

PMOC MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project

Metropolitan Transportation Authority

New York, New York

August 1 to August 31, 2011



PMOC Contract No. DTFT60-09-D-00007

Task Order No. 2, Project No. DC-27-5115, Work Order No. 03

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Length of time on project: Two years on project for Urban Engineers

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THIRD PARTY DISCLAIMER

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For projects funded through FTA Full Funding Grant Agreements (FFGAs) program, FTA and its Project Management Oversight Contractor (PMOC) use a risk-based assessment process to review and validate a project sponsor's budget and schedule. This risk-based assessment process is a tool for analyzing project development and management. Moreover, the assessment process is iterative in nature; any results of an FTA or PMOC risk-based assessment represent a "snapshot in time" for a particular project under the conditions known at that same point in time. The status of any assessment may be altered at any time by new information, changes in circumstances, or further developments in the project, including any specific measures a sponsor may take to mitigate the risks to project costs, budget, and schedule, or the strategy a sponsor may develop for project execution.

Therefore, the information in the monthly reports may change from month to month, based on relevant factors for the month and/or previous months.

REPORT FORMAT AND FOCUS

This mini-monthly report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60-09-D-00007, Task Order No. 003. Its purpose is to provide information and data to assist the FTA as it continually monitors the grantee's technical capability and capacity to execute a project efficiently and effectively, and hence, whether the grantee continues to be ready to receive federal funds for further project development.

This report covers the project management activities on the MTACC (Capital Construction) Second Avenue Subway (SAS) Mega-Project managed by MTACC and MTA as the grantee and financed by the FTA FFGA.

MONITORING REPORT

1.0 PROJECT STATUS

a. Design

MTACC has reported the design phase of the SAS Project is to be 100% complete in late November 2010. Ongoing design-related activities include updating station finish packages with "as-built" data from prior construction packages, construction and bid phase technical support. These functions are generally proceeding in accordance with established Current Working Budget (CWB) and applicable management plans.

b. Procurement

Updates to Construction Procurement which occurred during August 2011 include:

- **C-26008 (C5B): 86th Street Station Cavern & Heavy Civil** – the construction contract was awarded on August 4, 2011. Award value was \$301,860,000.

C-26009 (C6): Transit & Rail Systems – Technical review of these proposals is underway and is generally proceeding on or ahead of schedule. Proposer presentations were made on August 12, 2011.

[REDACTED]

[REDACTED]

- **Future Procurements (C2B): 96th Street Structure & Finishes** – The next construction package scheduled for procurement is C2B. Advertisement is currently scheduled for October 17, 2011. The process of updating the design documents with as-built information from previous contracts and utility changes is underway. There was no change to the forecast procurement dates for this package this period.

[REDACTED]

c. Construction

As of August 31, 2011, there are six (6) active construction contracts on the SAS project. Significant construction progress through August 31, 2011 includes:

- **Contract C-26002(C1) –TBM tunnels from 92nd Street to 63rd Street**
 - Mining of the east tunnel is currently between 66th and 67th Street with approximately 6,878 feet of the total 7,789 feet mined to date. Breakthrough at 63rd Street is anticipated by mid-September which will be ahead of the revised schedule.
 - Surface preparation, waterproofing (86th St. to 92nd St.), and concrete invert placement (78th St. to 83rd St. and 86th St. to 92nd St.) is continuing in the west tunnel. This activity is critical to maintain construction progress in support of C1 substantial completion.

It is the PMOC's opinion that early completion of the tunneling operation will eliminate the ongoing coordination required with the C4B contractor (blasting), which should aid in the overall schedule recovery.

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

- Slurry wall operation ongoing with guide wall excavation, rebar cage fabrication and panel installation. Nine panels have been installed to date.
- All secant pile required for Ancillary 2 has been completed. Core holes for reservation tubes are being installed.
- Phase II basement floor demolition and installation of mini-piles at 1802 (Ancillary 1 site) 2nd Avenue is on-going.

The PMOC observes that the sequencing of these activities is correct and in accordance with the approved baseline schedule.

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

- Efforts continued at the plaza (63rd St. and 3rd Ave) with Maintenance and Protection of Traffic (MPT) set up, temporary utility relocation, and excavation for new elevator shaft.
- G3/G4 track effort included the temporary installation of power/lighting and asbestos abatement.
- Demolition on the inactive track side (2nd Ave. train) is ongoing for both upper and lower platforms. Active track area ("F" train) demolition takes place during General Orders (GOs).

The PMOC observes that the contractor's mobilization is on schedule and the utilization of GOs will require close coordination by the project office and NYCT.

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

- On-going cavern excavation – Total rock excavated (69th and 72nd St.) approximately 32,000 BCY. Center drift is complete. West slash is in progress. G3/S1 Cavern II – excavation is between 65th and 66th St. on West side of 2nd Ave.
- Muck enclosure at the 72nd St. Shaft has been completed and is operational. Muck enclosure at the 69th St. Shaft is operational with completion schedule for 9/14/11.

In the PMOC's opinion, operation of both enclosures is critical in meeting excavation production rates and schedule completion.

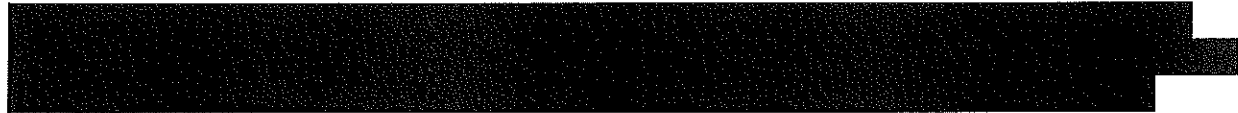
▪ **Contract C-26013 (C5A) 86th Street Station Excavation, Utility Relocation and Road Decking**

- Excavation at the North and South shafts are on-going with the installation of lagging, tiebacks, toe anchors, and rock dowels. As-built drawings for work completed through 6/30/11 have been submitted. Blasting at the North shaft is scheduled to start approximately the second week in September 2011.

A review of the schedule by the PMOC indicates that blasting is critical for substantial completion in October 2011.

▪ **Contract C-26008 (C5B) 86th Street Station Cavern & Heavy Civil**

- Mobilization is in progress - Scope of the work includes
 - Utility relocations along 86th Street
 - Existing Building Demolition and Underpinning
 - Cut & Cover Excavation
 - Mining, Rock Support, Final Lining and Waterproofing
 - Temporary Power, Mechanical, Electrical and Plumbing



d. Quality Assurance and Quality Control (QA/QC)

MTACC's staff continued its quality assurance efforts in verifying that each contractor was implementing its Quality Management System as specified in its Contractor's Quality Program (General Requirements –Section 01 43 00). During the month of August 2011, contractors Quality Work Plans, Test and Inspection Plans, control of non-conforming hardware, and action item closure were monitored. One major area of concern is the overbreak occurring during the blasting operation on contract C4B. Investigation of this problem is on-going with various meetings scheduled during the month of September 2011. Quarterly Quality Oversight audits were conducted on Contracts C-26005 (C2A) and C-26007 (C4B). The contractors' overall ratings still remain acceptable. In the PMOC's opinion, the MTACC has an effective and proactive quality management program.

2.0 SCHEDULE DATA

IPS Update #61 was received on September 9, 2011 and is based on a Data Date of August 01, 2011. Update #61 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 and NYCT Pre-Revenue Training & Testing on 10/25/16, with 67 calendar days (48 WD) of contingency until the committed RSD of 12/30/16.

Project Critical Path: As a result of procurement delays for Contract C5B "86th Station Mining & Lining," the critical path begins at completion of the procurement process based on a MTACC actual Notice of Award (NOA) date of 04-Aug-11. It then travels directly into excavation from the South Shaft upon release of the contractual Access Restraint (NOA+10 MO or 05-Jun-12) for blasting. It then continues through completion of C5B North and South Cavern mining and concrete operations for both locations at the 86th Street Station. (C5B Milestone No. 1 and S/C). Upon achieving MS #1 in early March 2014, the critical path shifts to start and completion of Contract C5C mezzanine and platform concrete work, followed by the start of concrete work in early September 2014, then shifting to 1st and 2nd fix work in the 86th Street Station south Ancillary (No. 1) where it is handed over to C6 in April 2015. The critical path continues into C6 Systems Signal and Traction Power work for the next six (6) months within the 86th

Street Station, followed by Integrated Testing of the Traction Power system within the 86th Street Station beginning in mid-December 2015. Upon completion, this area is handed over for Pre-Revenue Operations Testing beginning in late June 2016 and is forecast to complete on 25-Oct-16. The RSD date remains as 30-Dec-16

Secondary Paths: Based on progress to-date for Contract C1 "TBM Mining", SAS is forecasting completion of TBM mining at the 63rd Street Station by 9/26/11 followed by the return of the TBM and Trailing Gear to the 96th St. Launch Box for 10/18/11. This period the C1 contract critical path shifted from mining operations to concrete operations in the west bore where due to issues related to form fabrication, substantial completion slipped from 2/7/12 to 2/16/12 when compared to the last period.

Update #61 of the Integrated Project Schedule (IPS) indicates C1 concrete lining work with 84 CD (west bore) and 165 CD (east bore) of float with respect to the Phase 1 RSD. The remaining work for this package contains substantial float and is unlikely to affect overall project completion.

PMOC analysis shows that the progress for this period for Contract C2A "96th Street Heavy Civil" improved by two (2) days when compared to the SAS Update #60. The improvement is a result of progress in removing the old sewer system, which facilitated installation of guide walls between 95th Street to 99th Street. As of August 1, 2011, three (3) slurry wall panels are complete. As a result of the additional building mitigation work at 1802 Second Avenue, the Contractor has forecast achievement of Milestone No. 2 will be delayed by approximately four (4) to five (5) months with a modified forecast date of January 7, 2013. SAS is developing a plan that would allow the turnover of the 96th St. Station area between 93rd St and 95th St on the original date of August 7, 2012.

C2A progress potentially affects follow-on package C2B through five interface points described in the IPS as either Milestones or Handoffs. Float values for these interface points vary from 77 CD to 245 CD. Based on the PMOC's review of the IPS, mitigation of C5B delays (discussed above) will result in several of these C2A/C2B interfaces becoming "critical" or "near-critical".

At the 86th Street Shafts (C5A), excavation has generally progressed faster than expected. South shaft turnover to C5B is forecast for 10/10/2011 and North Shaft turnover is forecast for 10/4/11. These two interfaces with follow-on Contract C5B will complete with no schedule impact.

Schedule Contingency:

3.0 COST DATA

A summary of the completion status of the active construction contracts as of August 31, 2011, based upon cost incurred through that date, is as follows:

- C26002 (Tunnel Boring) – 89.20%
- C26005 (96th Street Station) – 41.2%
- C26013 (86th Street Station) – 80.3%
- C26006 (63rd Street Station) – 4.0%
- C26007 (72nd Street Station) – 19.90%

Aggregate Construction % Completion:

- 47.6% of all construction work is under contract
- 43.9% of active construction contracts is complete
- 21.40% of all construction is complete



Cost Contingency: During August 2011, no significant changes in the SAS construction program have occurred that materially affected the forecast cost contingency baseline against which the current contingency balance is measured. Changes this period were limited to routine incorporation of AWOs into the individual project and overall program reporting systems.

The PMOC has updated its contingency drawdown and utilization model to reflect these changes. Available contingency is calculated using the forecast "AWO Exposure".

4.0 RISK MANAGEMENT

A Risk Analysis Meeting was held on August 2, 2011. The following set of risks were discussed with action items assigned and documented in the meeting minutes dated August 19, 2011: **Risk CNS 4 (C6)**: Problems related to managing contractor during construction; **Risk 89 (C5B)** Different site conditions during cavern mining lead to lost productivity and contractor delay resulting in claims; **PB50 (C5C)** Delay in approving necessary AWO's may result in schedule delay and contractor claim for associated delay; **Risk TRP 4 (C6)**: Systems Integration Testing Problems (Traction Power SCADA); **Risk CNS 8 (C6)**: Delayed safety certification; **Risk 90 (C4B)**: Settlement of Lot Line window lawsuit (233 E 69th Street) results in cost and schedule delay; Risk 147 (C4B): Vibration from mining operation.

Mitigation Capacity: The risk of schedule slippage and delay to the RSD has been effectively managed to date. Actions required to mitigate a substantial portion of the C5B procurement delay is being investigated. Transferring of scope to different options within the packages is being considered.

Improvements in management and mitigation of cost growth have been noted over this period. The dedication of additional resources and process improvements, in addition to aggressive negotiation has contributed to a reduction in AWO exposure.

Retained risks continue to be reviewed on a monthly basis. These reviews have contributed to development and implementation of specific mitigation strategies.

5.0 ELPEP

There was no ELPEP meeting in August. The current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC)** – The PMOC completed its initial review of the Revision 8 submission of the draft SAS PMP (dated January 2011). The PMOC has transmitted the results of its review to the FTA. The SAS PMP review by the PMOC is being supplemented and reformatted into the Candidate Revision -> PMP Revision -> Implementation and Resolution framework suggested by the FTA.
- **Schedule Management Plan (SMP)** – The PMOC has verified SAS substantial compliance with the SMP since August 2010. The process of transferring the verification process to the respective project teams has been generally discussed in several recent ELPEP meetings.

- **Cost Management Plan (CMP)** – Final PMOC comments on the CMP and a draft conditional acceptance document outlining several proposed Candidate Revisions were transmitted to FTA on July 29, 2011.
- **Risk Mitigation Capacity Plan (RMCP)** – PMOC final edits and comments on the RMCP will be prepared for the September 2011 ELPEP meeting.
- **Conformance Demonstration-** A “white paper” has been developed by MTACC to describe its philosophy and general conformance reporting methodology. This document was presented for review and comment at the July ELPEP meeting. PMOC review is in progress.

6.0 SAFETY AND SECURITY

The Lost Time Accident Rate and OSHA Recordable Accident Rate from the start of construction until July 31, 2011 are 1.96 and 4.60, respectively. The Lost Time Accident Rate is below the national average of 2.2 and the Recordable Accident Rate is above the national average of 4.2. A total of 2,348,457 construction hours have been accumulated on the project since its inception with 23 lost time injuries and the 31 recordable injuries logged.


7.0 ISSUES AND RECOMMENDATIONS

Cost Management Plan: MTACC Procedure AD.13, Financial Reporting, is a key element of the Cost Management Plan. This Procedure is currently under development by MTACC. The SAS Project cannot comply with its own Cost Management Plan and the overall ELPEP, until this procedure has been finalized, implemented and verified. The PMOC recommends the MTACC expedite the completion and implementation of this procedure. As of August 31, 2011, this procedure is still in development.

Conformance Demonstration: MTACC has developed a “white paper” describing its philosophy and general ELPEP conformance and verification reporting methodology. This document was presented for review and comment at the July 2011 ELPEP meeting. PMOC review is in progress. The PMOC recommends that development of formal implementation verification and reporting process for each of these ELPEP elements should be given high priority. This effort will be reviewed at the September ELPEP meeting.

Contract C5B: MTACC has stated that the overall project delay and schedule contingency consumption caused by the C5B procurement delay will be significantly mitigated upon execution of the construction contract. The significant delay to the project currently forecast as a result of this issue compromises the overall usefulness of the IPS. The PMOC recommends MTACC expedite the reconciliation of current project status and C5B handoff dates and milestones to provide the most accurate schedule forecast possible via the IPC. Resolution is in progress. Negotiation of reconciliation of schedule milestones is part of baseline schedule development and review. PMOC will review and highlight this concern at the Cost/Schedule meeting scheduled for September 21, 2011.

Contract C4B: Incidents involving geotechnical risks on the C4B construction contract have increased significantly. [REDACTED]



Excessive dust, noise, odor and vibration from blasting have reportedly increased significantly in the vicinity of the 86th Street Station construction (C4B). MTACC has implemented certain mitigating and corrective actions, including curtailing blasting after 7:00 PM. The collective impact on overall project cannot be determined at this time. The PMOC is concerned that the risk of cost and schedule growth resulting from these issues is significant. Every effort to mitigate these problems on both station cavern contracts should be investigated. MTACC is investigating the impact that the no blasting after 7:00 PM restriction is having on the C4B contractor's productivity and schedule and any associated cost increases.

Local Funding: 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. The PMOC is concerned that funding shortfalls may delay the award of one or more of the station finish packages (C2B, C4C, C5C). The PMOC recommends investigation and development of contingency plans (including but not limited to scope transfers) to minimize the impact of funding delays to the extent possible. The SAS project team has developed four (4) potential contingency plans that will allow C2B to be awarded and construction to proceed on schedule throughout 2012 without any additional funding. Internal review of these plans is underway.

Contract C6: On July 28, 2011, MTACC received five (5) proposals for the Track, Power, Signals and Communication Systems Contract C-26009 (C6). The proposals are being evaluated by the Selection Committee. The forecast contract award date of October 27, 2011 is unchanged. This forecast for evaluation, negotiation and processing of C-26009 appears very optimistic. The PMOC recommends the durations for these activities be re-evaluated and a more realistic forecast incorporated into the IPS. During this period, MTACC reports they have maintained schedule for this procurement.

Procurement Process: The standard sequencing and durations established by NYCT for Issue for Bid (IFB) and negotiated procurements should be reviewed based on recent "mega-project" experiences and updated appropriately. The PMOC recommends the results of this effort should be incorporated into the SAS IPS for remaining procurements to provide a more realistic schedule forecast. The PMOC will once again highlight this concern at the Schedule and Cost Meeting to be held on September 21, 2011

Contingency Drawdown: To date, the contingency drawdown evaluation has been limited to the SAS Phase 1 construction packages. The available contingency must also be applied to any soft cost overruns. The PMOC recommends the contingency evaluation process should be extended to include all project costs. New contingency drawdown curves are being developed and will be presented at the SAS Quarterly Meeting scheduled for September 21, 2011.

APPENDIX A- ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
BA	Budget Adjustment
CCM	Consultant Construction Manager
CMP	Cost Management Plan
CSSR	Contact Status Summary Report
CIL	Central Instrument Location
CPRB	Capital Program Review Board
CPP	Contract Packaging Plan
CWB	Current Working Budget
DCB	Detailed Cost Breakdown
ELPEP	Enterprise Level Project Execution Plan
EPC	Engineering-Procurement-Construction
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
IPS	Integrated Project Schedule
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority – Capital Construction
N/A	Not Applicable
NTP	Notice to Proceed
NYCT	New York City Transit
NYSPTSB	New York State Public Transportation Safety Board
PE	Preliminary Engineering
PEP	Project Execution Plan
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PQM	Project Quality Manual
QA	Quality Assurance
RAMP	Real Estate Acquisition Management Plan
ROD	Revenue Operations Date

ROW	Right of Way
RSD	Revenue Service Date
SAS	Second Avenue Subway
SCC	Standard Cost Category
SMP	Schedule Management Plan
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
VE	Value Engineering
WBS	Work Breakdown Structure