

PMOC MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project

Metropolitan Transportation Authority

New York, New York

Report Period November 1 to November 30, 2012



PMOC Contract No. DTFT60-09-D-00007

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

Urban Engineers of New York, P.C., 2 Penn Plaza, Suite 1103, New York, New York 10121

PMOC Lead: Charles A. Halboth, PE, 212-736-9100; cahalboth@urbanengineers.com

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

TABLE OF CONTENTS

TABLE OF CONTENTS	2
THIRD PARTY DISCLAIMER	3
REPORT FORMAT AND FOCUS	3
MONITORING REPORT	3
1.0 PROJECT STATUS	3
a. Procurement	4
b. Construction.....	4
c. Quality Assurance and Quality Control (QA/QC).....	9
2.0 SCHEDULE DATA	7
3.0 COST DATA	15
4.0 RISK MANAGEMENT	18
5.0 ELPEP	19
6.0 SAFETY AND SECURITY	19
7.0 ISSUES AND RECOMMENDATIONS	19

APPENDICES

APPENDIX A – ACRONYMS

APPENDIX B – TABLES AND FIGURES

Table 1 - Summary of Schedule Dates

Table 2 - Schedule Contingency

Table 3 – 4th Quarter Schedule Milestone Comparison

Table 4 - Project Budget/Cost

Table 5 - Contingency Drawdown

Table 6 - Estimate @ Completion

Table 7 - Allocation of Current Working Budget to Standard Cost Categories

Table 8 - Core Accountability Items

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 an 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 current 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

During November 2012, MTACC continued advancing the project to meet a Revenue Service Date (RSD) of December 30, 2016 and within its Current Working Budget (CWB) of \$4.451B (exclusive of financing). Contract close-out is ongoing for construction contracts C-26002 (C1) "TBM Tunneling Boring" and C-26013 (C5A) "86th Street Excavation, Utility Relocation and Road Decking" and is anticipated to be completed during the 1st Quarter 2013. Progress continued on the six (6) active construction contracts and featured the following accomplishments:

C-26005 (C2A) "96th Street Site Work and Heavy Civil" has completed over 90% of the precast roadway panel installation. Mass excavation and installation of struts and walers beneath the precast panels continued.

C-26010 (C2B) "96th Street Station Civil, Architectural, and MEP" continues lead abatement in the existing tunnel section.

C-26006 (C3) “63rd Street Station Rehabilitation” continued steel fabrication and erection at the 3rd and 4th mezzanine levels in Area 5. This work is approximately 80% complete.

C-26007 (C4B) “72nd Street Station Cavern Mining and Lining” Total rock excavation for the contract is approximately 93% complete. Concrete and waterproofing installation is ongoing at the Main Cavern, Stub Cavern, and Horseshoe Tunnel.

C-26008 (C5B) “86th Street Station Cavern Mining and Lining” Total rock excavation is approximately 34% complete. This is the primary work activity in progress for this contract.

C-26009 (C6) “Track, Power, Signals and Communication Systems” Mobilization and submittal activities continue.

The overall project is approximately 44.7% complete. Contractors are currently preparing bids for C-26011 (C4C) “72nd Street Station Architectural, MEP and Finishes” package. A revised date for advertising the C-26012 (C5C) “86th Street Station Architectural, MEP and Finishes” package is being determined.

a. Procurement

Future Procurements: Bid opening for the C-26011 (C4C) “72nd Street Station Architectural, MEP and Finishes Package” was extended to December 18, 2012 due to Hurricane Sandy. Contract award is scheduled for February 2013.

Advertisement of the 86th Street Station Architectural, MEP and Finishes Package, C-26012 (C5C), will be delayed until approximately January 13, 2013. Bid opening is schedule for April 5, 2013 with subsequent contract award on May 24, 2013.

b. Construction

As of November 30, 2012, there are six (6) active construction contracts on the SAS Phase 1 Project. Contracts C1 and C5A are still in the close out process. Construction progress on the active contracts during this period includes:

- **Contract C-26005 (C2A) 96th Street Site Work and Heavy Civil**
 - **Excavation and installation of walers and struts**
 - Mass excavation to tier 2 completed
 - Installation of walers and struts at the intersections of 95th, 96th, and 97th Streets and 2nd Avenue and from 94th to 99th Street on 2nd Avenue is ongoing
 - **Entrance 1**
 - Micro-pile work started on November 14, 2012 and is scheduled to be completed on December 24, 2012. Construction activities for the next six weeks will include: jet grouting between secants and slurry wall; mass excavation; and installation of walers and struts.
 - **Entrance 2**
 - Installation of secant piles is scheduled to start on December 3, 2012 and be completed by December 5, 2012. Subsequent construction activities will include:

installation of drilled piers; pre-excavation for station entrance and installation of sheet pile wall; support of utilities under decking; mass excavation; and installation of walers and struts.

- **Entrance 3**
 - Current location for jet grout plant
- **Ancillary 1**
 - Existing utilities are being supported and relocated as necessary to facilitate construction of permanent secant pile walls. Future activities will include: installation of deck beams; preload struts at tier 2; relocation of struts inside of Launch Box; demolition and construction of ECS and Con Ed manholes; guide wall excavation and installation; installation of secant pile wall; jet grouting; installation of ejector wells; mass excavation; and installation of walers and struts.
- **Ancillary 2**
 - Mass excavation to tier 3 (elevation 86) is in progress with bracing to be installed at elevation 96 and 93.
- **Launch Box (92nd Street thru 95th Street)**
 - Shotcreting of the east and west secant pile walls is ongoing in preparation for waterproofing which is scheduled to start on December 7, 2012.
- **Contract C-26010 (C2B) 96th Street Station Civil, Architectural, and MEP**
 - Demolition of existing benches in north tunnel is on hold pending lead placard approval. Lead abatement in the 105th Street substation is ongoing and is expected to be completed on December 14, 2012.
 - Efforts are ongoing to resolve conflicts associated with the tunnel line, face of tunnel wall, and low elevation of tunnel.
- **Contract C-26006 (C3) 63rd Street Station Rehabilitation**
 - Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
 - **Quality**
 - Special Inspections continue at the structural steel plant in Ohio and at the delivery trucks upon arrival. The contractor continues to send a representative to the plant every other week.
 - **Schedule**
 - The contractor completed the schedule update that includes a schedule recovery. MTACC has reviewed the updated schedule and submitted comments to the contractor. The previous ongoing 89 day delay has not increased. The Project Office reported that the recovery schedule shows the ability to make-up some of the lost time, but not the entire 89 days.

- The Project Office reported that the recent hurricane (Sandy) and the delays in receipt of the building permit from the New York Department of Buildings (NYDOB) has delayed the start of the Ancillary #1, three weekend street closures (portion of 63rd St. between Park and Lexington) from January to February 2013.
- **Structural Steel**
 - The Project Office advised that the A/E has begun working weekends to expedite finalization of the submittals process for Area 5.
 - The contractor has resumed the swing shift and discussion of adding a 3rd shift is back for consideration. Steel supply was noted as the determining factor. This is a daily tracking issue for the Project Office.
 - The contractor's upper management and MTACC upper management continue to meet on the schedule and increasing production, particularly steel fabrication.
 - As of November 30, 2012, in Area 5, 520 pieces had been installed versus 790 planned (66%), and represents 64.6% of the total steel pieces to be installed (805).
- **Area 5 (Reconstruction consists of 6 mezzanines and the deck plaza roof)**
 - Continued with temporary and permanent structural steel fabrication and erection at the 3rd & 4th Mezzanines.
 - As of November 30, 2012, 86% of 3rd mezzanine steel had been erected and 75% of 4th mezzanine steel had been erected.
 - Steel deliveries were also affected by Hurricane Sandy in late October and early November 2012. No schedule impact had been determined.
 - Completed placing upper invert concrete at the lower platform walls, slabs and curbs.
- **Entrance #1**
 - Delays in obtaining full access to the area remained an issue.
 - The MPT setup at Entrance #1 has been delayed due to the redesign of the utility relocation.
- **Ancillary #1**
 - The MPT setup at Ancillary #1 has been delayed while awaiting the issuance of the NY DOB permit for the existing building.
 - The 3 weekend street closures on 63rd St. between Lexington and Park Avenues have been re-scheduled for February 2013, from the previous January 2013, due to Hurricane Sandy.
- **Platforms**
 - Continued with service carrier and conduit installation at the G4 level.
 - Continued with application of intumescent paint to girders and walers.
 - Continued steel erection for Stair S-41 opening at the G4 Platform.

- **Fan Plants**
 - Continued with installation of ductwork for the south and east fans in the West Fan Room.
 - Continued installation of new drain lines in the West Fan Room.
 - Continued installation of conduit for power to equipment in the East Fan Room.
- **Contract C-26007 (C4B) 72nd Street Station Cavern Mining and Lining**
 - **Excavation**
 - Rock excavation in the cavern and tunnels from 73rd Street to 63rd Street was completed. Rock excavation by means of drilling and blasting continues at Ancillary 1 (northwest corner of 69th and 2nd Avenue), Ancillary 2 (northwest corner of 72nd and 2nd Avenue) and Entrance 3 (southeast corner of 72nd Street and 2nd Avenue). Total rock excavated for the project is 171,386 BCY (92.8%).
 - **Concrete Phase**
 - The concrete phase of the underground caverns and tunnels is ongoing. Installation of waterproofing, drainage pipe, and concrete reinforcement is ongoing.
 - North of 69th Street waterproofing continues along the main cavern invert and walls. Installation of drainage and placement of permanent concrete final liner along the invert is progressing.
 - South of 69th Street waterproofing, drainage, and permanent concrete final liner continues along the west tunnel and turnout caverns. Waterproofing of the Horseshoe Tunnel and Stub Cavern is complete. At the Stub Cavern, drainage work continues at the G3 track upper level.
 - **Building Remediation (Additional Work Request)**
 - Lead abatement in the basement of 1405 2nd Avenue is scheduled to start December 3, 2012
- **Contract C-26008 (C5B) 86th Street Station Cavern Mining and Lining**
 - Work continued with 3 shifts.
 - Rock bolting and shotcrete follow the progression of rock excavation.
 - Rock removal by blasting at the north and south caverns is ongoing.
 - All surface operations end at 10:00PM daily.
 - Contract coordination is ongoing. By the end of December 2012 the C5B contractor will take over the work zone between 78th and 79th from the C4B contractor.
 - **North Shaft Area**
 - Horizontal mining in the cavern, going south, is continuing with completion of ramping to the Public Cavern and beginning development of the top heading.
 - Rock excavation to Ancillary #2 from the north cavern takes place intermittently.
 - **South Open Cut Area**

- In the South Open Cut Area/Ancillary #1 continued ramp mining to the invert of the intermediate bench in the south end of the Public Cavern.
- **Ancillary #1**
 - Rock excavation at the Ancillary #1 portion of the South Open Cut has been temporarily leveled off at approximate Elevation 90.
- **Ancillary #2**
 - Continued with drilling, rock excavation, rock bolting and shotcrete placement in both the open cut area and from the cavern. Mechanical breaking of rock is at approximate Elevation 112-113 and will continue until the beginning of 2013, and then blasting will start in this area.
- **Entrance #1**
 - Continued mechanical rock breakup, excavation and rock bolting at Entrance #1.
 - Continued with street level shoring preparation for demolition.
- **Entrance #2**
 - Continued drilling for rock excavation at the elevator shaft.
 - MTACC and DOT approved the development of a reduced work zone on the south side of 86th St. around the elevator shaft and a work zone on the north side of 86th St. for work at the Support of Excavation (SOE) for Entrance #2.
- **Rock Excavation (for the week ending November 30, 2012)**

*As reported to the PMOC by the MTACC C-26008 Project Office

 - Total rock (estimated) for complete project – 154,623 BCY
 - Total rock excavated to date – 52,292 BCY (33.8%)
 - Summary by Area (5 areas have not begun rock excavation):
 - North Cavern – 55,686 BCY (total); 22,071 BCY (to date); 39.6%
 - South Cavern – 54,302 BCY (total); 19,899 BCY (to date); 36.6%
 - Ancillary #1 – 11,725 BCY (total); 6,041 BCY (to date); 51.5%
 - Ancillary #2 – 4,830 BCY (total cut & cover); 2,142 BCY (to date); 44.3%
 - Ancillary #2 – 7,480 BCY (total from cavern); 1,182 BCY to date); 15.8%
 - Entrance #1 – 1,990 BCY (total from cut & cover); 370 BCY to date; 18.6%
 - Entrance #2 – 14,237 BCY (total from cut & cover); 587 BCY to date; 4.1%
 - The tracking of total rock excavation (actual) from April 6, 2012 through November 23, 2012 vs. planned excavation shows the cumulative rock excavation production to date to be at the baseline schedule. This reflects an increase in the production of rock excavation in the south cavern.
- **Contract C-26009 (C6) Track, Power, Signals and Communication Systems**
 - Surveying to locate the IJs between 86th St. and 96th St. ongoing.

- Fit-out of the contractor's space (3rd floor) of the field office has been completed. The 5th floor (MTACC's space) is still under construction and is expected to be available mid December 2012.
- Submittals of contract requirement are ongoing.
- Identification of long lead items in progress.

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

Implementation of the Quality Management System as defined in the contract specification is ongoing. Quality control activities are being performed by the contractors per their Contractor's Quality Plans (CQP). The MTACC's SAS Quality Managers and Project Quality Managers are performing quality assurance activities. A meeting was held on November 16, 2012 with the new SAS Quality Manager, his four Project Quality Managers, and the PMOC. The purpose of this meeting was to determine if there are any trends with quality issues within each contract and/or among the C2A, C2B, C3, C4B, and C5B contracts. The results of the meeting included:

- **C2B:** Familiarity with the quality requirements of the specification is a concern. In some instances Quality Work Plans (QWPs) are being submitted by the contractor's quality manager after the work has started. To address this concern, quality requirements will be stressed during the Job Progress meetings and the Monthly Quality Management meetings. Submittal of Quality Work Plans will be scheduled as part of the contractor's six-week look-ahead.
- **C4B:** MTACC inspectors have not been notified by the contractor to witness the waterproofing application in a timely manner. To address this issue, quality hold points are being considered. Quality management will push to have hold points noted on the six-week look-ahead schedule.

2.0 SCHEDULE DATA

Integrated Project Schedule (IPS) Update #76 was received on December 3, 2012 and is based on a Data Date of November 1, 2012. This update contained ".PDF" schedule reports for all remaining work, the critical/longest path, variance tabulation between Updates # 75 and 76, summary schedule and ".XER" schedule files for the IPS and all active construction contracts. The IPS still reflects the forecasted completion of all construction and NYCT Pre-Revenue Training & Testing activities by October 4, 2016, with 90 calendar days (CD) or 64 work days (WD) of contingency when measured against MTACC's target Revenue Service Date (RSD) of December 30, 2016.

Due to the phased design and construction delivery process selected for Phase 1 of the Second Avenue subway, the IPS is in a nearly constant state of development and refinement, as well as status updating. The major steps in IPS development include:

1. MTACC/CCM development of preliminary design and/or construction schedules
2. MTACC/NYCT/CCM development of preliminary system integration and testing schedule
3. Replacement of MTACC/CCM preliminary schedules with actual design and construction schedules as they become available.

4. Periodic (monthly) updating of both MTACC/CCM preliminary schedules and actual design and construction schedules
5. Systems (C6) Contractor development of actual system integration and testing schedule and its incorporation into the IPS.
6. Development of intra-contract coordination milestones during procurement.

The current status of IPS development is as follows:

1. C2B construction schedule is under development.
2. The actual system integration and testing schedule is under development by the C6 Contractor.
3. C4C and C5C schedules within the IPS are still based on CCM preliminary schedules.
4. Intra-contract milestones for C4C and C5C are under development.
5. All other design and construction activities are based on actual contractor schedules.

As a result of items 2, 3 and 4, IPS Update #76 is in an intermediate state of development, consequentially requiring an interpretation and explanation that is somewhat more complicated than normal. Specifically, the intra-contract milestones are intended to define the maximum period available for the station contractor to make specific areas available to the systems contractor. These milestone dates are included in the systems contract and applicable stations construction packages. In the IPS, these milestones are currently constraining the start of systems installation work to the date defined by contract and holding open the overall envelope of time available to the station finishes contractors. The current IPS cannot and will not model schedule improvements or delays that affect these intra-contract milestones until the C4C and C5C contracts are executed and the actual contractor schedules incorporated into the IPS. At that time, these schedule constraints will be released, allowing the schedule to accurately model improvements or delays associated with actual time of performance of the station finish contracts as it affects the systems contract.

During November 2012, the C6 (Systems) construction schedule was fully integrated into the IPS. The impact of this effort is significant and can be summarized as follows:

- Numerous interface milestones between station finish packages and the systems installation work were added. These milestones appear to have a significant impact to the “mechanics” of schedule calculation.
- Procurement activities for systems components were significantly enhanced. Many procurement activities have been summarized and are represented by a single activity with duration of several hundred calendar days.
- Complete integration of systems installation work with the general/civil construction work has significantly altered several activity paths, creating several new “near-critical” paths that previously did not exist in the IPS.
- Systems installation activities are now depicted in significantly greater detail and specificity.

Project Critical Path: The most “critical” or longest schedule path that spans between the current data date of November 1, 2012 and the project completion date (RSD) consists of three distinct elements:

1. The initial portion of this path involves procurement activities for the C5C construction package, which is currently in progress. This portion of the critical path has a float of 19 WD and concludes with the contract award on May 24, 2013.
2. A schedule “lag” of 447 WD connects the C5C contract award to C5C MS#9, Complete Work in all Traction Power Rooms (North). C5C MS#9 initiates Activity #C6AR86-06, which is the C6 contractual “full access” date to traction power rooms at the north end of the 86th Street Station. This C6 milestone constrains subsequent C6 work activities so they cannot start before March 18, 2015.
3. The final portion of this path involves traction power installation and testing at the 86th Street Station, which is scheduled for completion on August 17, 2016. NYCT “Proof of Operation” testing is concurrent with Traction Power System Testing and also is scheduled for completion on August 17, 2016. All third party construction is completed as of August 18, 2016, when the C6 Packages is scheduled for completion. NYCT operational testing, including dispatch tower testing, proof of route familiarity and new systems and equipment familiarization are the final activities for SAS, Phase 1, with scheduled completion on October 3, 2016. Adding the current schedule contingency of 64 WD results in the target RSD of December 30, 2016.

Secondary Paths: Major secondary float paths of significance to the overall status of the project include the following:

+ 8 WD: The detail design and development of signal system shop drawings controls the start of the +8 WD and the +40 WD paths. After completion of signal system detailing and approval on June 18, 2013, the start of equipment manufacture is staggered in the following order; 63rd St. → 72nd St. → 96th St. → 86th St. Development and review of system shop drawings is currently in progress, with equipment delivery for 86th St. currently scheduled for October 2, 2015. Installation work at 86th St. is scheduled to be completed on April 15, 2016. This path joins the project critical path on May 18, 2016 with the start of Proof of Operation testing.

The PMOC is concerned about two specific issues found on this path; the excessive duration of Activity C6S 165 – Manufacture & Deliver Signal Equip at 86th Street Station and the 5.5 month gap in time between completion of shop drawing development and the start of signal equipment manufacture.

+23 WD: NYCT Pre-Revenue Operation Activities scheduled to start on August 18, 2014 and is unchanged this period.

+26 WD: This path is initiated by the design, manufacture and delivery of the traction power substation and associated control equipment at the 96th Street Station. It then follows the installation of the traction power system at the 96th Street Station through its local and integrated test activities. This path joins the critical path on May 18, 2016 with the start of Proof of Operation testing.

- +40 WD:** The detail design and development of signal system shop drawings controls the start of the +40 WD and the +8 WD paths. After completion of signal system detailing and approval on June 18, 2013, the start of equipment manufacture is staggered in the following order; 63rd St. → 72nd St. → 96th St. → 86th St. Development and review of system shop drawings is currently in progress, with equipment delivery for 96th St. currently scheduled for March 11, 2015. This path follows the signal system installation at 96th Street through testing and the substantial completion of the C6 Contract. This path joins the critical path on August 18, 2016 with the handoff to NYCT for operational testing, including dispatch tower testing, proof of route familiarity and new systems and equipment familiarization.
- +45 WD:** 86th Street Station, Entrance #1. This path follows underpinning, rock excavation and structural concrete installation at Entrance #1. After the heavy civil and structural work is complete, responsibility for this area is transferred to the C5C contractor via Milestone #1 on March 27, 2014. After completion of interior finish construction, the C6 contractor is provided access to the area via Milestone #9 on February 19, 2015, at which time this path joins the critical path.
- +55 WD:** This path primarily involves communication and MEP system testing at the 63rd Street Station. Actual system testing does not start until November 12, 2015. Necessary preceding activities include communication and MEP equipment installation and field acceptance testing at 63rd Street Station, as well as LAN/WAN availability and required communication system infrastructure at other stations. At this time, these work elements are all on other float paths with more than +55 WD of schedule float.
- +58 WD:** Provide access and completion of “cost-to-cure” work at 63rd Street Station. Completion of all “cost-to-cure” work is currently scheduled for May 14, 2013, followed by completion of Entrance #1 construction, Entrance #3 construction and completion of construction package C3 on August 22, 2014. From this time installation of the signal system controls this path until it joins the critical path via the start of “Proof of Operation” testing. It is not clear why work at Entrance #3 is dependent on the completion of work at Entrance #1 or why signal system installation is dependent on completion of Entrance #1 and Entrance #3 construction.

Quarterly Milestone Tracking: The initial tabulation of select schedule activity performance for the 4th Qtr. 2012 is contained in the accompanying Table 3. Activities not completed this Quarter will be “carried over” into the 1st Quarter 2013 tracking log. A summary of schedule performance includes the following:

Summary	
# Calendar Days Elapsed	31
Average Δ from Baseline - all activities	71
Average Δ from Baseline - completed activities	18
Average Δ from Baseline - ongoing activities	120
Average Monthly Δ	12
Number Activities Sampled	39
Number Activities Completed	3
4th Qtr. Activity Summary	
# Activities Forecast this Qtr.	20
# Activities forecast to complete this Qtr.	17
# Activities completed this Qtr.	0
# Activities on/ahead of baseline	5
# Activities behind baseline	15
Average Δ from Baseline (CD)	7
Average Monthly Δ (CD)	7
Avg TF - Open Activities	185

Based on the sampling of activities in Table 3, the PMOC notes the following:

- The average monthly delay for all activities is a reflection of the impact and disruption to construction resulting from Hurricane Sandy.
- Both outstanding construction procurements (C4C, C5C) experienced delays that were ultimately attributable to the impact of the hurricane.
- “Baseline” schedule completion for seventeen of the twenty activities included in the 4th Quarter 2012 sampling is in the 4th Quarter 2012. Most of these activities possess substantial schedule float. This is consistent with observations pertaining the critical and near-critical paths made earlier in this report.
- None of the C3 carryover activities from previous quarterly samplings were completed this period, further suggesting significant schedule performance issues on this contract package.

This sampling of schedule activities suggests that schedule performance for the month of October 2012 may not have been adequate to achieve overall project schedule goals. The complete impact of Hurricane Sandy is included. This sampling is based on a limited number of activities and is one component of the overall review and evaluation of the SAS Phase 1 schedule.

ELPEP/SMP Compliance: In the opinion of the PMOC, SAS Phase 1 is in compliance with the metrics, deliverables and intangible goals enumerated in the Enterprise Level Project Execution Plan (ELPEP), dated January 15, 2010 (Section IV. b, page 8) 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 schedule contingency (measured against February 28, 2018 RSD)
 - ELPEP Requirement: 240 CD
 - Current Forecast: 513 CD
- Minimum Allowable Float; Real Estate Acquisition
 - ELPEP Requirement: 60 CD
 - Current Forecast: All Real Estate Takings are complete as of November 1, 2011.
 - Cost to Cure Activities
 - Current Forecast: 63rd Street Station – Entrance #1; TF = 58 WD
- Minimum Allowable Secondary Float Path
 - ELPEP Requirement: 25 Calendar Days (approximately 18 WD)
 - Current Forecast: Independent float paths for signal system procurement and installation (+8 WD) and C5C construction contract procurement (+19 WD).
- Secondary Schedule Mitigation (critical path compression)
 - ELPEP Requirement: 125 CD
 - Current Forecast: Schedule mitigation efforts are in progress.

The MTACC has demonstrated that it uses 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 project milestones.

The PMOC notes that IPS Update #76 was the second consecutive schedule update that did not contain a narrative report. Sections 5.2 and 5.5 of the Schedule Management Plan reference monthly narrative reports that support the IPS. In the absence of the MTACC Chief Scheduler, the SAS Schedule Manager has been acting in that capacity and supporting other projects. PMOC observations suggest this diversion to be the primary reason for the incomplete reporting. The PMOC is concerned that there may be other consequences associated with the lack of a full-time Project Control/Schedule Manager. The PMOC recommends the MTACC resolve its staffing shortfall as soon as possible so adequate resources can be appropriately allocated.

Schedule Contingency: IPS Update #76 continues to forecast all Phase 1 construction and pre-revenue testing to be complete on October 3, 2016. This results in an 90 CD (64 WD)

contingency when measured against the MTACC's target RSD of December 30, 2016 and a 513 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 through November 30, 2012, SAS Phase 1 is approximately 45.5 % complete. The completion status of the active construction contracts through November 30, 2012, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 97.2%
- C26005 (96th Street Station) – 81.8%
- C26010 (96th Street Station) – 0.6%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 30.1%
- C26006 (63rd Street Station) – 30.2%
- C26007 (72nd Street Station) – 61.9%
- C26009 (Systems) – 4.19%

Aggregate Construction % Completion:

- 82% of all construction work is under contract
- 51.3% of active construction contracts are complete
- 40.7% of all construction is complete

Based upon cost data received from MTACC for the period through November 30, 2012:

- Value of construction in place this period = \$43,994,988/MO (Reporting period October and November, 2012)
- Estimated value of construction remaining = \$1,570,902,691
- Target construction completion = August 18, 2016
- # Months remaining = 44.5

Average rate of construction required to achieve target completion date = \$35,273,207/MO

Soft Cost expenditures (not including real estate, OCIP, etc.) during the period from September 30, 2012 to November 30, 2012 totaled \$7.8M, or approximately \$3.9M per month. Assuming this rate of expenditure to be reasonably constant over the remainder of the project, no additional contingency transfers to soft cost categories will be required, although some budget redistribution within soft cost categories may be necessary.

The average progress (payments) achieved over the most recent six month period is \$37,670,302. Based on a review of cost data for October/November 2012, it appears that the project experienced a significant improvement in construction progress and that adequate overall progress was made on the project to achieve the RSD of December 30, 2016.

Estimate-At-Completion (EAC): 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 SAS Project Team has established a goal of monthly EAC reporting for the full project, including all soft costs, by December 2012.

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 currently \$4,230,414,318.

Based on the information available, this EAC validates the reasonableness of the MTACC’s Current Working Budget of \$4.451B. Based upon current information, this effort suggests the project can be built within the limits of the Current Working Budget.

Cost Growth: The value of AWOs reported by MTACC/NYCT in November 2012 is summarized as follows:

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
November 2012	\$89,507,381	\$117,519,310
September-2012	<u>\$86,723,811</u>	<u>\$106,241,829</u>
Change	\$2,783,570	\$11,277,481
Change	3.15%	10.61%

The change in AWO Exposure was driven by the following:

1. Contract C2A: Estimated AWO exposure for this contract increased by approximately \$9.5M, or 24.8% as a result of the initial valuation of AWO #94, 115, 127, 132, and 134 as well as adjustments to the valuation of AWO #101, 107 and 124.
2. Contract C3: Estimated AWO exposure for this contract increased by approximately \$625,000 or 27.5% as a result of the initial evaluation of AWO # 24, 25 and 26 as well as adjustments to the valuation of AWO # 10, 12, 15, 19, 20, 21, 22 and 23.
3. Contract C4B: Estimated AWO exposure for this contract increased by approximately \$600,000 or 13.3% as a result of the initial valuation of AWO # 5, 47, 57, 58 and 60 as well as adjustments to the valuation of AWO # 33, 46, 51, 52, 53, 54, 55 and 56.

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

1. Contract C2A: Execution of AWO # 101, 110, 111, 115, 120 and 129 for a total cost of \$352,500.
2. Contract C3: Execution of AWOs # 10, 17, 18, 19, 20 and 24 for a total cost of \$576,016.
3. Contract C4B: Execution of AWOs #28, 46, 49, 51, 55, 57 and 58 for a total cost of a net \$1,218,694.
4. Contract C5B: Execution of AWOs #11, 21, 26 and 29 for a total cost of \$487,000.

The PMOC has previously noted that a significant number of AWOs do not contain “Exposure Values” in the respective logs. Substantial progress in addressing this concern has been made, however it is noted that AWOs and/or AWO Exposure Values have not been established for

several major, well-known issues including structural steel (C3) and communication system changes (C6). Continued diligence in maintaining the AWO logs and financial information is an important element in avoiding “surprises” to the overall evaluation of project performance.

As of November 30, 2012, the status of Additional Work Orders (AWOs) on Phase 1 of the Second Avenue Subway Project is summarized as follows:

Contract	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26002 (1)	97.20%	\$337,025,000	\$53,095,231	15.75%	\$44,181,443	13.11%
C26005 (2A)	81.80%	\$325,000,000	\$47,561,117	14.63%	\$34,493,212	10.61%
C26010 (2B)	0.58%	\$324,600,000	\$602,723	0.19%	\$0	0.00%
C26006 (3)	30.20%	\$176,450,000	\$2,897,229	1.64%	\$975,016	0.55%
C26007 (4B)	61.90%	\$447,180,260	\$4,911,394	1.10%	\$3,845,332	0.86%
C26013 (5A)	100.00%	\$34,070,039	\$6,717,318	19.72%	\$4,285,471	12.58%
C26008 (5B)	30.08%	\$301,860,000	\$1,634,938	0.54%	\$1,627,547	0.54%
C26009(6)	4.19%	\$261,900,000	\$99,360	0.04%	\$99,360	0.04%
TOTAL		\$2,208,085,299	\$117,519,310	5.32%	\$89,507,381	4.05%
	51.26%	\$1,131,854,608	\$117,519,310	10.38%	\$89,507,381	7.91%

To date, approximately \$1,131,854,608 worth of construction work (51.26%) has been completed. As a % of work completed, the AWO exposure for these contracts = 10.38% and the executed AWO % = 7.91%. Based on performance to date, a forecast of total AWO expenditure of approximately \$200M appears reasonable. This compares favorably with the \$229M AWO contingency contained in the MTACC CWB. The PMOC notes that AWO expenditures for certain construction contract packages are trending above established budget values and industry “standards”. The PMOC continues to recommend that all AWOs be critically reviewed, evaluated and documented on a contemporaneous basis to determine if compensable responsibility exists for some of these expenditures.

ELPEP/CMP Compliance: Section 5.4 of the Cost Management Plan (CMP) discusses Project-Level EAC Forecasting. It is noted in this section that soft costs are included in this report, which is to be produced on a monthly basis.

The PMOC has previously noted that the SAS EAC reporting and forecasting is incomplete in that it does not include a monthly evaluation and forecast of soft cost. The SAS Project Team produces ample financial documentation to enable complete EAC forecasting and the PMOC has used this information in developing an “independent” EAC forecast.

Cost Contingency: During November 2012, contingency 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.

The PMOC has updated and adjusted its contingency drawdown and utilization model to reflect changes made this period. Models maintained by both the PMOC and the SAS Project Team verify that the current contingency balance is greater than the Planned Balance and exceeds the ELPEP Required Balance.

	<u>Sept. 2012</u>	<u>Nov. 2012</u>
Required Balance (ELPEP):	\$220,000,000	\$220,000,000
Planned Contingency Balance:	\$325,262,364	\$320,840,562
Actual Contingency Balance (PMOC):	\$426,149,066	\$414,871,585
Actual Contingency Balance (MTACC):	\$425,206,000	TBD

4.0 RISK MANAGEMENT

In November 2012, the final draft of the Risk Analysis Report for construction package C4C was released for final review and comment. Among the most significant findings contained in this report:

- “There is a 70% confidence in the current all-inclusive budget of \$263M (including AFI and AWO). This is considered relatively high for a contract of this size; however to reach the recommended 80% confidence level, the AFI should be increased by \$2M and the AWO contingency needs to be increased by \$8M to reach \$13.7M and \$20.8M respectively.”
- “The scheduled NTP date (January 2013) is shown to have a 35% chance of being achieved. The 80% confident date is shown as March of 2013 for the notice of award.”
- “For an 80% confidence level, taking in consideration the potential delay of NTP and potential exposure in project duration of 3 months (37 months versus the scheduled 34), the exposure to the substantial completion may take the Project from its originally estimated October 2015 to March 2016.”
- This analysis did not include the construction of Entrance 1 as part of the C4C scope of work.

Based on the results of this analysis, in order to achieve an 80% confidence level, a total contract budget (including AFI and AWO contingencies) of \$273M is required. This compares favorably with the current project budget value, and no adjustment to the EAC is required at this time.

In order to achieve an 80% confidence level, total contract duration of 37 months, as opposed to the baseline schedule duration of 34 months is required. This does not include any delay in contract award. The cost impact of consequential delay to other contracts is not included in this analysis.

In order to meet current contract schedule goals, high mitigation of the major schedule risks will be required. Accesses, interfaces and turnovers are perceived to be the primary schedule drivers of this contract, as opposed to labor productivity and duration of the scheduled activities. These risks are acknowledged by the SAS project team. A collaborative effort including the C6 and

C4C contractors should contribute to a further understanding of these risks and development of effective mitigation strategies.

5.0 ELPEP

There were no ELPEP meetings held during November 2012. 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 SAS PMP. MTACC has addressed all FTA/PMOC comments and reissued the PMP as Revision 8.1. Candidate Revisions for the next PMP update are being developed with an updated PMP anticipated by early 2013.
- **Schedule Management Plan (SMP):** The PMOC continues to monitor and verify SAS substantial compliance with the SMP.
- **Cost Management Plan (CMP):** The PMOC continues to monitor and verify SAS substantial compliance with the CMP.
- **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 Compliance Checklist was distributed and reviewed at the ELPEP Meeting of September 12, 2012.

The SAS Project Team has implemented 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 and gives the FTA/PMOC greater insight into the risk, cost and schedule elements of the project.

6.0 SAFETY AND SECURITY

Implementation of the Safety Requirements as specified in Section 01 11 50 of the General Requirements for each construction contract is ongoing. The contractor's safety management held tool box meetings, trained new employees, monitored the work areas individually and with the OCIP representatives, and promptly investigated safety incidents. Lessons learned are being shared during the project wide safety meeting held each month. Since the start of construction 4,645,510 hours have been logged with 51 lost time and 130 recordable incidents documented. The total hours and incidents equates to a lost time rate of 2.2 and a recordable rate of 5.6. The US Bureau of Labor Statistics National (Heavy & Civil construction) rate for lost time and recordable incidents is 2.2 and 3.8 respectively.

Security – No security concerns have been noted during this reporting period

7.0 ISSUES AND RECOMMENDATIONS

Staffing: There are several staffing issues which the PMOC believes have the potential to negatively affect project performance unless they are remedied in the near future:

- The Project Schedule Manager is already doing double duty as the Acting Program Controls Manager. Recently he has assumed some of the duties of the MTACC Chief Scheduler, who left the organization.
- Senior site staffing positions for construction packages C4C and C5C have not been filled. It is desirable for select individuals for each of these packages to be involved during the construction bid process.

In each of these instances, the PMOC recommends that the appropriate action be taken to strengthen the project organization.

Multi-Contract Coordination: The draft results of the C4C Risk Analysis reinforce the opinion that that management of the contract interfaces is one of the keys to achieving the project cost and schedule goals. The SAS Project Team has identified contract interfaces and developed tools that should assist in managing these interfaces. However, problems encountered to date at the C1/C2A primary interface involve scope of work and quality of work issues. The PMOC recommends that project procedures involving correction of defective work, punch list development and construction scope control be reviewed and enhanced as required to support this critical element of the project.

Safety Certification: The safety certification process has been identified as a risk to project completion. The PMOC has previously expressed concern that consistent progress would not be achieved until adequate, dedicated resources were available to coordinate the efforts. The relative lack of progress during the 4th Quarter 2012 seems to support this concern. A Systems Safety Specialist has been identified as part of the CCM staff, and has only recently started to work on the project. Now that staffing is complete for this effort, the PMOC recommends the Safety and Security Certification Committee hold regular meeting to direct and monitor the progress of this work.

Schedule Performance: Contract C3: The PMOC has previously expressed concern regarding this issue. With respect to steel fabrication and erection, virtually no schedule recovery has been achieved, although further delay has been mitigated. In early November 2012, MTACC provided the contractor access to the area required for construction of Ancillary 1. However, the contractor was not ready to start work because it had not secured the necessary permits. The PMOC is concerned about the apparent general lack of concern regarding the project schedule on this contract. The 63rd Street Station is a key element in the overall sequence of systems installation and testing, ultimately leading to the start of operations. The PMOC recommends that SAS senior management seriously evaluate the means by which improved schedule performance can be achieved on this contract.

Stakeholder Risk: The SAS Project Team is currently incorporating two major changes to the project (waterproofing and communications) that were requested by NYCT operations groups and not included in the final design documents. The cost and schedule impact of these changes is very significant. The PMOC is concerned about the adequacy of the configuration control processes to manage and if necessary resist discretionary design changes requested by exterior stakeholders that may ultimately compromise the project cost and schedule performance.

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
EAC	Estimate at Completion
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 #	65	68	71	74	75	76
Data Date	12/01/11	03/01/12	06/01/12	09/01/12	10/01/12	11/1/12
Contingency (CD)						
RSD=12/31/2016	67	80	90	No	90	90
RSD=02/28/2018	490	503	513	Report	513	513

Table 3 – 4th Quarter 2012 Schedule Milestone Comparison

Pkg	Act.	Description	Milestone Updates				
			Baseline	M-1	Baseline Δ	Monthly Δ	TF
4th Qtr 2011 Tracking Milestones (Carryover)			1-Oct-11	1-Nov-12			
C3	LP025	Complete Demo – Lower Platform	31-May-12	16-Nov-12	169	18	256
1st Qtr 2012 Tracking Milestones (Carryover)			1-Jan-12	1-Nov-12			
C3	005	Complete Sub/App Struct. Steel Shop Dwgs	20-Jul-12	3-Jan-13	167	13	67
	A1010	Begin Demo - Ancil #1	2-May-12	29-Nov-12	211	0	373
	EN105	Begin Structural Work - Ent #1	22-May-12	10-Oct-13	506	30	58
	MZB05	Compl. Asbestos/Lead Abatement - Fan Plant	27-Mar-12	16-Nov-12	234	32	234
	010	Begin Elevator Fab	7-Mar-12	13-Nov-12	251	26	183
C4 B	C4B ENT120 0A	Contractor (Start) Cost to Cure Work	2-Mar-12	3-Dec-12	276	33	240
2nd Qtr 2012 Tracking Milestones			1-Apr-12	1-Nov-12			
C2 A	E105	Relocate MEP @ Rainbow Hardware (AWO98)	25-Jun-12	1-Nov-12	129	31	112
C3	MZC01/ MZC05	Asbestos/Lead Abatement & Demo-Lower Mezz	27-Apr-12	8-Nov-12	195	34	67
	MZ5001 /010/015	Lead Abatement/Demo -M1->M6	10-Jul-12	8-Nov-12	121	24	74
C4 B	72C1430	Start Main Cavern Invert F/R/P/S (Start)	24-Jul-12	26-Dec-12	155	5	116
3rd Qtr 2012 Tracking Milestones			1-Jul-12	1-Nov-12			
C2 A	A126	Exc. Upper Level/Install Decking-Ancil. #1	27-Sep-12	27-Nov-12	61	19	112
C3	UP001	Demo Upper Platform (Complete)	19-Aug-12	18-Nov-12	91	21	75
	MZC15	Structural Work Lower Mezz (Complete)	10-Sep-12	16-Nov-12	67	11	109
	MZ5020	Structural Work 2nd Mezz (Complete)	11-Oct-12	16-Nov-12	36	11	109
C4 B	NCC105 5	North X-Over Invert F/R/P/S (Complete)	9-Oct-12	12-Oct-12 A	3	-5	-
C4 C	25d	Bid Opening	27-Nov-12	11-Dec-12	14	14	99
C5 B	S110b	South Cavern Exc. - Dev. & Top Heading (Complete)	12-Sep-12	15-Nov-12	64	7	34
	S150	North Cavern Exc. - Dev. & Top Heading (Complete)	12-Oct-12	13-Nov-12	32	8	91
	E245	Ent #2 South SOE/Decking (Complete)	27-Sep-12	5-Oct-12 A	8	0	-
	E120	Ent #1 Underpinning (Complete)	13-Sep-12	27-Oct-12 A	44	19	-
C5 C	20k	Authorization to Advertise	27-Nov-12	7-Dec-12	10	15	19

Pkg	Act.	Description	Milestone Updates				
			Baseline	M-1	Baseline Δ	Monthly Δ	TF
4th Qtr 2012 Tracking Milestones			1-Oct-12	1-Nov-12			
C2 A	6S235	Pour Invert + Embedded MEP 93-95 (MS#2)	28-Dec-12	28-Nov-12	-30	-30	211
	A126	Exc. Upper Level/Inst. Decking; Anc. #1	8-Nov-12	27-Nov-12	19	19	112
	M2-STA	Milestone 2 - 92nd - 95th Complete	28-Dec-12	28-Nov-12	-30	-30	211
	A129	Inst. Tier 2 Bracing & Exc to Tier 3 - St 6A	27-Dec-12	28-Dec-12	1	1	112
C2 B	403	Complete Tunnel Lead Abatement	16-Nov-12	16-Nov-12	0	0	337
	415	Fireproof Steel	21-Feb-13	1-Mar-13	8	8	392
C3	LP010	Conc. Stairs & Wall - Lowe Platform Area 6	30-Nov-12	26-Dec-12	26	26	337
	UP045	Reframe Steel/Construct Platform	29-Nov-12	17-Dec-12	18	18	335
	MZB25	Structural Work-East Fan Plant	20-Dec-12	3-Jan-13	14	14	234
C4 B	72CN14 30	Main Cavern North Stn. Invert F/R/P/S	4-Dec-12	4-Dec-12	0	0	130
	G3S111 40	G3/S1 Cavern II Wall F/R/P/S	13-Dec-12	2-Nov-12	-41	-41	268
	NCC107 0	North Crossover Wall F/R/P/S	30-Nov-12	14-Dec-12	14	14	199
	G4T102 0	G4 TBM Tunnel Invert F/P/S	4-Dec-12	13-Dec-12	9	9	163
C4 C	25d	Bid Opening(w/contingency)	27-Nov-12	11-Dec-12	14	14	99
C5 B	S150	North Cavern Exc - Dev. & Top Heading	5-Nov-12	13-Nov-12	8	8	91
	XP1S11 0	South Cross Passage-Conc. Lining	13-Dec-12	20-Dec-12	7	7	252
C5 C	20j	Final Sign Off - DM	16-Nov-12	3-Dec-12	17	17	19
	20m	Advertise (for bids)	4-Dec-12	18-Dec-12	14	14	19
C6P	150	Traction Power SS & CBH Design	23-Nov-12	28-Nov-12	5	5	26
C6T	160	Track & SWP Design	4-Jan-13	4-Mar-13	59	59	151

Table 4 - Project Budget/Cost 

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of November 30, 2012	
	\$ Millions	% of Total	Obligated (\$ Millions)	TBD	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost:	4,866.614	100	4,572.942		5,267.614	100	2,025.973	38.46
Financing Cost	816.614	16.78			816.614	15.50		
Total Project Cost:	4,050.000	83.22	4,572.942		4,451.00	84.50	2,025.97	38.46
Total Federal:	1,350.693	27.75	1,063.942		1,350.693	24.60	636.661	12.08
Total FTA share:	1,300.000	96.25	990.049		1,300.000	23.68	562.768	10.68
5309 New Starts share	1,300.000	100	990.049		1,300.000	23.68	562.768	10.68
Total FHWA share:	50.693	3.75	73.893		50.693	0.96	73.893	1.40
CMAQ	48.233	95.15	71.433		48.233	0.88	71.433	1.35
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	0.05
Total Local share:	2,699.307	55.47	3,509.000**		**3,509.000	63.92	1,89.312	26.37
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

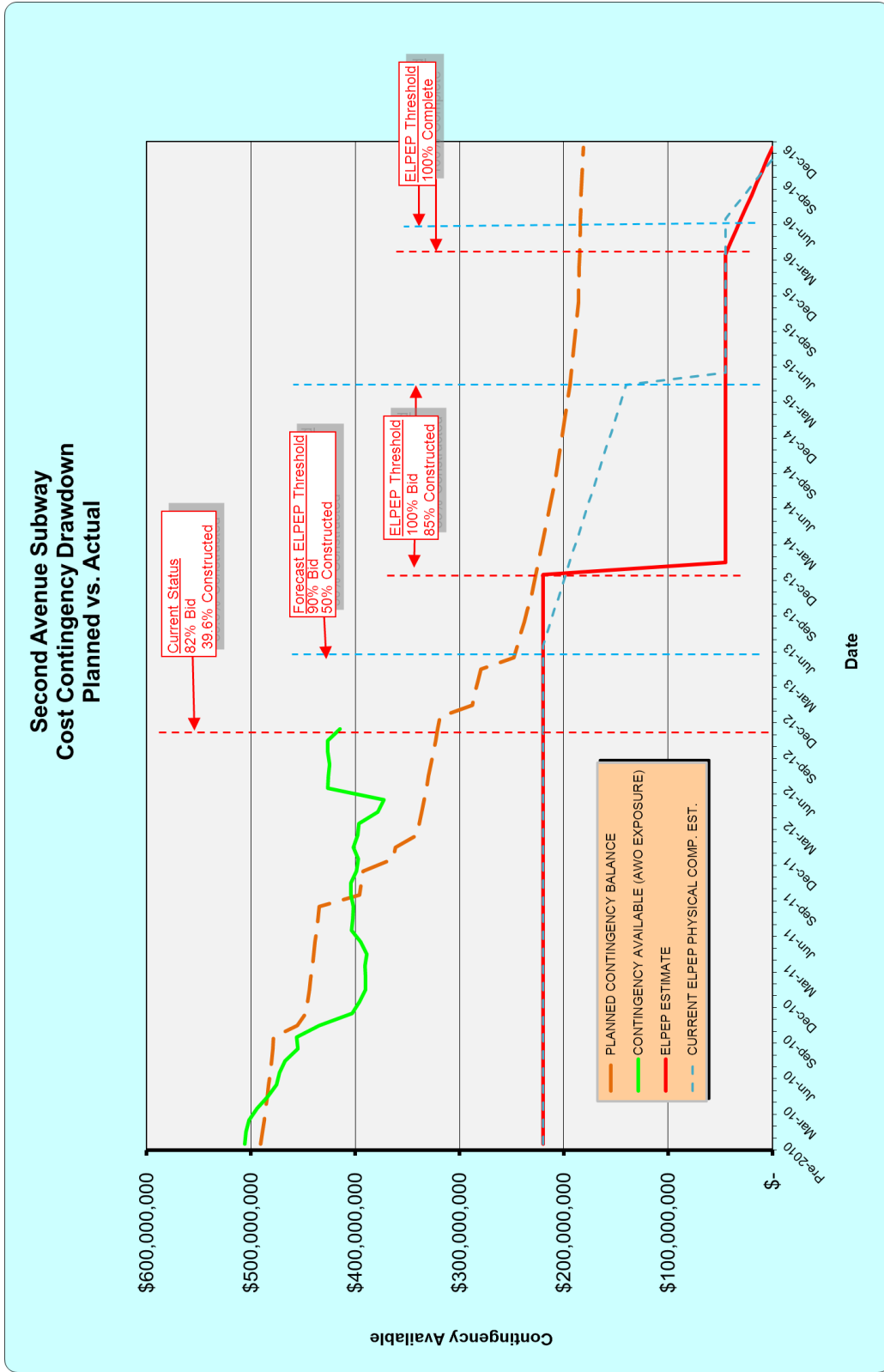


Table 6 - Estimate at Completion

Category	Current Working Budget x	PMOC EAC Forecast
Total Construction	\$2,728,172,492	\$2,975,954,233
Engineering Services Subtotal	\$576,541,264	\$591,500,000
Third Party Expenses	\$534,800,000	\$534,800,000
TA Expenses	\$125,160,085	\$128,160,085
Contingency	\$321,104,648	
Executive Reserve	\$160,000,000	
Subtotal	\$4,451,000,000	\$4,230,414,318

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	\$388M	\$220M
	Total Contingency (Allocated plus Unallocated)	\$555.554M	\$414M (November 2012)	\$220M
Schedule	Revenue Service Date	June 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	45.5%		
	Based on Earned Value	N/A		
Major Issue				
Organization and Staffing		Status		Comments
		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		

* MTACC's Current Working Budget

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

Schedule data based upon IPS Update #76; Data Date = 11/01/2012

Financial date based upon MTACC reporting through 11/30/2012