

PMOC MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project

Metropolitan Transportation Authority

New York, New York

Report Period April 1 to April 30, 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

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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 reported the final design phase of the SAS Project as 100% complete in late November 2010. *During April 2012, the Design Consultant's (A/A) activities consisted of the review of contractor's submittals, response to RFI's, and support of the ongoing construction activities. 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 April 2012 include:

- **C-26010 (C2B): 96th Street Station Civil, Architectural, MEP – Bids for Package 2B, 96th Street Station Shell Concrete, MEP, Finishes, Permanent Utilities and Street Restoration (Contract C-26010) were received on April 24, 2012. Bid Results are as follows:**

1. *EE Cruz/Tully JV \$324,600,000 (APPARENT LOW BIDDER)*
 2. *Judlau \$332,281,000*
 3. *Tutor Perini \$349,759,000*
 4. *SPP JV \$367,583,000*
 5. *CSR/JB JV \$386,527,000*
 6. *Skanska/Railworks JV \$411,600,000*
 7. *Granite/Yonkers JV \$417,410,000*
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- **Future Procurements:** – The 72nd Street Station Finishes & MEP Package, C26011 (C4C) is scheduled for advertisement on July 26, 2012. Early procurement and technical “dustoff” activities required for Authorization to Advertise are anticipated to start in late April/early May 2012. The 86th Street Station Finishes & MEP Package, C26012 (C5C) is scheduled for advertisement on December 12, 2012.

b. Construction

As of April 30, 2012, there are five (5) active construction contracts on the SAS Phase 1 Project. Two contracts (C1 and C5A) are in the close out process. Significant construction progress on the active contracts during this period includes:

- **Contract C-26005 (C2A) 96th Street Station Heavy Civil, Structural and Utility Relocation**
 - **Cap Beams and Decking System Construction (Westside)**
 - *Installation of the cap beams, deck beams and deck panels was completed between 95th and 99th Streets.*
 - **Entrance 1 Utility Conflict, Slurry Wall and Secant Pile Work**
 - *Gas: Excavation and pipe installation was completed.*
 - *Slurry Wall: Five (5) out of 7 panels have been installed. Excavation and rebar fabrication is ongoing.*
 - **Entrance 2 Utility Conflict and Slurry Wall Work**
 - *Gas: Excavation and pipe installation was completed.*
 - *Slurry Wall: Six (6) out of 7 panels have been installed. Excavation and rebar fabrication is ongoing.*

- **Ancillary 1 Utility Conflict**
 - *High rock issue: Easement below the Waterford Building is not required now.*
 - *Con Ed: Cable pull on the south side was completed. Feeder outage rescheduled for early June 2012 to facilitate removal of the old and installation of the new transformer.*
 - *Guide wall: Installation is still approximately 95% complete. The south wall will be completed after the old transformer is removed.*
 - *Secant Piles: Fifty-six (56) out of 121 piles have been poured.*
- **Turnover of Launch (S3 to CTJV)**
 - *The trailer (hog house) for the Tunnel Boring Machine (TBM) crew was removed.*
 - *Turnover walk through was completed. Dewatering issue was resolved. CTJV will be responsible for maintaining the system for the launch box and tunnels. AWOs will be issued to address the added cost.*
- **Contract C-26006 (C3) 63rd Street Station Upgrade**
 - *Continued crack repair (Cavern Grouting) on Tracks G3/G4.*
 - *Continued lead removal at various locations of project.*
 - *Continued crack repair (Cavern Grouting) on Tracks G3/G4.*
 - *Continued miscellaneous demolition of floor slab and walls at the 6th mezzanine.*
 - *Installed temporary shielding/decking for upcoming demolition.*
 - *Completed form, reinforcement and concrete in West Fan Plant Shaft.*
- **Contract C-26007 (C4B) 72nd Street Station Mining and Lining**
 - *Through April 20th, 2012, 141,553 cubic yards (cy) were mined representing 76.7% of the overall total 184,657 cy. Status of Mining Operations:*
 - *Main Station Cavern; Center Drift & West Slash; 100% complete; East Slash; 85.9% complete (15,395 cy of 17,932 cy); Bench; 64.5% complete (18,620 cy of 28,871 cy)*
 - *G3/S1 Cavern I & II, G4/S2 Cavern I & II; and Horseshoe Tunnel; 100% complete*
 - *63rd Street Stub; Top & Bottom 100% complete*
 - *Ancillary #2/Entrance #2; 36% complete (7,117 cy of 19,780 cy)*
 - *Ancillary #1; 30.2% complete (4,280 cy of 14,150 cy)*
 - *Entrance #1; 80.2% complete (4,500 cy of 5,614 cy)*
 - *Entrance #3; 41.0% complete (2,982 cy of 7,270 cy)*
 - *North Cross Over; 100% complete*
 - *South Cross Over: East & West Slash; 100.0% complete; Bench – 29.6% complete (617 cy of 2,082 cy)*

- **Contract C-26008 (C5B) 86th Street Station Cavern & Heavy Civil**
 - *Test blasts commenced at South Access Shaft on April 11, 2012.*
 - *North & South Muck Conveyance Systems; Foundation work complete. Steel erection at North complete and near completion at South; and Gantry Crane installation for North system near completion.*
 - *At 86th Street, utility work, Support of Excavation (SOE), and decking for Maintenance Protection of Traffic (MPT) Stage 1(center work zone) complete; MPT Stage 2 switched to south work zone on March 30, 2012 and utility work underway.*
 - *Architectural demolition for Entrance 1 at 83rd St continues.*
 - *Trenching along east side of 2nd Ave for temporary power and water supply complete. Transformers, conduits being installed.*
 - *Demo of Gothic Cabinet Building and excavation to top of rock at Ancillary 1 complete. SOE wall progressing and mechanical rock excavation underway.*
 - *SOE wall installation for Ancillary 2 underway.*
- **Contract C-26009 (C6) Systems –Tracks, Signals, Traction Power and Communications**
 - *First Job Progress Meeting held on April 9, 2012.*
 - *Key contract staff members (quality, safety, systems integrator, construction manager, and scheduler) have been proposed. Qualifications are being reviewed by MTACC.*
 - *MTACC field office site was agreed upon between the contractor and MTACC: 94th St. between 2nd and 1st Avenues. The contractor is in discussion with the landlord for a five year lease.*
 - *No field work has started to date. Only a survey of the 63rd Street Station with the contractor has occurred.*
 - *Preparation of Key Submittals including:*
 - *Quality Work Program – Approved as Noted*
 - *Accident Prevention Program – Reviewed w/comments*
 - *Resubmittal required*
 - *Hazardous Communication Program – Approved as Noted*
 - *There are three critical items awaiting a MTACC response:*
 - *Embedded conduits in the track bed*
 - *Cable tray under the 63rd Street Station platform*
 - *RFI on conduit fill factor (60%)*

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

MTACC continues to verify that the construction contractors are implementing their Quality Management Systems as specified in the General Requirements (Section 01 43 00). Oversight activities include: participating in contractor audits of major subcontractors and suppliers; conducting Quarterly Quality Oversight for all active contracts; participating in internal contractor audits; reviewing and providing comments on Contractors' Quality Work Plans; participating in Preparatory Phase Sessions; conducting surveillance of QA/QC process for Construction Design Support; and training of staff on the MTACC Project Process Procedures. PMOC's monitoring of these quality oversight activities is ongoing. MTACC's capacity and capability on the project has diminished with the recent resignation of the Quality Manager. Efforts are underway to fill the position.

2.0 SCHEDULE DATA

Integrated Project Schedule (IPS) Update #69 was received on May 7, 2012 and is based on a Data Date of April 01, 2012. Update #69 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 13, 2016, with 80 calendar days (57 WD) of contingency when measured against MTACC's target Revenue Service Date (RSD) of December 30, 2016.

A summary of significant schedule activities for each active contract includes:

- *Contract C-26002 (C1): Substantial Completion was achieved on March 30, 2012. All turnovers and "handoffs" to other contractors have been achieved without adverse schedule impact.*
- *Contract C-26005 (C2A): This period, MTACC successfully implemented a plan to accelerate this Contract by providing a second service crane that will allow concurrent slurry wall operations. It is estimated that this initiative will result in four (4) to five (5) weeks of schedule acceleration along this path, which is currently the second most critical independent path on SAS Phase 1.*
- *Contract C-26006 (C3): Inconsistencies in steel design and detailing have been identified as the root cause of structural steel shop drawing review delays. The Contractor has taken action to resolve this problem and improvement has been noted.*
- *Contract C-26007 (C4B): experienced 10 Calendar Days (CD) of schedule slippage this period, with the current Substantial Completion date forecast as December 5, 2013.*
- *Contract C-26008 (C5B): Baseline Schedule for this package approved and incorporated in the IPS. The schedule currently forecasts the start of rock blasting and excavation in the main cavern in late April or early May 2012.*
- *Contract C-26009 (C6): The contractor is mobilizing and developing its initial submittals.*

Project Critical Path: *The project critical path has not changed significantly from the March Monthly Report (IPS Update #68). It begins with the C5B fabrication-delivery-installation of the Muck Conveyance System (ACT. # C5B S110a). It then travels directly into the South Cavern*

Excavation from the South Shaft, continuing through completion of C5B South Cavern mining and concrete operations (C5B Milestone No. 1). 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 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 13, 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 +8 and +63 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.

+63 WD: This path extends through the construction of the 96th Street Station (C2A -> C2B -> C6). It is initiated by Stage 5 (95th to 97th Streets) slurry wall installation, forecast for completion on approximately July 25, 2012. Following C2A deck installation, excavation and concrete invert construction this path moves to the C2B Station Finishes package in June 2013. Systems installation (C6) at the 96th Street Station is forecast to start on September 2, 2014 and continue through October 7, 2015, at which time this path merges with the integrated system testing (critical) path.

C2A work also initiates major secondary paths with +75 and +101 days of float, reinforcing the conclusion that the 96th Street Station is currently the “second most critical” element of the project.

+67 WD: *Mezzanine deck concrete installed by C4C, starting in September 2013. This work is initiated via handoff from C4B (and not a truly independent path). Further deterioration of float may revive consideration of limited scope transfer between C4C and C4B.*

+82 WD: C6 contractor mobilization and preconstruction submittals. This preliminary schedule forecasts the completion of C6 preconstruction engineering and submittals by late 2012.

+91 WD: Cost to Cure @ 301 East 69th Street and 1322 2nd Avenue. The start of construction of C4B, Entrance #1 is controlled by two building modifications/utility relocations. Recent reports suggest potential delays to this work.

+97 WD: Procurement and award of Construction Contract C2B.

Quarterly Milestone Tracking: *The final tabulation of milestone schedule performance for the 1st Qtr. 2012 is contained in the accompanying Table 3. Milestones not completed this Quarter will be “carried over” into the 2nd Quarter 2012 tracking log. A summary of schedule performance based on these milestone activities includes the following:*

Summary

<i># Calendar Days Elapsed</i>	91
<i>Average Δ from Baseline - all activities</i>	31.19
<i>Average Δ from Baseline - completed activities</i>	3.93
<i>Average Δ from Baseline - ongoing activities</i>	50.67

1st Qtr. Milestone Summary

<i># Activities forecast this Qtr.</i>	23
<i># Activities forecast to complete this Qtr.</i>	9
<i># Activities completed this Qtr.</i>	8
<i># Activities on/ahead of schedule</i>	3
<i># Activities behind schedule</i>	12

Carryover Milestone Summary

<i># Activities carried over</i>	13
<i># Activities forecast to complete this Qtr.</i>	4
<i># Activities completed this Qtr.</i>	7
<i># Activities on/ahead of schedule</i>	2
<i># Activities behind schedule</i>	4

Progress reported during April 2012 along the critical path and principal secondary float paths generally was adequate to maintain the current schedule. Some delay has been noted for Package C3. While these delays are not a concern with respect to the overall project, they may indicate a performance problem for that contract that requires further investigation.

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; ROW/Real Estate Activities:
 - ELPEP Requirement: 60 CD
 - Current Forecast:
 - All Real Estate Takings were completed as of November 1, 2011.
 - Cost-To-Cure Activities

<u>Pkg.</u>	<u>Location</u>	<u>Property</u>	<u>Sch. Float</u>
C4B	Entrance #1	301 E. 69 th Street 1322 2 nd Avenue	91 CD
C5B	Ancillary #2	Chase Bank Bldg	146 CD

- Minimum Allowable Secondary Float Path:
 - ELPEP Requirement: 25 Calendar Days
 - *Current Forecast: 88 CD (63 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 RSD and other major accomplishments. These beneficial outcomes are significant components of ELPEP/SMP compliance.

Schedule Improvement Opportunities:

The SAS Project Team continues to evaluate potential opportunities to compress the schedule critical or near-critical path(s) and improve the reliability of the IPS as a planning and coordination tool. Schedule improvement initiatives currently under active consideration include:

1. *During April 2012, the MTA successfully implemented a plan to accelerate the C-26005 Contract schedule via concurrent slurry wall installation operations. This acceleration was facilitated by providing an additional service crane. MTA has estimated that the resulting improved rate of slurry wall installation will generate as much as five (5) weeks of additional float along the project’s second most critical path.*

2. *MTA continues to forecast approximately 30 days of schedule compression along the critical path resulting from the early start of production blasting and excavation at the 86th Street Station (C-26008). In order to realize this improvement, production excavation and blasting must start by early May 2012.*
3. *Consideration of transferring Mezzanine and Platform Concrete at the 86th Street Station from C5C (Finish Contract) to C5B (Mining/Heavy Civil Contract) will be revisited based upon the actual schedule benefit achieved via Item 2.*
4. *The SAS Project Team is working with the MTA Chief Systems Integration Officer in refining the IPS schedule logic representing integrated system testing activities in an effort to provide the most accurate schedule modeling of this effort possible.*
5. *It has been proposed that Package C4C contain an option for work at Entrance #1 that is currently delayed by real estate and cost-to-cure negotiations with building owners. Including this option in the C4C contract will provide an efficient contingency plan for transferring the scope of work if timely resolution of the current issues is not achieved.*
6. *The concept of reduction of the time period dedicated to Integrated Systems Testing in Contract C6 will be explored in detail during the development and approval of the C6 baseline schedule.*

Schedule Contingency: IPS Update #67 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.

3.0 COST DATA

Based upon financial expenditures reported by the MTACC during April 2012, SAS Phase 1 is approximately 38.7 % complete. The completion status of the active construction contracts through April 2012, also based upon reported expenditures through that date, is as follows:

- *C26002 (Tunnel Boring) – 95.8%*
- *C26005 (96th Street Station) – 62.2%*
- *C26013 (86th Street Station – Sitework) – 99.9%*
- *C26008 (86th Street Station – Heavy Civil) – 12.07%*
- *C26006 (63rd Street Station) – 15.5%*
- *C26007 (72nd Street Station) – 42.4%*
- *C26009 (Systems – Track, Power, Signals and Communications) – 1.28%*

Aggregate Construction % Completion:

- *68.9% of all construction work is under contract.*
- *82% of all construction work has been bid.*
- *53.74% of construction of active contracts (not including C6) is complete.*
- *31.2 % of all construction is complete.*

Based upon cost data received from MTACC for April 2012:

- Value of construction in place this period = \$38,292,558
- Estimated value of construction remaining = \$1,861,881,703
- Target construction completion = 8/16/2016
- Number of months remaining = 52.5
- Rate of construction required to achieve target completion date = \$35,464,413/month

The average progress (payments) achieved over the most recent six month period is \$35,524,654. Based on a review of cost data for April 2012, it appears that adequate overall progress was made on the project to achieve the RSD of December 30, 2016. A modest increase in the rate of overall project progress is forecast for the near future as C5B, and to a lesser extent C6 become more active.

Estimate-At-Completion: The SAS Project Team has extended its risk-based contingency forecasting effort to the development of an EAC for all construction. To date, this effort is limited to construction cost only. The project EAC is a combination of the risk-based approach for construction cost and traditional estimating for soft costs. Table 6 contains a summary of the current EAC, which is \$4,294,259,553.

Cost Growth: For the period ending April 30, 2012, the total cumulative Additional Work Order (AWO) exposure was reported to be \$99,933,529, an increase of \$18,530,597 (22.8%) over the \$81,402,932 exposure reported for period ending March 31, 2012. Executed AWOs as documented on AWO tracking logs totaled \$64,351,882, an increase of \$296,788 from the \$64,055,094 reported for the period ending March 31, 2012.

The change in AWO Exposure was driven by the following:

1. Contract C2A: AWO exposure increased by a total \$18,779,811. Ten AWOs were added this period (AWO # 110 through AWO # 119) with an aggregate exposure value of \$18,585,411. Revisions to the exposure of four existing AWOs (AWO #70, 103, 106 and 108) account for the remaining increase of \$214,399.
2. Modest reductions in AWO Exposure for Contract C4B (<\$288,320>) and Contract C5B (<\$55,894>) account for the remaining changes in AWO Exposure this period.

The change in Executed AWO Value was driven by the following:

1. Contract C2A: Execution of AWOs with net value of \$201,625.
2. Contract C4B: Execution of AWOs with net value of \$61,900.
3. Contract C5A: Execution of AWOs with net value of \$33,263.

ELPEP/CMP Compliance: Based on the current conditional approval of the CMP, the PMOC identified several areas where supplemental efforts were required in order for the MTACC and the SAS Project Team to be considered fully compliant. Through April 2012, the status of these issues is as follows:

- **AWO Processing:** The Cost Management Plan (CMP) reference documents indicate that maximum AWO processing duration should not exceed 90 calendar days. There has been

no measureable improvement in this situation to date and significant statistical improvement going forward may not be reasonable. The 90 CD duration may be unreasonable for “mega-projects” involving a large number of technically complex issues with cost and schedule impacts.

- **Financial Reporting (EAC):** Contract and project level EAC Reporting for construction has commenced. Periodic reforecasting of the soft cost EAC is anticipated.
- **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:** The monthly updating of retained risk has been implemented. This update is reported in the monthly risk report.

The SAS Project Team’s progress in resolving these issues has been adequate and absent any other issues, the PMOC would consider SAS to be “in compliance” with the CMP.

In the PMOC March 2012 Monthly Report, the PMOC expressed concern that the MTA’s financial management of the project has not incorporated the community relations effort. Significant funds have been expended for this effort; however, the MTA Current Working Budget (CWB) does not contain an identifiable item where budget and actual cost for community relations expenses can be logically tracked.

Until such time as the community relations program is incorporated into the project financial system and subject to the same review and control as other budget items, it is the PMOC’s opinion that SAS cannot be considered “in compliance” with the CMP.

Cost Contingency: *As previously discussed in Section 1a of this report, a favorable bid result was received for Contract Package C2B on April 24, 2012. The MTA does not incorporate new contract values into its contingency calculations until that contract has been approved by the MTA Board. Consequently, the change in contingency resulting from the C2B procurement will not be added to these contingency calculations as part of this report.*

During April 2012, changes were limited to routine incorporation of AWOs into the individual project and overall program reporting systems. No other significant changes in the SAS construction program have been reported that materially affected the forecast cost contingency baseline against which the current contingency balance is measured. As previously noted, changes associated with the C2B contract will be incorporated after contract approval by the MTA Board.

The PMOC has updated its contingency drawdown and utilization model to reflect changes made this period. The current contingency balance is greater than the Planned Balance and exceeds the ELPEP Required Balance.

	<u>March 2012</u>	<u>April 2012</u>
<i>Required Balance (ELPEP):</i>	\$220,000,000	\$220,000,000
<i>Planned Contingency Balance:</i>	\$338,527,768	\$336,316,868
<i>Actual Contingency Balance (PMOC):</i>	\$396,731,399	\$378,200,802
<i>Actual Contingency Balance (MTA)</i>	\$396,898,000	TBD

4.0 RISK MANAGEMENT

Risk Mitigation Meeting No. 15 was held on April 25, 2012. Recent risk management activities reviewed include:

- *“Final Draft” of the Contract 2B Risk Analysis was issued on April 23, 2012.*
- *Updated Risk Registers on April 12, 2012.*
- *Completed March EAC forecast for monthly budget presentation.*

Risks reviewed and updated during this meeting include:

- 1) **Contract Interfaces (Risk CNS 4 (C6)):** *Managing contractual interfaces during construction. The interface manager presented a draft “Major Interface Tracking Table”, which is a combination of the interface matrix prepared by the design team and the IPS. This will be the primary working document with which the Interface Manager will oversee the interface management process.*

The concept of using 4-D modeling has been proposed as an additional tool to coordinate interfaces. The Interface Manager discussed his visit to the 7 Line Extension to acquire a better understanding of how that project uses 4-D to assist with interface management and the resources that are required to set it up and run it. Based on a favorable impression, a presentation has been tentatively set up with SAS senior management on May 8, 2012. This meeting will assist the project in arriving at a decision as to whether or not 4D can be useful for interface management.

- 2) **System Safety Certification (Risk CNS 8 (C6)):** *MTA’s Chief of Quality, Safety & Security presented draft safety certification process flow charts identifying the relationship between sub-system installation, system integration, and test observation by the Certification Committee/OSS. The QA Staff is responsible for pulling all required items (inspection/test procedures and forms) together for the final signoff. The CCM staff, in coordination with NYCT staff, is responsible for maintaining and documenting the test and inspection procedures as they occur. It was suggested that the Project’s EDMS system be used for filing all the certification documents.*

Assurance that the Project’s certification process will be acceptable to the NYS Public Transportation Safety Board (PTSB) is another facet of this risk. When the specific details and procedures of the Project’s proposed certification process are finalized, the NYCT Office of System Safety (OSS) will present the details to the PTSB and seek to gain their formal concurrence.

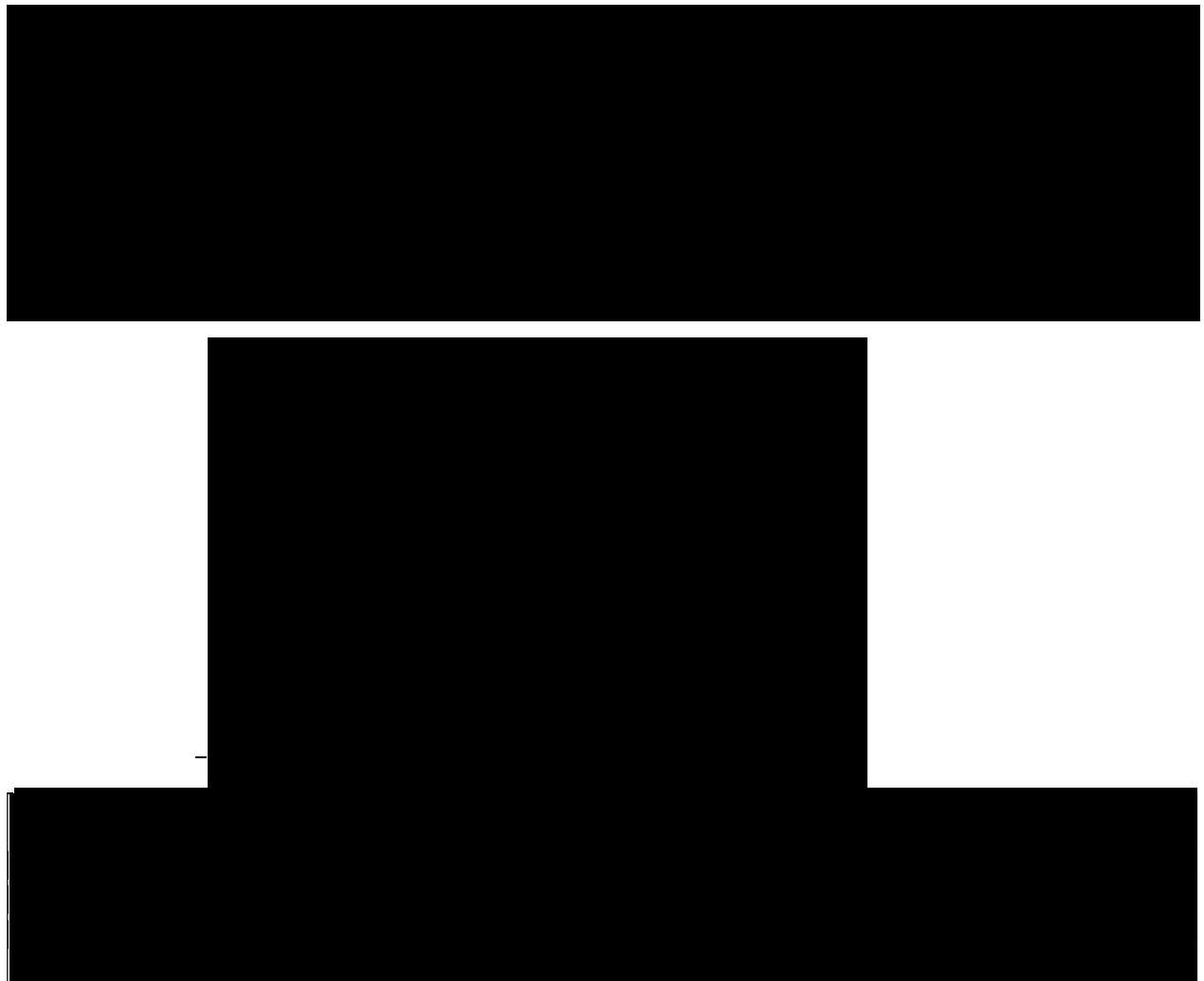
- 3) **Shop Drawing Processing (Risk ID TBD):** *To date, some delays in processing have been noted. These involve contracts and submittals where NYCT review is not required. The ongoing concern is that even greater delays may be encountered on submittals requiring joint review and consolidation of review comments from multiple parties. A tabulation of submittal turnaround times for contracts C2A, C3, C4B and C5B through April 20, 2012 was presented and reviewed. It was recognized that the turnaround time data included “Submittal for Information” items, and that these items could erroneously affect the data. It was decided to remove all “Submittal for Information” documents from the turnaround data.*

To date, it was emphasized that the submittal review process has been actively managed and no delays have resulted from extended review durations. Poor quality of structural steel submittals on C3 has resulted in multiple resubmittal cycles and some delays in fabrication. This issue has been reviewed with the contractor and corrective action initiated.

- 4) **Cost-To-Cure Utility Relocations (Risk C4B 77 and C4B C14):** *Relocating utilities that service buildings adjacent to Entrance No. 1 (301 East 69th Street, 1322 Second Avenue) may delay construction at this location. Current forecast of seven (7) months to complete the work will not adversely impact on the C4B schedule. Some progress was reported this period and there is hope that the issues can be resolved in a timely manner. The contingency plan is to transfer affected scope to C4C.*

- 5) **C4C Procurement (Risk C4C 79):** *At the Risk Mitigation Meeting No. 14, the goal of advertising C4C one month earlier than originally planned was discussed. However, because of the greater-than-expected need for design support during the C2B bid period, the design staff resources required to move C4C advertising date up were not available. In fact, due to “resource constraints”, it was reported that C4C may be advertised one month later than planned.*

It was considered unlikely that a C4C procurement delay will affect the critical path; however procurement delays to C5C are much more likely to adversely impact the SAS critical path. Consequently, C5C pre-procurement and procurement support activities will need to be carefully coordinated. Advance planning for the C5C procurement was an “action item” resulting from this discussion. It was suggested that C4C and C5C be “dusted off” at the same time as there will be common elements between the two. It was also recommended to put an option in C4C to build 72nd Street Entrance 1 (see Item 4).



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

An ELPEP meeting was held on April 4, 2012. The primary topic of discussion was the status of MTACC implementation. With respect to SAS, 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 has verified incorporation of all Candidate Revisions with FTA. The PMOC recommendations regarding approval were forwarded to FTA in February 2012.*
- **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 MTACC 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):** On February 2, 2012, the FTA/PMOC consolidated comments on the SAS Risk Management Plan were forwarded to the MTACC. PMOC recommendations regarding approval were forwarded to FTA.
- **Conformance and Compliance Demonstration:** A target date for the transfer of compliance verification to MTA of July 1, 2012 was established. FTA and the PMOC will meet separately to develop the plan to monitor/validate ELPEP compliance.

The SAS Project Team has implemented the majority of the principles and requirements embodied in the ELPEP. The procedural changes instigated by the ELPEP have become an integral part of the management of the project.

6.0 SAFETY AND SECURITY

The Lost Time Accident Rate and OSHA Recordable Accident Rate from the start of construction until March 30, 2012 are 2.00 and 4.68, respectively. The Lost Time Accident rate is below the national average of 2.2 and the OSHA Recordable Accident rate is above the national average of 4.2. The cumulative construction time worked since the project inception is 3,504,438 hours. Cumulative lost time injuries since project inception is 35 and the cumulative recordable injuries are 47.

Security – During the 1st Quarter 2012, the construction contractors continued implementing their site security plans. No security incidents were noted during this reporting period.

7.0 ISSUES AND RECOMMENDATIONS

Organization Issues – Several details within the “SAS Organization Chart” contained in the MTA Quarterly Report to the FTA (1st Quarter 2012), do not appear to accurately represent the manner by which the project team functions or is managed. The organization of the construction management team is of particular concern. As depicted, it can be inferred that the management of the 63rd Street Station and Systems Package are not fully integrated with the management of the other construction packages. The PMOC recommends a review and possible clarification of this organizational structure.

Staffing Issues – During April 2012, the SAS Quality Manager resigned his position. The Construction Manager position for C2B remains unfilled. In both cases, there are no readily qualified internal replacements. Both positions are very important to the project. Additional time will be required for external candidate(s) to become familiar with the project. The PMOC would like the organization chart to better reflect the manner in which the SAS team actually operates.

Multi-Contract Coordination: MTACC is aware that management of the contract interfaces is one of the keys to executing this project successfully. To date, interfaces between contract packages have been managed effectively, albeit on a somewhat ad hoc basis. The SAS Project Team has identified interfaces and developed tools that should assist in managing this challenge.

The tools are important but, to date, an overall strategy for interface management has not been formalized. The number of interfaces and potential for delay is extremely large and the associated technical and administrative issues varied. The PMOC recommends development of a generalized interface management process that will leverage staff resources effectively and allow senior management to focus on problematic or critical interface issues.

Technical Submittal Processing: *Recent Risk Management meetings have started to focus on the timely processing of technical submittals as a significant construction cost/schedule risk. As initially identified, this risk involved those submittals requiring both NYCT and the Design Consultant's (A/A) review and approval. The issue has been analyzed extensively; however, the scope of the discussion is still limited to submittals involving only the Design Consultant. The MTA's capability to process the more complicated submittals requiring multiple reviews and consolidation of numerous comments is unknown. The PMOC recommends continuous monitoring and review of submittal processing for Packages C3 and C6, where the highest volume of these submittals is anticipated in the immediate future.*

Third Party Utility Payables: *Actual construction progress indicated that more utilities had been relocated than reflected in the \$21.7 million expenditure associated with the 3rd Party Construction (Utility Relocations) budget. During the month of April 2011 the SAS Project Team addressed the disparity in progress vs. payment for utility relocations. \$33.7 million of \$75.3 million budget for 3rd Part Construction (Utility Relocations) has been spent.*

Safety Certification: *The safety certification process had been identified as a risk to project completion. This risk is currently identified in the C6 contract Risk Register as ID # CNS8. During April 2012, safety certification process flow charts were developed which show the relationship between sub-system installation, system integration, and test observation by the Certification Committee and the NYCT Office of System Safety (OSS). The outline of the actual means by which this task will be accomplished has been developed, however the full-time resources to carry the effort forward have yet to be identified. There remains substantial work involved in preparing for this effort; the PMOC is concerned that consistent progress will not be achieved until adequate, dedicated resources are available.*

APPENDIX A - ACRONYMS

A/A	AECOM/Arup.
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
CY	Cubic Yards
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
MPT	Maintenance Protection of Traffic
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

OSS	NYCT Office of System Safety
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
SOE	Support of Excavation
SSCC	Safety and Security Certification Committee
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

A = Actual

Table 2 - Schedule Contingency

IPS Update #	63	64	65	66	67	68	69
Data Date	10/01/11	11/01/11	12/01/11	01/01/12	02/01/12	3/01/12	4/01/12
Contingency (CD)							
RSD=12/31/2016	67	67	67	80	80	80	80
RSD=02/28/2018	490	490	490	503	503	503	503

Table 3 - 1st Quarter 2012 Schedule Milestone Comparison

			Milestone Updates			
Pkg.	Act.	Description	Baseline	M-3	Δ	
3rd Qtr 2011 Tracking Milestones (Carryover)			1-Jul-11	1-Apr-12		
C4B	72C1185	Excavate Top Heading Area 2	30-Jun-12	6-Apr-12		-85
C6	PR40	Award Systems Contract	27-Oct-11	18-Jan-12	A	83
4th Qtr 2011 Tracking Milestones			1-Oct-11	1-Apr-12		
C1	S6A40	Compl West Tunnel Concrete	5-Jan-12	27-Jan-12	A	22
	S9A10	Complete East Tunnel Concrete	29-Feb-12	20-Mar-12	A	20
C2A	A117	Complete ANC #1 Secant Piles	11-Jul-12	23-Jul-12		12
	4S210	Compl Deck Inst'l South - West Side	27-Feb-12	10-Feb-12	A	-17
C2B	PR25d	Open Bids	6-Feb-12	24-Apr-12	A	78
	PR40	Award C2B Contract	30-Apr-12	1-Jun-12		32
C3	LP025	Complete Demo – Lower Platform	31-May-12	5-Sep-12		97
	UP040	Complete Demo – Upper Platform	11-Apr-12	18-Jul-12		98
C4B	72C1225	Excavate Cavern Bench	9-May-12	19-Apr-12		-20
	HST1000	Compl Horseshoe Tun'l 155+94->152+94	20-Mar-12	10-Jan-12	A	-70
	NCC1000	North Crossover Excavate	4-May-12	30-Mar-12	A	-35
1st Qtr 2012 Tracking Milestones			1-Jan-12	1-Apr-12		
C1	S9140	Exc Pump Room #16 East	26-Jan-12	12-Mar-12	A	46
	999	Substantial Completion	20-Mar-12	30-Mar-12	A	10
C2A	4N210	Compl Deck - West Side (97th St Intersection)	17-Feb-12	17-Feb-12	A	0
	5N200	Start SW East Side 97-99 (Incl Guide Walls)	20-Feb-12	12-Feb-12	A	-8
	5S200	Start SW East Side 95-97 (Incl Guide Walls)	19-Mar-12	5-Mar-12	A	-14
	6S235	Start Invert Inst. 93rd -> 95th Streets	8-Feb-12	30-Apr-12		82
	E113	Compl. Guidewalls @ Entrance #1	28-Mar-12	16-Mar-12	A	-12
	E225	Compl. Guidewalls @ Entrance #2	30-Mar-12	12-Mar-12	A	-18
C3	005	Complete Sub/App Struct. Steel Shop Dwgs	20-Jul-12	22-Aug-12		33
	A1010	Begin Demo - Ancil #1	2-May-12	31-Jul-12		90
	EN105	Begin Structural Work - Ent #1	22-May-12	20-Jun-12		29
	MZB05	Compl. Asbestos/Lead Abatement - Fan Plant	27-Mar-12	8-Jun-12		73
	010	Begin Elevator Fab	7-Mar-12	18-Jul-12		133
C4B	SCC1000	South Crossover Excavate	31-Jul-12	10-May-12		-82
	A2C1045	Ancil 2 - Compl SOE/Decking/Excavation	4/4/2012	9-Mar-12	A	-26
	G3S11060	G3 TBM F/P/S Tunnel Invert	28-Mar-12	17-Jul-12		111
	C4B ENT1200A	Contractor (Start) Cost to Cure Work	N/A	18-Dec-12		291
	ETA1000	Ent #2 Adit Excavation Complete	11-Jan-12	4-Apr-12		84
	E3C1010	Ent #3 Bldg Demo Complete	29-Mar-12	24-May-12		56
C5B	S110a	Complete Installation of Mucking Sys-South	N/A	25-Apr-12		0
	S110a	Complete Installation of Mucking Sys-North	N/A	25-Apr-12		15
	S150	Begin Blast/Mining Ops (North)	N/A	26-Apr-12		15
	S110b	Begin Blast/Mining Ops (South)	N/A	26-Apr-12		0

A = Actual

Table 4 - Project Budget/Cost 

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of April 30, 2012	
	\$ 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	1,720.748	32.67
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	1,720.748	32.67
Total Federal:	1,350.693	27.75	866.760		1,350.693	25.64	558.290	10.40
Total FTA share:	1,300.000	96.25	792.867		1,300.000	24.68	547.178	10.20
5309 New Starts share	1,300.000	100	792.867		1,300.000	24.68	547.178	10.20
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	1,162.458	22.07
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.

Table 5 - Contingency Drawdown

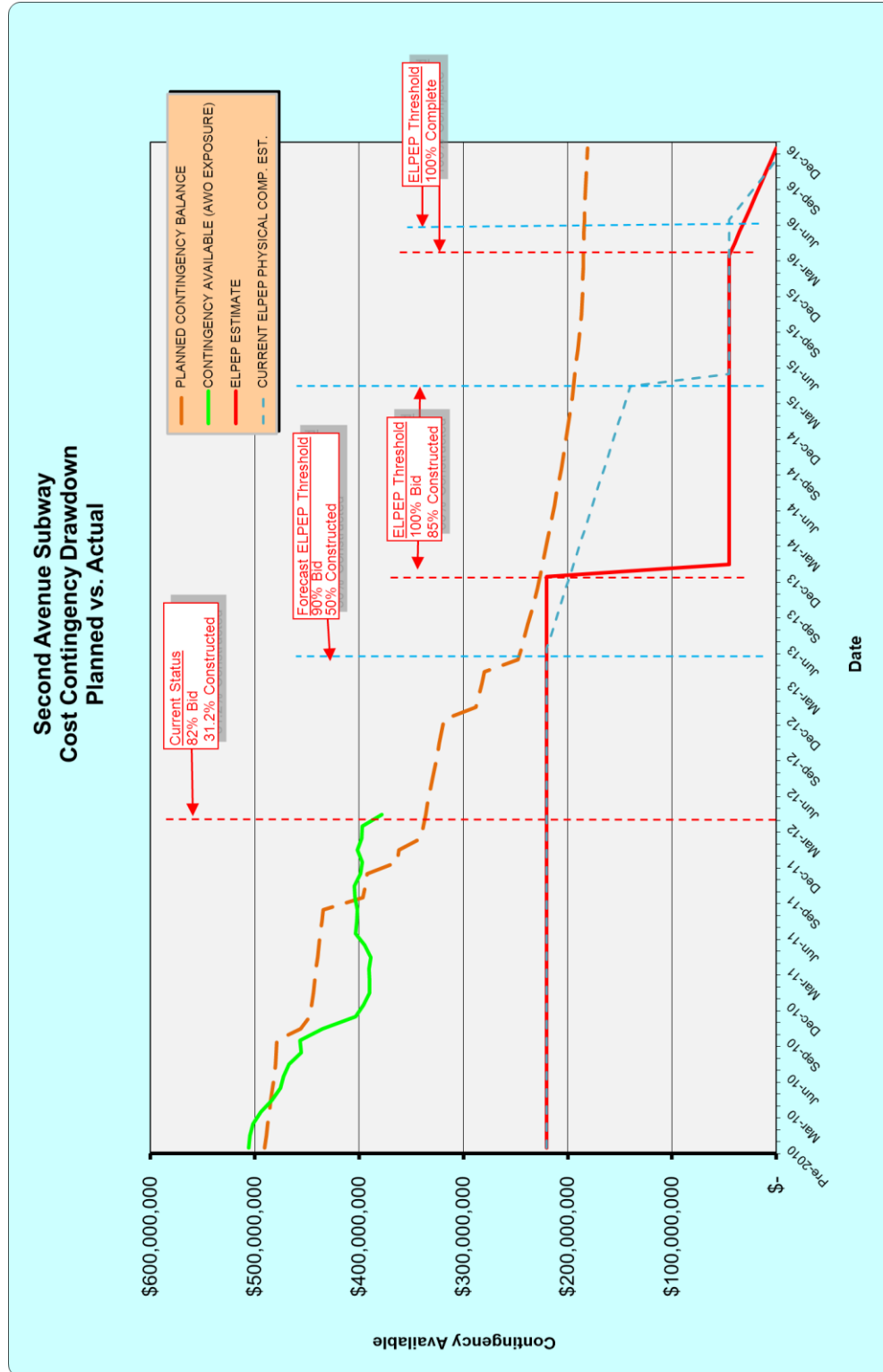


Table 6 - Estimate @ Completion

Description	Budget	Forecast		
	Current Working Budget	PMOC EAC Forecast (April 2012)	MTA EAC Forecast (March 2012)	Notes
Total Construction	\$2,728,172,492	\$3,011,500,000	\$3,039,961,181	
Engineering Services Subtotal	\$576,541,264	\$591,338,287	\$591,338,287	
Third Party Expenses	\$534,800,000	\$534,800,000	\$534,800,000	
TA Expenses	\$125,160,085	\$128,160,085	\$128,160,085	
Contingency	\$321,104,648			
Executive Reserve	\$160,000,000			
Subtotal	\$4,451,000,000		\$4,294,259,553	

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 Region II has accepted MTACC/NYCT's assertion that recent services reductions will provide ample spare vehicles for the SAS Phase I Project.

Table 8 - Core Accountability Items				
Project Status:		Original at FFGA	Current*	ELPEP**
Cost	Cost Estimate	\$4,050M	\$4,451M	\$4,980M
Contingency	Unallocated Contingency	\$555.554M	\$336M	\$220M
	Total Contingency (Allocated plus Unallocated)	\$555.554M	\$378M (April 2012)	\$220M
Schedule	Revenue Service Date	June 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	38.7%		
	Based on Earned Value	N/A		
Major Issue		Status	Comments	
Organization and Staffing		Open	Certain relationships on the current Org. Chart do not reflect actual structure and function of project team. Need to fill two open positions ASAP.	
Safety and Security Certification		Open	Detailed planning and organizational prep for safety & certification process needs to continue. Current lack of dedicated staff may impede progress.	
Date of Next Quarterly Meeting:		TBD		

* MTA's Current Working Budget

** Enterprise Level Project Execution Plan (ELPEP), reflecting median level of risk mitigation

All data based on February 28, 2012 reporting