

PMOC MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project

Metropolitan Transportation Authority

New York, New York

January 1 to January 31, 2012



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

This report and all subsidiary reports are prepared solely for the Federal Transit Administration (FTA). This report should not be relied upon by any party, except FTA or the project sponsor, in accordance with the purposes as described below.

For projects funded through FTA Full Funding Grant Agreements (FFGA) 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 monthly report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60-09-D-00007, Task Order No. 002. 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

MTACC has reported the final design phase of the SAS Project as 100% complete in late November 2010. During January 2012, the Design Consult (A/A) activities were limited to updating the station finish packages with "as-built" data from prior construction packages, review of contractor's submittals, response to RFI's, disposition of non-conforming hardware and bid phase technical support.

These functions are generally proceeding in accordance with the Integrated Project Schedule (IPS), Current Working Budget (CWB) and applicable management plans.

a. Procurement

Updates to Construction Procurement, which occurred during January 2012 include:

- **C-26010 (C2B): 96th Street Station Civil, Architectural, MEP** – Construction contractors are currently preparing bids for this package. Bids were originally forecast for submission on February 7, 2012; however, to accommodate bidder's request,

MTACC agreed to an extension of time with new bid submissions due on February 29, 2012. MTA Procurement reports that there are currently four (4) Addendums to the bid documents.

- **C-26009 (C6): Transit & Rail Systems** – The construction contract for this package was awarded to the Joint Venture of Comstock/Skanska on January 18, 2012. The final contract price is \$261,900,000. The preconstruction meeting will be held in early February 2012. Substantial completion is August 2016 (Notice of Award [NOA] +55 months).
- **Future Procurements:** Remaining construction procurements include: C26011 (C4C) 72nd Street Station Finishes & MEP and C26012 (C5C) 86th Street Station Finishes & MEP. Advertisement of these construction packages remains scheduled for July 26, 2012 and December 12, 2012, respectively.

The MTA and the State of New York must resolve the state funding of the 2012-2014 Capital Plan in order for packages C2B, C4C and C5C to move into construction. The PMOC is concerned that a lack of local funding will delay the award of one or more of these packages, ultimately resulting in schedule delays and additional costs to the project.

b. Construction

As of January 31, 2012, there are six (6) active construction contracts on the SAS project. Significant construction progress during this period includes:

- **Contract C-26002(C1) –TBM tunnels from 92nd Street to 63rd Street**
 - **East Tunnel Operations**
 - Surface preparation continuing in the East tunnel.
 - 78th Street pump room excavation is on hold pending completion of concrete work in the West tunnel.
 - **West Tunnel Operations**
 - Waterproofing of the arch has been completed.
 - Concrete arch pours in the West tunnel from 78th Street to 86th Street is continuing.
 - **Launch Box**
 - Launch box cleaning up is ongoing.
 - DBS repair work is ongoing and is 95% complete.

As a result of production delays associated with the arch concrete work, Substantial Completion has slipped to March 20, 2012. Punch list work will be required after Substantial Completion. The slip will not impact contract C2A. It is the PMOC's opinion that the coordination meetings have been very effective in addressing handoff issues among C1, C2A and C4B contractors.

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

- At Entrances Number 1 and 2 final utility relocation (ECS, sewer, gas and water), including Additional Work Order (AWO) work continues in support of future slurry wall installation.
- Removal of the Westside guide wall between 97th and 99th Streets was completed.
- Deck beam and precast decking installation between 97th and 99th Street on the Westside of 2nd Avenue was completed.
- Sewer and water main relocation at the intersection of 2nd Avenue and 94th Street (Eastside) is ongoing.
- Utility conflict at Entrance 2 has been resolved. New pipe was installed and the sewer diverted. Gas work started on 1/24/2012.
- Installation of the new basement floor slab and support columns at 1802 2nd Avenue is ongoing as part of the Phase II Stabilization work.
- Coordination for turnover of the Launch Box from Contract C1 to C2A is ongoing. Turnover walk-through for de-watering and utilities is scheduled for 2/01/2012.

The contractor continued to show a willingness to adjust work efforts to advance the project. For example, the contractor mitigated a significant portion of lost time by commencing west side deck installation out-of-sequence between 97th and 99th Streets.

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

- Continued surveying the DMPs.
- Completed installation of temporary shielding at the bottom of the west Fan Plant shaft. Began formwork in the shaft.
- Completed installation of the temporary stair.
- Continued with concrete demolition in multiple Area 5 mezzanines.
- Continued temporary and permanent structural steel fabrication & installation.
- Lead abatement continued and primer application continued in Area 5.
- Continued with crack repair at tracks G3/G4.
- Continued installation of temporary and permanent link stair steel.
- Continued with relocation of existing conduit and services for future demolition.

Steel erection in Area 5 continues to be the most critical activity and timely submittal, review and approval of shop drawings, and adherence to the fabrication schedule at the Ohio fabrication plant are crucial to maintaining the steel erection schedule. The PMOC will continue to monitor the progress of the structural steel.

The project team continues to resolve Non-Conformance Report (NCR) issues in a timely manner.

Getting consistent General Outages (GOs) from NYCT is typically very difficult but this project continues to get an unusual number of GOs consistently. This is a substantial benefit to the project schedule.

- **Contract C-26007 (C4B) 72nd Street Station Mining and Lining**
 - Total Rock Excavation is approximately 116,000 BCY (68% of project).
 - Main Station Cavern Excavation between 69th and 72nd Street
 - North Crossover at 73rd Street
 - G4/S2 Cavern excavation between 66th and 67th Street on east side of 2nd Avenue
 - Stub Cavern at 63rd Street
 - Mapping, shotcrete, and rock bolt installation. –Ongoing.
 - Ancillary 2 (72nd Street Southwest corner) –Demolition completed.
 - Ancillary 1 (69th Street Southwest corner) Support of Excavation – Installation of soldier piles completed.
 - Building remediation – Ongoing (239 E 73rd Street, 1343 2nd Ave, 259 E 71st Street, 1390 1/2 2nd Ave, 1405 2nd Ave, 1409 2nd Ave, 220 E 65th St, and 307 E 70th St.) 300 E 68th Street currently in final design (support of pool).

Residents in the neighborhood continue to express concern about the dust created from the blasting operation. MTACC has retained a consultant to study the problem and will present the results in an upcoming Community Board Meeting scheduled for early February 2012. In the PMOC's opinion, controlling the amount of the dust created during the blasting operation is critical in maintaining good relations with the community.

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

Construction is complete and the contractor has demobilized its field operation. The follow-on contract, C5B, now occupies the former C5A work areas. Except for final resolution of outstanding financial issues, this Monthly Report will no longer report on this contract.

- **Contract C-26008 (C5B) 86th Street Station Cavern & Heavy Civil**
 - The temporary utility trench continued along 2nd Ave.
 - Continued with ground instrumentation and façade instrumentation installation.
 - Began installation of steel & anchor bolts at the north and south shaft areas.
 - Began excavation for new sewer/water lines at the south open cut area.
 - Continued the excavation & installation of sewer pipe and Entrance 2 wall excavation & installation on 86th St.
 - Continued excavation & installation of manhole at Ancillary 2 and asbestos abatement at Ancillary 1.

The initial phase of the work continues to go smoothly with no noted issues.

- **Contract C-26009 (C6) Systems –Tracks, Signals, Traction Power and Communications**

- Contractor preparing contract submittals.
- Mobilization, and location of field office.

- c. **Quality Assurance and Quality Control (QA/QC)**

No major quality concerns were noted during this reporting period. Ongoing Quality Oversight Audits performed by MTACC continue to verify that the construction contractors are implementing their Quality Management Systems as specified in the General Requirements (Section 01 43 00). The contractors' overall ratings remain acceptable. Contractors' Quality Work Plans, Test and Inspection Plans, control of non-conforming hardware, action item closure, supplier auditing systems, hold point inspections and preparatory phase meetings are being monitored.

2.0 SCHEDULE DATA

Integrated Project Schedule (IPS) Update #66 was received on February 7, 2012 and is based on a Data Date of January 01, 2012. Update #64 contained a narrative report, a schedule variance report, a schedule revision log and "PDF" versions of several schedule reports. Project schedule completion milestone dates remained essentially unchanged for this period. MTACC forecasts completion of all construction and NYCT Pre-Revenue Training & Testing by October 15, 2016, with 80 calendar days (57 WD) of contingency when measured against MTACC's target Revenue Service Date (RSD) of December 30, 2016.

Significant schedule-related accomplishments and issues during this period include:

- Concrete lining of the west bore (Contract C-1) was completed on January 30, 2012.
- Construction Contract C-6 was awarded on January 18, 2012.
- Select MEP testing and commissioning activities were transferred from C6 to C2B, C4C and C5C, resulting in increased durations of the preliminary schedules for these contracts of three to four months each.
- By increasing the number of structural steel crews on the project, the C3 contractor recovered 14 WD previously lost due to steel fabrication delays. Consequently, all C3 milestones are on or ahead of schedule.

Project Critical Path: The project critical path is unchanged from the December 2011 Monthly Report. The majority of the project critical path spans the schedules of individual construction packages that are not yet active and; therefore, not updated each month. The critical path begins with the contractual Access Restraint (NOA+10 MO or June 5, 2012) for blasting, followed by excavation of the South Shaft. The critical path 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 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 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 by October 25, 2016. The MTACC's forecast RSD remains as December 30, 2016.

Secondary Paths: Construction involving the 86th Street Station (C5B -> C5C -> C6) occupies all secondary float paths between +1 and +75 calendar days (CD) (except as noted below). Major secondary float paths of significance to the overall status of the project include the following:

+20 WD: NYCT Pre-Revenue Operation Activities, scheduled to start on September 15, 2014.

+75 WD: This path extends through the construction of the 96th Street Station (C2A -> C2B -> C6). It is initiated by Stage 4 (97th to 99th Streets) decking, forecast for completion on approximately February 1, 2012. Relocation of the Contract C1 "Hog House" has resulted in a delay to the start of Stage 5 slurry wall installation. The start of this work is currently constrained from starting until March 19, 2012. Following C2A excavation and cleanup, this path passes to C2B for mezzanine, roof and platform structural, architectural and MEP installation.

+77 WD: Award of C6 Contract and preconstruction submittals. This path is initiated by the RFP Protest that was rejected by the MTA and subsequent award of the systems package on January 18, 2012. Following technical submittals and fabrication, the assumed installation sequence has been developed for all rail systems, based upon location availability. This path ties into the critical path at the start of local traction power testing.

+96 WD: Procurement and award of Construction Contract C2B.

+144 WD: Cost-to-cure construction at Chase Bank: Completion of this construction and delivery of this site for Ancillary #2 construction is forecast by June 1, 2012. The float is based upon necessary work at Ancillary #2 to allow systems installation in the tunnels to be complete by February 14, 2014.

Quarterly Milestone Tracking: The final tabulation of milestone schedule performance for the 4th Qtr. 2011 is contained in the accompanying Table 3. Milestones not completed will be "carried over" into the next Quarter's tracking log. A summary of schedule performance based on these milestone activities includes:

Summary

# Calendar Days Elapsed	92 CD
Average Δ from Baseline - all activities	-6.25 CD
Average Δ from Baseline - completed activities	-0.73 CD
Average Δ from Baseline - ongoing activities	-10.92 CD

4th Qtr. 2011 Milestone Summary

# Activities Forecast this Qtr.	19
# Activities forecast to complete this Qtr.	8

# Activities completed this Qtr.	8
# Activities on/ahead of schedule	6
# Activities behind schedule	5

Carryover (3rd Qtr. 2011) Milestone Summary

# Activities Carried Over	5
# Activities forecast to complete this Qtr.	4
# Activities completed this Qtr.	3
# Activities on/ahead of schedule	0
# Activities behind schedule	1

Based on this sampling, SAS Phase 1 schedule progress appears to be acceptable.

ELPEP/SMP Compliance: In the opinion of the PMOC, SAS Phase 1 is in compliance with the metrics, deliverables and beneficial outcomes expressed in the Enterprise Level Project Execution Plan (ELPEP), dated January 15, 2010 and as further described by the Schedule Management Plan (SMP). Specifically:

- Forecast Revenue Service Date
 - ELPEP Requirement: February 28, 2018
 - Current Forecast: December 30, 2016
- Minimum Allowable Float; Real Estate Acquisition
 - ELPEP Requirement: 60 CD
 - Current Forecast: All Real Estate Takings were completed as of November 1, 2011. Final Title Vesting occurred on October 25, 2011.
- Minimum Allowable Secondary Float Path
 - ELPEP Requirement: 25 Calendar Days
 - Current Forecast: 107 CD (75 WD) through construction and fit-out of the 96th Street Station
- Secondary Schedule Mitigation (critical path compression)
 - ELPEP Requirement: 125 CD
 - Current Forecast: Several opportunities are under consideration by the SAS Project Team that will improve the schedule primary and/or secondary paths. These opportunities are discussed in the next section of this report.
- Minimum Schedule Contingency along the Critical Path
 - ELPEP Requirement: 240 CD measured against the “risk-informed” target RSD of February 28, 2018
 - Current Forecast: 503 CD
 - Note: MTACC has maintained its target RSD of December 30, 2016. IPS Update #66 identifies 80 CD (57 WD) of float measured against this target.

In addition to the metrics above, the MTACC continues to demonstrate that it is using the IPS to actively plan, organize, direct and control individual packages and the overall project, and to provide reliable forecasts of the SAS revenue service date (RSD) and other major accomplishments. These beneficial outcomes are significant components of ELPEP/SMP compliance.

Schedule Improvement Opportunities:

As part of an ongoing effort to maintain or improve the overall project schedule, the SAS Project Team has identified potential opportunities for compression of the schedule critical or near-critical path(s). The ELPEP defines this as “Secondary Schedule Mitigation”. Approaches to schedule compression currently under active consideration include:

1. Transfer of Mezzanine and Platform Concrete at the 86th Street Station from C5C (Finish Contract) to C5B (Mining/Heavy Civil Contract).
2. Adjustment of the 86th Street Station blasting restraint date from June 4, 2012 to early April 2012. This 30 to 45 CD gain will partially offset the delayed award of Contract C5B. Proposals for this acceleration have been received from the contractor and are under evaluation.
3. Construction of Ancillary Nos. 1 and 2 at the 86th Street Station using multi-shift vs. single shift operations. The construction schedule is currently based on single-shift operations, resulting in durations of 164 WD and 200 WD, respectively.
4. Reduction of the time period dedicated to Integrated Systems Testing in Contract C6. This possibility was discussed during contract negotiations. With the award of the contract now complete, this scenario will be investigated more thoroughly.

Schedule Contingency: IPS Update #66 forecasts all Phase 1 construction and pre-revenue testing to be complete on October 12, 2016. This results in an 80 CD (57 WD) contingency when measured against the MTA target RSD of December 30, 2016 and a 503 CD contingency when measured against the FTA Risk-Informed RSD of February 28, 2018. These contingency values have been reasonably constant over recent months due to the fact that critical path currently spans construction packages that are not yet active.

The SAS Project Team has identified several viable sources of secondary schedule mitigation that may provide a significant increase in available contingency. These changes must be thoroughly vetted to ensure they will not result in unintended consequences, particularly in cases where future performance may not conform to expectations.

The C5B construction schedule was not incorporated into the IPS in January 2012 as forecast. It is now anticipated this schedule will be incorporated into the IPS in February 2012. This approved construction baseline will supersede the preconstruction schedule currently in the IPS. This enhancement of the IPS will eliminate a significant degree of uncertainty with respect to the IPS critical path and available schedule contingency.

3.0 COST DATA

Based upon financial expenditures reported by the MTACC during January 2012, SAS Phase 1 is approximately 35.4 % complete. The completion status of the active construction contracts through January 2012, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 92.3%
- C26005 (96th Street Station) – 56.3%
- C26013 (86th Street Station – Sitework) – 98.9%
- C26008 (86th Street Station – Heavy Civil) – 7.22%
- C26006 (63rd Street Station) – 9.6%
- C26007 (72nd Street Station) – 33.5%
- C26009 (Systems – Track, Power, Signals and Communications) – 0.0%

Aggregate Construction % Completion:

- 59.4% of all construction work is under contract.
- 47.33% of construction of active contracts (not including C6) is complete.
- 27.5% of all construction is complete.

Based upon cost data received from MTACC for January 2012:

- Value of construction in place this period = \$34,658,385
- Estimated value of construction remaining = \$1,965,425,745
- Estimated months remaining at current rate of progress = 57
- Forecast construction completion at current rate = 8/28/2016
- Target construction completion = 8/1/2016
- Number of months remaining = 55
- Rate of construction required to achieve target completion date = \$35,734,977/month

Using cost data for January 2011, the PMOC concludes that sufficient overall progress was made on the project during this period to achieve current schedule goals. Since June 2011, SAS has averaged construction expenditures of approximately \$34,658,385 per month. During this same period, the PMOC has estimated an average monthly construction expenditure of approximately \$35,734,977 for the remaining duration of the project to be the minimum rate of progress necessary to achieve the RSD of December 30, 2016.

Additional observations pertaining to this analysis include:

- Construction expenditures since June 2011 have varied between \$22.3M and \$48.7M with no clear trend of increase (or decrease).
- The calculated variance of approximately \$1,076,592 per month does not include any “payment lag”, which can be as high as 2 months.

The target average \$35.7M per month construction expenditure is based upon a constant monthly expenditure for the remainder of the project. More sophisticated cash flow models developed using the latest IPS update and the Revision 9 cost estimates for construction contracts not bid indicate current construction expenditures should be significantly higher to support the current project schedule.

Although construction appears to be progressing at an acceptable rate, the PMOC is concerned that the rate of progress is at the extreme low end of the “acceptable” range. The PMOC is concerned that if construction progress does not increase significantly in the near future, the project will suffer unanticipated delays due to “stacking” of work later and later in the project and be extremely vulnerable to any delay through multiple concurrent critical paths.

Estimate-At-Completion: The C6 contract award value of \$261,000,000 was lower than the current escalated cost estimate + Allowance for Indeterminates (AFI) by \$8,512,153. This results in a corresponding reduction to the Estimate-At-Completion to \$4,255,026,135.

During January 2012, no other significant cost events were reported that impacted the EAC.

Cost Growth: For the period ending January 31, 2012, total Additional Work Order (AWO) exposure was reported to be \$76,495,483, an increase of \$4,054,602 (5.60%) over the \$72,440,881 exposure reported for period ending December 31, 2011.

The increase in AWO Exposure was primarily driven by the following:

1. Contract C1: Several new AWOs for differing site conditions involving slurry and secant pile walls.
2. Contract C2A: Increases in the exposure value of AWOs 48 (Schedule Resequencing), 97 (ECS duct bank) and 104 (Hurricane Irene Standby Labor). These increases were offset by decreases in the exposure value of AWOs 83 and 87 (Slurry wall conflict with ECS Manhole), 100 (Sewer relocation @ Entrance 1) and 102 (Fuel Spill @ 102 2nd Avenue).
3. Contract C5A: Increases in the exposure value of AWOs 65 (12-inch gas main @ South Shaft), 76 (North Shaft West Wall), (81 Bulkhead @ 86th Street Sewer Tie-In), 82 (CIP Catch Basin @ 83rd Street) and 83 (Foundation repair @ 303 East 83rd Street). These increases were slightly offset by small reductions in numerous AWOs.

Executed AWO value was reported as \$62,574,013, an increase of \$312,355 over the \$62,261,658 reported for the period ending December 31, 2011. The increase in AWO Executed Value was based upon execution of several small AWOs for contracts C2A (\$35,000), C4B (\$238,900), C5A (\$9,455) and C5B (\$5,767).

ELPEP/CMP Compliance: Based on the current conditional approval of the CMP, the PMOC has identified several areas where supplemental efforts may be required in order for the MTACC and the SAS Project Team to be considered fully compliant:

- **AWO Processing:** The CMP references and incorporates MTACC’s Procedure AD.11, Construction Contract Modification Approval, and thereby NYCT’s Project Management Procedure PMP207, Processing Construction Additional Work Orders, by reference. In accordance with PMP207, maximum AWO processing duration should not exceed 90 calendar days. To date, MTACC/NYCT staffing changes and process improvements

incorporated in 2011 have not had a material effect on improving AWO processing duration.

- **Financial Reporting (EAC):** Contract and project level EAC Reporting (CMP Sections 5.4 and 5.5 respectively) has not been adopted by SAS to date.
- **Tracking Scope Moves:** The opportunity to evaluate the proposed method of tracking cost and schedule revisions due to scope revisions and transfers has not occurred to date.
- **Retained Risk Updates:** A monthly updates of retained risk is being implemented. The integration of updated status of retained risks into EAC reporting is also being implemented. The PMOC will evaluate both compliance with the CMP and the effectiveness of these processes as they are implemented.

Cost Contingency: During January 2012, a modest savings was realized as a result of the award of Contract C6. The award value compares favorably with both the CWB (Rev. 9) Estimate and the Engineer's Estimate:

Risk Assessment (80% Confidence) =	\$301,000,000
CWB (Escalated cost + AFI) =	\$269,512,153
Engineer's Estimate =	\$276,480,064
Contract Award =	\$261,900,000

The resulting savings of \$7,612,153 was offset by an increase in AWO Exposure of \$4,054,602, resulting in a net gain in available contingency of \$3,557,551. The PMOC has updated its contingency drawdown and utilization model to reflect these changes. The current contingency balance is less than the Planned Balance and exceeds the ELPEP Required Balance.

Required Balance (ELPEP):	\$ 220,000,000
Planned Balance:	\$ 361,681,712
Actual Balance (using AWO Exposure):	\$ 401,638,848

4.0 RISK MANAGEMENT

Risk Mitigation Meeting No. 12 was held on January 31, 2012. Recent risk management activities reviewed include:

- Completed draft of C2B Risk Analysis Report.
- Issued first Monthly Risk Management Report (December 2011).
- Completed updating of risk registers for all active contracts (C6 was postponed).
- Started the "risk informed" EAC forecasting process.
- Implementing the regular monthly update of each contract risk register.

Risks reviewed and updated during this meeting include:

- 1) **Contract Interfaces (Risk CNS 4 (C6)):** Managing contractual interfaces during construction. The interfaces between C1 & C2A/C4B/C5B and C5A & C5B have been effectively managed and have not resulted in contractual disputes or disruptions in the work.

Concern over the interfaces between C2B, C4C and C5C is the focus of this risk. Identification and status of these risks has been emphasized with the following actions:

- a) The CCM will assure that “interfaces” are a separate agenda item at the Critical Issues Meetings in order to emphasize their importance and clarify their status reporting.
 - b) CMs will be directed to update the critical issues list with any new interfaces.
 - c) A prototype interface report (90 day look-ahead) will be prepared for the next meeting.
- 2) **Systems Integration and Testing (Risk TRP 4 (C6)):** The systems testing schedule is to be inserted in each of the finish packages to establish baseline requirements for the prioritization of work.
- 3) **System Safety Certification (Risk CNS 8 (C6)):** The certification process is not yet clearly understood by the Project Team. It is assumed that MTA System Safety should be the lead in this effort. Additional efforts need to be made to identify the parties responsible for this effort and engage them in its planning and coordination.
- 4) **Shop Drawing Processing (Risk ID TBD):** Flow charts and key liaisons for this process have been identified; the process has been explained in detail to the involved parties. Nonetheless some delays in processing have been noted. These involve contracts and submittals where NYCT review is not required. An “in-depth” investigation of delays incurred to date will be performed and presented at the next meeting.
- 5) **Geotechnical Risks:** Based on recent experience in the field, certain geotechnical risks contained in the register and previously discussed have not been realized. Until some evidence of the presence of these risks is identified, they will be maintained on the register, but be considered “on hold”. These risks include:
- a) **Risk 89 (C5B):** Differing site conditions during cavern mining. Rock quality at the C4B cavern has been better than expected, and the C5B rock is expected to be even better.
 - b) **Risk 147 (C4B):** Improving conditions regarding both rock quality and proximity to sensitive structures suggest the probability of this risk is decreasing.

In the PMOC’s opinion, the SAS Project Team is actively working to avoid and contain the effect of retained risks and controlling the overall growth of the total project cost.

5.0 ELPEP

No ELPEP meetings were held in January 2012. The current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** The PMOC completed its review of the Revision 8 SAS PMP and is monitoring and verifying implementation and compliance with this plan.
- **Schedule Management Plan (SMP):** The PMOC continues to monitor and verify SAS substantial compliance with the SMP. The process of transferring the compliance verification process to the MTA is discussed below.

- **Cost Management Plan (CMP):** FTA conditional approval of the Cost Management Plan, including five (5) Candidate Revisions was provided on September 1, 2011. The PMOC is monitoring and verifying compliance with this plan.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** Drafts of the ESA and SAS Risk Management Plans were transmitted to FTA Region II during October 2011. MTA addressed all PMOC comments in its submittal of the RMCP on October 28, 2011. Resolution of any final comments to the RMCP coordinated and combined with a review of the ESA and SAS Project Risk Management Plans are in progress.
- **Conformance Demonstration:** No progress during January 2012.

In general, if the PMOC observes instances of non-compliance with any of the aforementioned plans, the following procedure is used:

- Identify and discuss the non-conformance with the relevant MTA manager. Attempt to achieve compliance informally.
- Formal escalation of the non-compliance to the SAS Project Director. Initiation of a “Candidate Revision” to document the issue.
- Formal escalation of the non-compliance to the MTACC President.

6.0 SAFETY AND SECURITY

The Lost Time Accident Rate and OSHA Recordable Accident Rate from the start of construction until December 31, 2011 are 2.10 and 4.86, 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 3,047,049 construction hours have been accumulated on the project since its inception with 32 lost time injuries and 42 recordable injuries logged. The majority of the lost time accidents (15) and recordable accidents (30) are on the C1 Tunnel Boring contract. The C1 Contractor has logged 1,831,069 hours of the 3,047,049 total hours accumulated on the SAS Phase 1 Project.

7.0 ISSUES AND RECOMMENDATIONS

Local Funding: Availability of local funding is still a major concern to the timely and cost-efficient completion of Phase 1 of the SAS Project. With the award of Contract 6 on January 18, 2012, insufficient local funds remain to award the C2B contract. This contract is scheduled to be awarded on February 29, 2012. Without resolution of New York State funding of its commitments to the 2012-2014 MTA Capital Program, funding shortfalls may also impact the award of the station finish packages (C4C, and 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.

Multi-Contract Coordination: MTA is aware that management of the contract interfaces is one of the keys to executing this project; the SAS Project Team is developing tools that should

assist in managing this challenge. The number of interfaces and potential for delay is extremely large. The project staff resources required to manage this effort may need to be supplemented.

Construction Impacts: Incidents involving the collateral effects of blasting on the C4B construction contract have had an adverse impact on construction progress to date, including the “stop work” order for blasting operations issued on November 23, 2011. Resolution of community concerns and verification of compliance with regulatory and health-based standards is critical to resolving community concerns and facilitating uninterrupted construction progress. In addition, the PMOC recommends that MTACC critically evaluate the “lessons learned” to date on this contract and, to the extent possible, use this experience to minimize the collateral impacts for the C5B contract and the remainder of the C4B contract.

Secondary Schedule Mitigation (Systems Contract): The PMOC is concerned about the proposed 2-month reduction in the integrated system testing duration. Systems contract work is heavily dependent on the performance of the station finish packages (C2B, C4C, and C5C). Integrated testing activities are also dependent on availability of NYCT personnel. Reduction of the duration of activities with these types of external constraints, for which the C6 contractor has no responsibility, is questioned. Any contract change of this nature should be carefully structured to allocate risk appropriately among the various parties.

Cost Management Plan: The PMOC has identified several areas (refer to Section 3.0 of this report) where it believes the SAS Project Team needs to supplement current processes in order to become fully compliant with the CMP. The PMOC recommends a workshop type meeting where these issues can be reviewed and products identified that will provide the beneficial outcomes contained within the ELPEP.

Compliance Demonstration: During January 2012, very limited progress was made in defining and resolving the means by which MTA will monitor and report on ELPEP compliance. Rather than developing position papers and “throwing them over the wall” for numerous review and comment cycles, the PMOC recommends that MTA, FTA and any other affected parties meet in a workshop type format to collaboratively define the key performance elements conveyed by the ELPEP and the manner by which they will be monitored and reported upon.

APPENDIX A- ACRONYMS

AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
AWO	Additional Work Orders
BA	Budget Adjustment
CCM	Consultant Construction Manager
CD	Calendar Days
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
DMP	Deformation Monitoring Points
ELPEP	Enterprise Level Project Execution Plan
EPC	Engineering-Procurement-Construction
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GO	General Outage
IPS	Integrated Project Schedule
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority – Capital Construction
N/A	Not Applicable
NOA	Notice of Award
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
RMCP	Risk Mitigation Capacity Plan
RMP	Risk 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
WD	Work Days

APPENDIX B – TABLES

Table 1 - Summary of Schedule Dates

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

Table 2 - Schedule Contingency

IPS Update #	61	62	63	64	65	66
Data Date	08/01/11	09/01/11	10/01/11	11/01/11	12/01/11	01/01/12
Contingency (CD)						
RSD=12/31/2016	67	67	67	67	67	80
RSD=02/28/2018	490	490	490	490	490	503

Table 3 - 4th Quarter 2011 Schedule Milestone Comparison

Contract	Act.	Description	Tracking Milestone Dates		
			Baseline	Current	Δ
3rd Qtr 2011 Tracking Milestones (Carryover)			1-Jul-11	1-Jan-12	
C2A	4S200	Compl Slurry Walls South 95-97; West	16-Nov-11	29-Nov-11 A	13
	4N200	Compl Slurry Walls North 97-99; West	28-Nov-11	11-Nov-11 A	-17
C4B	72C1035	Excavate Top Heading Area 3	18-Oct-11	14-Oct-11 A	-4
	72C1185	Excavate Top Heading Area 2	30-Jun-12	17-Jan-12	-
C6	PR40	Award Systems Contract	27-Oct-11	18-Jan-12	165
4th Qtr 2011 Tracking Milestones			1-Oct-11	1-Jan-12	
C1	S6A40	Complete West Tunnel Concrete	5-Jan-12	28-Jan-12	23
	S9A10	Complete East Tunnel Concrete	29-Feb-12	20-Mar-12	20
C2A	A117	Complete ANC #1 Secant Piles	11-Jul-12	11-Jul-12	0
	4N210	Complete Deck Inst'l North - West Side	10-Feb-12	21-Dec-11 A	-51
	4S210	Complete Deck Inst'l South - West Side	27-Feb-12	1-Feb-12	-26
C2B	PR20m	Advertise Bid package	28-Nov-11	5-Dec-11 A	7
	PR25d	Open Bids	6-Feb-12	29-Feb-12	23
	PR40	Award C2B Contract	30-Apr-12	30-Apr-12	0
C3	LP025	Complete Demo – Lower Platform	31-May-12	20-Jun-12	20
	UP040	Complete Demo – Upper Platform	11-Apr-12	15-May-12	34
C4B	72C1035	Excavate Top Heading Area 3	18-Oct-11	14-Oct-11 A	-4
	72C1225	Excavate Cavern Bench	9-May-12	10-Apr-12	-29
	HST1000	Complete Horseshoe Tunnel 155+94- >152+94	20-Mar-12	19-Jan-12	-61
	NCC1000	North Crossover Excavate	4-May-12	1-Mar-12	-64
C5A	HO2	Hand-off C5A/C5B; No shaft for Mech. Mining	14-Oct-11	1-Nov-11 A	18
	HO1	Hand-off C5A/C5B; So shaft for Mech. Mining	17-Oct-11	16-Nov-11 A	30
C6	PR35h	Commence Negotiations	12-Oct-11	12-Oct-11 A	0
	PR35l	Select Contractor – Selection Committee	22-Nov-11	22-Nov-11 A	0
	PR35u	MTA Board Action	21-Dec-11	21-Dec-11 A	0

Table 4 - Project Budget/Cost 

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of January 31, 2011	
	(\$ Millions)	% of Total	* Obligated (\$ Million)	TBD	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost:	4,866.614	100	4,375.76		5,267.614	100	1,577.451	29.95
Financing Cost	816.614	16.78			816.614	15.55		
Total Project Cost:	4,050.000	83.22	4,375.76		4,451.000	84.50	1,577.451	29.95
Total Federal:	1,350.693	27.75	866.760		1,350.693	25.64	520.687	9.88
Total FTA share:	1,300.000	96.25	792.867		1,300.000	24.68	509.575	9.67
5309 New Starts share	1,300.000	100	792.867		1,300.000	24.68	509.575	9.67
Total FHWA share:	50.693	3.75	73.893		50.693	0.96	11.112	0.20
CMAQ	48.233	95.15	71.433		48.233	0.92	8.652	0.16
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	0.04
Total Local share:	2,699.307	55.47	**3,509.000		**3,509.000	66.61	1,056.764	20.06
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.

Table 5 - Contingency Drawdown

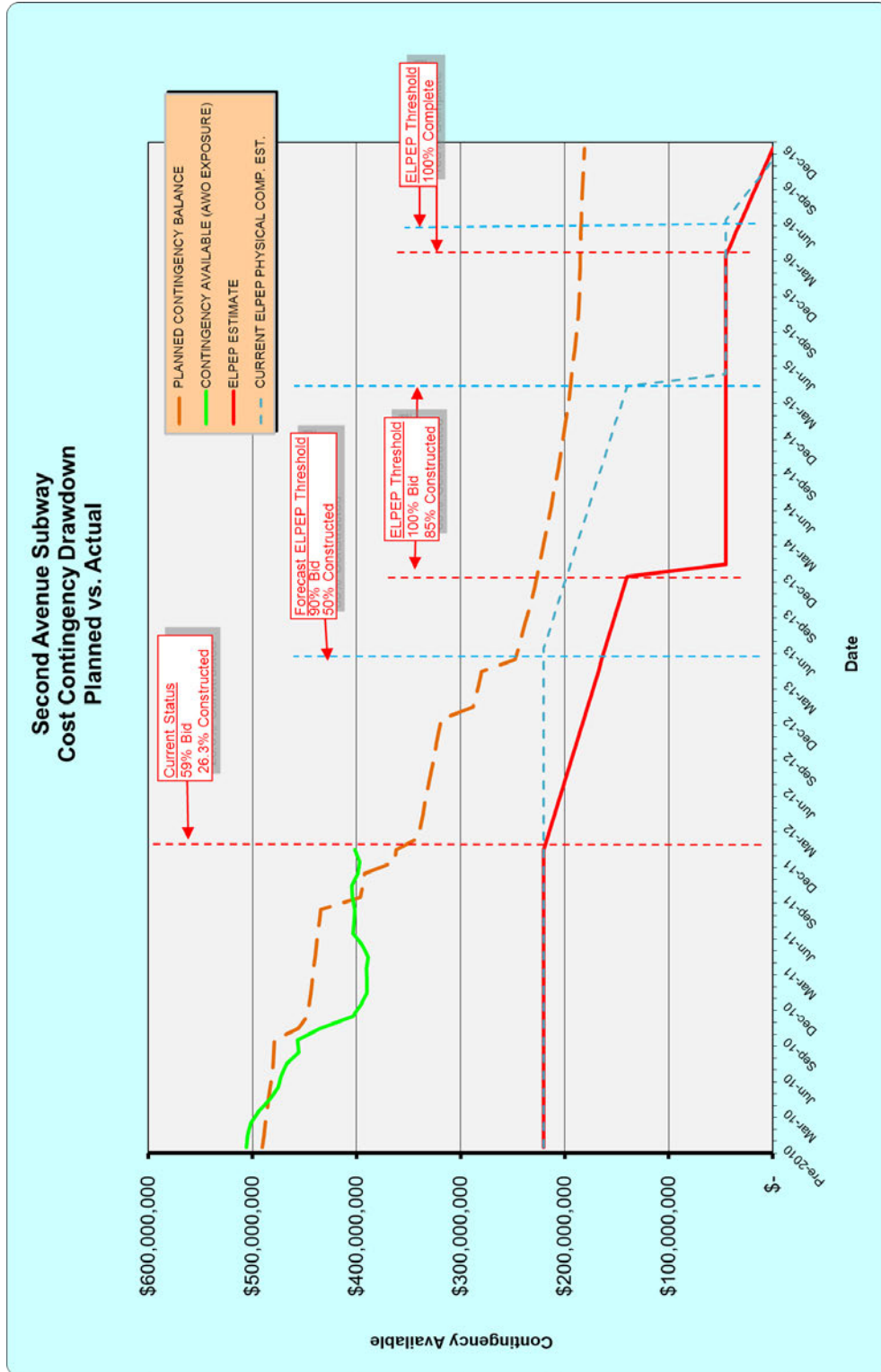


Table 6 - Estimate @ Completion

Description	Budget	Forecast		
	Proposed Budget (Est. Rev. 8)	Revision	EAC	Notes
Total Construction	\$2,728,172,492	\$281,727,509	\$3,009,900,001	
Engineering Services Subtotal	\$576,541,264	\$14,797,023	\$591,338,287	
Third Party Expenses	\$534,800,000		\$534,800,000	
TA Expenses	\$124,500,000		\$127,500,000	
Contingency	\$326,986,244			
Executive Reserve	\$160,000,000			
Subtotal	\$4,451,000,000		\$4,263,538,288	

Table 7 - 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.

* MTA's Current Working Budget				
Core Accountability Items				
** Enterprise Level Project Execution Plan (ELPEP), reflecting median level of risk mitigation				
Project Status:		Original at FFGA:	Current*:	ELPEP**:
Cost	Cost Estimate	\$4,050M	\$4,451M	\$4,980M
Contingency	Unallocated Contingency	\$555.554M	\$205.694M	\$510M
	Total Contingency (Allocated plus Unallocated)	\$555.554M	\$405.588M	\$510M
Schedule	Revenue Service Date	June 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	33.8%		
	Based on Earned Value	N/A		
Major Issue	Status	Comments		
Availability of local funding	Unknown at this time	Further construction awards cannot be made until NYS funding of the current capital plan is resolved.		
Date of Next Quarterly Meeting:	TBD			

All data based on December 31, 2011 reporting