporaneous schedules, and then determining the amount of time the AWO affected the critical path and the project completion date. The analysis performed is considered acceptable. However, the time extension is not addressed until sometime after the change work is performed and the evaluation is performed in "hind-sight."

AWO-114 - Mining Through Freeze Zone:

According to the Change Initiation Form, mining through the frozen zone will present additional difficulties. In order to maintain stability of the ground above and around the tunnel and control ingress of groundwater, an inter-liner must be installed in this 145-foot zone, either during or subsequent to mining through this zone. This inter-liner will consist of a combination of steel ribs and concrete (or, shotcrete) to the inside flange of the ribs. Installing ground support and

placing the liner introduces an impediment to mining production through the freeze zone, and may cause inefficiencies in mining beyond the freeze zone.

- *RFP was dated October 12, 2010.*
- *MTACC estimate was date stamped on October 14, 2010, for the amount of \$2.3 million.*
- *Contractor proposal dated January 4, 2011 in the amount of \$3.6 million, 84 days after the RFP date.*
- *On February 25, 2011, at an MTACC internal meeting, it was determined that MTACC estimate was to remain unchanged.*
- *Negotiations occurred on March 16, 2011, and the total price was negotiated and agreed to \$2.6 million. RON was dated Mach 16, 2011 and signed by all parties, but did not providing any additional information. Agreement was reached 155 calendar days after RFP.*
- *CM notify Procurement Mgr., Memo dated April 1, 2010 (however, it was stamped received March 31, 2011).*
- *The revised AWO estimate was stamped dated April 4, 2011 for \$2.6 million. There was not any justification or discussion for revision of the estimated amount.*
- *Schedule effect on the project completion were not included, and the cost impact, if any delay.*
- *The process time was too long. Additionally, the revised estimate was not justified.*

C-26013 (Contract 5A)

AWO-004 - Con Ed Electrical Layouts for East-Side Stage:

According to information in the Staff Summary, after the Contract was awarded, Con Edison determined that the existing system did not contain adequate spares to facilitate the forthcoming construction and additional conduits were required.

RFP was forwarded to the contractor on January 8, 2010. The contractor responded with its cost proposal on January 22, 2010, 14 calendar days after the RFP.

The independent estimate was dated February 8, 2010; however, the estimate was revised twice subsequently on March 16 and March 24, 2010. The estimate revisions were based on scope reconsiderations during negotiations.

The Record of Negotiations was dated March 19, 2010. The description of the negotiations provided little description. The AWO was processed within the time period prescribed in the PMP.

AWO 016 – close-up Work due to Unscheduled West Side Stage

The cause code for this AWO was shown as "Other."

According to the Staff Summary for this AWO, the following was noted regarding the change due to New York City DEP and the replacement of a 48-inch trunk water main.

Prior to the end of February 2010, the NYCDEP did not allow any Contract Work to proceed on the 48" trunk water main; this resulted in a delay to the Contract schedule. DHA was able to modify the location and size of the North Shaft to avoid impacting the 48" water main. However, a similar reconfiguration of the South Shaft (83rd St) was not feasible. NYCDEP agreed to allow Contract work on the 4" trunk water main to proceed and made available a window of opportunity to install of the 48" water main section at the South Shaft location during the current trunk water main shut-down season, which ended in mid-May 2010. To meet this tight schedule, the Contractor had to modify their current staging plan to temporarily close down the active utility work zone on the east side of 2nd Avenue before the electrical work in that area is completed, switch traffic to the east side where 4 travel lanes shall be maintained, and set up a work zone on the west side of 2nd Avenue to install the 48" main.

Performing the replacement of the 48" water main at the South Shaft location with the current DEP shut-down period minimized the risk of longer term project schedule impacts and mitigate DEP restrictions on other Contract work on the west side of 2nd Avenue.

- The RFP for this AWO was dated March 22, 2010. The contractor provided its proposal on October 22, 2010 in the amount of \$247.5k, seven months after the RFP. On the basis of the difference of the dates, it appeared that the contractor was not timely with its proposal. However, an original proposal was provided on April 19, 2010. A description within the October 22nd proposal stated that since the initial proposal submission, MTACC issued AWO 27 that addressed time delays related to the re-sequencing of the 48-inch water line.
- The MTACC estimate (confidential) was provided initially on April 26, 2010 (\$162k), followed by a revised estimate dated September 28, 2010 (\$210k).
- On April 28, 2010, a memo from the Construction Manager to the Procurement Manager was written providing notice that the AWO was retroactive.
- There was little additional information found in the working file. Additionally, there was no any sign-in sheet for RON.
- The overall process duration for this AWO was over seven months. The copy of the RON did not have any date or signatures. The original "Red Folder" for this AWO will be required to be reviewed.

AWO 034 – Tie-in of 12" Gas Main to 30" Gas Main in the South Shaft Cut & Cover Box (83rd Street) – Retroactive

Review was initiated, but not completed.

Observations

The AWO working files, located in the Project Offices, were reviewed for this evaluation. The working files did not provide detailed costs estimates for review and evaluation.

The "Record of Negotiations" appeared to be insufficient describing the details of the negotiations. The PMO recommends that the Grantee prepare a more complete "Record of Negotiations" that describes the details of the negotiation process, the agreements and disagreements between the Grantee and the contractor, and deviations from the in-house estimates.

A review of the Time Impact Analysis for AWO 107 for contract C-26002 was considered acceptable. This finding was the result reviewing the CCM's written narrative for the time impact evaluation.

As noted, there appear to be an increase of Retroactive AWOs processed. The purpose for the retroactive AWOs was the result of the inability for the CCM and the contractor to finalize the scope of work before the work was performed. However, accordingly, the CCM has stated that these AWOs were necessary to mitigate any effects to the completion date. The next evaluation will address the amount of Retroactive AWOs.

In general, the Grantee has followed the processes for AWOs as identified within the PMP. However, the amount of time to process the AWOs significantly exceeded the prescribed durations provided in the PMP.

Conclusions and Recommendations:

As previously discussed, construction cost increases will be a primary driver of cost growth for the project. Managing construction contract modifications is one of the most important elements of a successful construction management program. Based on the PMOC review:

- *MTACC/NYCT are conforming to processes and procedures identified in the SAS PMP and reference procedures for the management of AWOs.*
- *Implementation has commonly exceeded the duration estimated/prescribed for those processes.*
- *Greater emphasis should be placed on resolving AWOs at the field level (as identified in the PMP).*

The PMOC recommends SAS Senior Management review the CCM roles and responsibilities with respect to contract change management and with senior CCM Management and establish develop the means by which the CCM field staff take a more pro-active role in this element of the project.

5.2 Cost Variance Analysis

Status:

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

- The results of MTACC's draft cost estimate (Revision 8) for the project and the subsequent validation study.
- Cost information provided by the SAS project team through established periodic reporting.
- A risk-based evaluation by the PMOC. Each category of cost was evaluated. Risks of future cost growth were evaluated based upon level of completion, inherent volatility and project history. Low, medium and high levels of risk mitigation were considered.
- The assumed award of the C5B construction package to the identified low bidder.

Observation and Analysis:

During May 2011, no events were observed that would significantly affect the EAC. The PMOC's previous Estimate-At-Completion for the SAS (Phase 1) project is summarized as follows:

EAC w/High Mitigation: \$4,075,902,142

EAC w/Medium Mitigation: \$4,332,400,000

EAC w/Low Mitigation: \$4,604,444,978

Conclusions and Recommendations:

Based on the information available, the PMOC's EAC essentially validates the reasonableness of the MTACC's Current Working Budget of \$ 4.451B. This effort will be revisited periodically, at a minimum quarterly, to incorporate updated information and evaluate its effect on the overall EAC.

5.3 Project Funding Status

Status:

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

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

| Grant Number | Amount (\$) | Obligated (\$) | Disbursement (\$) thru May 31, 2011 |
|---------------|-------------------------|-------------------------|--|
| NY-03-0397 | \$4,980,026 | \$4,980,026 | \$4,980,026 |
| NY-03-0408 | \$1,967,165 | \$1,967,165 | \$1,967,165 |
| NY-03-0408-01 | \$1,968,358 | \$1,968,358 | \$1,968,358 |
| NY-03-0408-02 | \$24,502,500 | \$24,502,500 | \$24,502,500 |
| NY-03-0408-03 | 0 | 0 | 0 |
| NY-03-0408-04 | 0 | 0 | 0 |
| NY-03-0408-05 | \$167,810,300 | \$167,810,300 | \$167,810,300 |
| NY-03-0408-06 | \$274,920,030 | \$274,920,030 | \$ 74,540,308 |
| NY-03-0408-07 | Pending | Pending | 0 |
| NY-17-X001-00 | \$2,459,821 | \$2,459,821 | \$2,459,821 |
| NY-36-001-00* | \$78,870,000 | \$78,870,000 | \$78,870,000 |
| NY-95-X009-00 | \$25,633,000 | \$25,633,000 | \$8,652,432 |
| NY-95-X015-00 | \$45,800,000 | \$45,800,000 | 0 |
| Total | \$628,911,200.00 | \$628,911,200.00 | \$365,750,910.00 |

 * Denotes American Recovery and Reinvestment Act (ARRA) funds

Local funds totaling \$882,429,387 (\$1,248,180,297– 365,750,910) have been spent as of May 31, 2011. MTA's approved 2000-2004 and 2005-2009 Capital Programs provided \$2,964 million for SAS Phase 1 (\$1,050 million and \$1,914 million respectively). The proposed 2010-2014 Capital Program budgets \$1,487 million to complete the SAS Phase 1 project. Of the \$1,487 million, \$545 million was approved for the 2010-2011 timeframe. MTA needs to approve \$942 million for the 2012-2014 timeframe.

Observation and Analysis:

Concern over the availability of [redacted] local [redacted] funding has prompted considerable speculation regarding the future of the project. SAS has available funds to award scheduled procurements through mid-2012 (C2B). *There have been no updates concerning the status of project funding during May 2011.*

Concerns and Recommendations:

The availability of funds and its impact on the manner in which the project progresses is a key concern for all parties. *As part of the proposed amendment of the SAS FFGA, local funding sources should be identified and committed to by the MTA.* PMOC will continue to monitor the situation and assist all parties in evaluating the funding situation.

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period.

6.2 Risk Updates

Status:

No updates for this period.

6.3 Risk Management Status

Status:

No updates for this period

Observation and Analysis:

No updates for this period

Conclusions and Recommendations:

None.

6.4 Risk Mitigation Actions

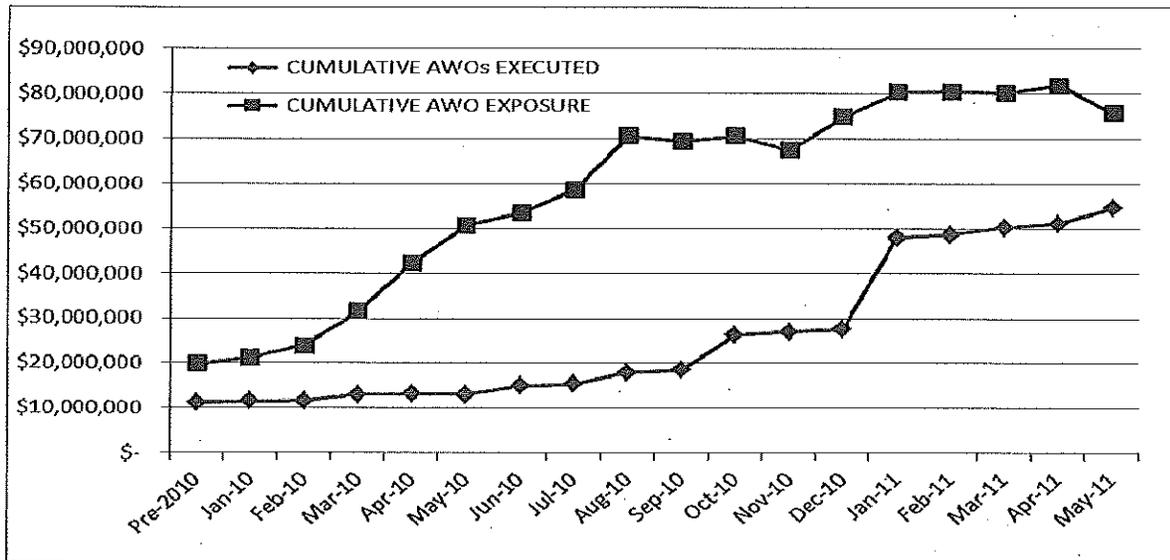
Status:

Mitigation of construction risk is an ongoing process. In recent months, the PMOC has identified the extended duration required by MTACC/NYCT to process construction AWOs. This problem has been acknowledged by MTACC. In late April 2011, the PMOC was informed that MTACC/NYCT were implementing certain staffing changes and process improvements directed at improving this problem. These include:

- Hiring additional NYCT Procurement staff dedicated to MTACC and specifically the SAS Project.
- Streamlining the AWO approval process.
- Improved communication and responsiveness to critical procurement issues.

Observation:

The PMOC monitors cumulative AWO Exposure and Executed AWOs, as reported by the project team and NYCT. The relationship between these two indicators is shown in the following graphic:



The convergence of these two indicators, indicating a reduction in the gap between outstanding and executed AWOs is considered a preliminary indication that the previously discussed corrective actions are beginning to have a positive impact. The PMOC will continue to monitor this, and other indicators to verify if these improvements continue.

Concerns and Recommendations:

The preceding evaluation suggests a marginal improvement in AWO processing during May 2011. The PMOC will continue to monitor this activity to verify tangible improvements in the process.

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status:

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

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

Observations and Analysis:

Using the MTACC’s methodology, the PMOC has developed a construction contingency analysis for the project. Through May 30, 2011, construction cost contingency status is summarized as follows:

The MTACC Draft Cost Management Plan indicates that Available Contingency is calculated based upon executed AWOs. In the opinion of the PMOC, Available Contingency should be calculated using the “AWO Exposure” value tabulated in the monthly AWO tracking logs. *This issue is currently under consideration as part of the development and review of the ELPEP-based Cost and Cost Contingency Management Plan.*

Contingency balance using both “AWO Exposure” and “Executed AWOs” is presented in tabular and graphic formats. Using either method, the current contingency balance exceeds both the planned balance and the ELPEP Threshold.

This evaluation assumes award of the C5B construction package based upon the low bid received on February 4, 2011.

| | |
|--|----------------|
| <i>Planned Balance:</i> | \$ 401,357,689 |
| <i>Actual Balance (using executed AWOs):</i> | \$ 509,550,430 |
| <i>Actual Balance (using AWO Exposure):</i> | \$ 488,367,763 |

Concerns and Recommendations:

MTACC is using a rigorous and disciplined methodology for tracking and reporting on construction contract cost growth. The PMOC notes the following:

- *The rate at which AWOs are being reported on the “advanced” construction packages (C1, C2A, and C5A) has significantly reduced, reinforcing the trend towards higher than planned contingency balance.*
- *Contingency usage is based upon an evaluation of the construction phase only. The current methodology should be extended to include all design phase and other project soft costs, to provide a total picture of contingency usage.*
- *The available contingency calculation is based on the inclusion of the favorable C5B bid results. Significant contingency usage can be expected if this package is rebid.*

6.5.1 Schedule Contingency

Status:

Schedule contingency reported by MTACC, based upon Update #58 of the SAS IPS does not conform to schedule contingency threshold limits established by the ELPEP. Based on this update, schedule contingency measured against MTACC’s RSD commitment date of 12/31/16 is 97 CD vs. the required 125 CD. When measured against the FTA/PMOC RSD estimate of 02/28/18, the contingency is currently 520 CD.

Observations:

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

Table 6-1: Schedule Contingency

| IPS Update # | 52 | 53 | 54 | 55 | 56 | 57 | 58 |
|------------------|----------|----------|----------|----------|----------|----------|----------|
| Data Date | 11/01/10 | 12/01/10 | 01/01/11 | 02/01/11 | 03/01/11 | 04/01/11 | 05/01/11 |
| Contingency (CD) | | | | | | | |
| RSD=12/31/2016 | 172 | 165 | 165 | 165 | 168 | 165 | 97 |
| RSD=02/28/2018 | 604 | 589 | 589 | 589 | 592 | 589 | 520 |

As discussed in Section 4.3 of this report, the PMOC does not agree with the SAS Project Team's evaluation of the schedule impact of the delay to the award of Construction Package 5B, which is driving the schedule critical path and change in available contingency reported in IPS Update #58. Based on the PMOC schedule evaluation, the calculated completion of construction is July 25, 2016, which results in an available schedule contingency of 155 calendar days, when measured against MTACC's RSD commitment date of 12/31/16.

Concerns and Recommendations:

The PMOC will work to resolve the methods through which the C5B construction procurement has been represented in the IPS. The PMOC will continue to evaluate the IPS for reasonableness and suggest improvements to enhance its reliability as a schedule forecasting tool. PMOC comments and concerns regarding the IPS are contained in Section 4.4.

| 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><u>Update:</u> At the quarterly meeting, a new contingency drawdown curve was presented. Management of the contingency is being addressed in the newly required Cost Contingency Management Plan.</p> <p><u>Update:</u> The latest submission of the Cost Contingency Management Plan is under review. MTACC has initiated contingency management and reporting which generally conforms to the requirements of the ELPEP.</p> <p><u>Update:</u> Review and resolution of all issues is anticipated to be completed in February 2011.</p> <p><u>Update:</u> See <i>ELPEP section of report</i>.</p> | 2 | 6/30/10 |

APPENDIX A -- LIST OF ACRONYMS

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

| | |
|------|--|
| SSPP | System Safety Program Plan |
| TBD | To Be Determined |
| TBM | Tunnel Boring Machine |
| TCC | Technical Capacity and Capability Plan |
| TIA | Time Impact Analyses |
| UNO | Unless Noted Otherwise |
| WD | Work Day |

