

PMOC MONTHLY REPORT

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

March 1 to March 31, 2012



PMOC Contract No. DTFT60-09-D-00007

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

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: 2 years

TABLE OF CONTENTS

	Page No.
SECOND AVENUE SUBWAY (SAS)	
THIRD PARTY DISCLAIMER.....	1
REPORT FORMAT AND FOCUS.....	1
MONITORING REPORT	1
EXECUTIVE SUMMARY	1
ELPEP SUMMARY	8
1.0 GRANTEE’S CAPABILITIES AND APPROACH	9
1.1 TECHNICAL CAPACITY AND CAPABILITY	9
1.2 PROJECT CONTROLS.....	12
1.3 FTA COMPLIANCE DOCUMENTS	17
2.0 PROJECT SCOPE.....	18
2.1 STATUS & QUALITY: DESIGN/PROCUREMENT/CONSTRUCTION	18
2.2 THIRD-PARTY AGREEMENT	24
2.3 CONTRACT PACKAGES AND DELIVERY METHODS	24
2.4 VEHICLES.....	25
2.5 PROPERTY ACQUISITION AND REAL ESTATE.....	26
2.6 COMMUNITY RELATIONS	26
3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS.....	27
3.1 PROJECT MANAGEMENT PLAN.....	27
3.2 PMP SUB PLAN.....	27
3.3 PROJECT PROCEDURES	28
4.0 PROJECT SCHEDULE STATUS	29
4.1 INTEGRATED PROJECT SCHEDULE.....	29
4.2 90-DAY LOOK-AHEAD.....	33
4.3 CRITICAL PATH ACTIVITIES	34
4.4 COMPLIANCE WITH SCHEDULE MANAGEMENT PLAN.....	36
5.0 PROJECT COST STATUS	37
5.1 BUDGET/COST	37
5.2 PROJECT FUNDING	42
5.3 COST VARIANCE ANALYSIS	44

5.4	PROJECT CONTINGENCY	45
6.0	PROJECT RISK	46
6.1	INITIAL RISK ASSESSMENT	46
6.2	RISK UPDATES	46
6.3	RISK MANAGEMENT STATUS	47
6.4	RISK MITIGATION ACTIONS	48
6.5	COST AND SCHEDULE CONTINGENCY	50
7.0	LIST OF ISSUES AND RECOMMENDATIONS	51
8.0	GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS	57

TABLES

TABLE 1: SUMMARY OF CRITICAL DATES	6
TABLE 2: PROJECT BUDGET/COST TABLE	6
TABLE 1-1: STANDARD COST CATEGORIES.....	14
TABLE 1-2: APPROPRIATED AND OBLIGATED FUNDS	14
TABLE 2-2 CONSTRUCTION PROCUREMENT METHOD AND STATUS.....	25
TABLE 4-1: SUMMARY OF SCHEDULE DATES	29
TABLE 4-2: SUMMARY SCHEDULE PERFORMANCE BY CONSTRUCTION PACKAGE.....	30
TABLE 4-3: QUARTERLY SCHEDULE TARGET COMPARISON	31
TABLE 4-4: 90-DAY LOOK-AHEAD SCHEDULE.....	33
TABLE 5-1: ALLOCATION OF CURRENT WORKING BUDGET TO STANDARD COST CATEGORIES.....	38
TABLE 5-2: AWO SUMMARY	41
TABLE 5-3: APPROPRIATED AND OBLIGATED FUNDS (FEDERAL).....	43
TABLE 5-4: ESTIMATE @ COMPLETION.....	44
TABLE 6-1: SCHEDULE CONTINGENCY.....	50

APPENDICES

APPENDIX A – LIST OF ACRONYMS

APPENDIX B – PROJECT OVERVIEW AND MAP

APPENDIX C – LESSONS LEARNED

APPENDIX D – PMOC STATUS REPORT

APPENDIX E – SAFETY AND SECURITY CHECKLIST

APPENDIX F – ON-SITE PICTURES

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

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

REPORT FORMAT AND FOCUS

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

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

MONITORING REPORT

The contents of this report are cumulative in nature, and may reference or build upon topics discussed in previous reports. All comments received pertaining to previous reports have been incorporated in this report.

EXECUTIVE SUMMARY

1. PROJECT DESCRIPTION

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

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

2. CHANGES DURING 1st QUARTER 2012

a. Engineering/Design Progress

The Design Consultant has supported the procurement process for the 96th Street Station Concrete, MEP/Finishes, Utilities, and Restoration (C2B) and prepared thirteen (13) addendum packages in response to specific bidder questions or concerns. In addition the Design Consultant continues to review technical submittals prepared by construction contractors for conformance to the project design standards and provide clarifications or interpretation to specific questions, Requests for Information (RFIs) arising from the contract documents.

b. New Contract Procurements

- *The Track, Power, Signals and Communication Systems Contract (C6) was awarded on January 18, 2012. The final contract price is \$261,900,000.*
- *The 96th Street Station Structural, Architectural and MEP Contract (C2B) has been advertised for bids. Receipt of bids is currently scheduled for April 17, 2012.*

c. Construction Progress

All construction is approximately 27.8 % complete as of March 31, 2012. Summary progress for each contract is as follows:

- *The Tunnel Boring Contractor (Contract C1) completed surface preparation, waterproofing and lining of the tunnels with substantial completion reached on March 30, 2012. Punch-list work, demobilization, and contract close-out is in progress.*
- *Contract close-out is on-go for the 86th Street Station Excavation and Utility Relocation Contract C5A.*
- *The 86th Street Station Civil/Structural Work Contractor (Contract C5B) completed the fabrication of the muck conveyance and shaft hoisting system components. Foundations for muck/hoisting system structural steel framework was completed at each shaft site. Steel erection for the north muck house started on February 27, 2012 with an anticipated completion date for the end of April 2012. The south muck house started on March 1, 2012 with an anticipated completion date for mid-May 2012.*
- *The 96th Street Station Heavy Civil/Structural Contractor (Contract C2A) completed installation of the guide wall from 95th to 99th Streets on the east side of 2nd Ave. in support of slurry wall construction.*
- *The 72nd Street Station Heavy Civil/Structural Contractor (Contract C4B) has excavated 131,791 Bank Cubic Yards (BCY) of the total 184,657 BCY (adjusted from 170,507) for the project.*
- *The 63rd Street/Lexington Avenue Station Reconstruction Contractor (Contract C3) continued: steel installation on the lower and upper levels of the platform; crack repair*

(cavern grouting) on tracks G3/G4; and lead/asbestos removal from various location of the project.

d. Continuing and Unresolved Issues

- *Resolution of change order associated with the deletion of tunnel lining between 72nd and 86th Streets (Contract C1).*
- *Implementation of “secondary schedule mitigation” pertaining to milestone relaxation and the start of blasting/excavation on Contract C5B.*

e. New Cost and Schedule Issues

- *“Cost-to-Cure” construction at C4B, Entrance #1.*
- *Access issues at C3, Entrance #1 is prohibiting necessary field measurements required for escalator procurement.*
- *Development of the C6 baseline schedule and its incorporation into the IPS.*

3 PROJECT STATUS SUMMARY AND PMOC ASSESSMENT

a. Grantee Technical Capacity and Capability

During the 1st Quarter 2012, MTACC enhanced its technical capacity and capability to support the SAS Phase I Project. Within the Construction Support group, a Project Manager and Construction Manager were assigned to oversee the activities of the Track, Power, Signals and Communications Systems contractor (Contract C-26009 (C6)). An additional manager was added to oversee the activities of the Quality, Safety and Environmental functions. Within the Program Control group, a Milestone Manager was added to develop and implement a process to effectively monitor critical contractor “Turn-Over” milestones.

The SAS Project Management Team continues to be an effective integrated project organization. Personnel from MTACC, NYCT, the Consultant Construction Management and Design Consultant are utilized in the functional groups of: (1) Design Services Management; (2) Construction; (3) Construction Support; (4) Budget, Administration and Accounts; and (5) Program Controls.

b. Real Estate Acquisition

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

c. Engineering/Design

The final design phase of the project was completed in late November 2010. During the 1st Quarter 2012, engineering support continued with the updating of the drawings/specifications for the 72nd Street Station Concrete, MEP/Finishes, Utilities, and Restoration Contract C-26011 (C4C). No further efforts will be performed on this contract unit it is ready for award. The award date is scheduled for January 2013.

d. Procurement

Procurement activity during the 1st Quarter 2012 included the award of the Track, Power, Signals and Communication Systems Contract C-26009 (C6) and ongoing support for the bid phase of the 96th Street Station Structural, Architectural and MEP (C2B) package. Seven (C1, C2A, C3, C4B, C5A, C5B, C6) of the 10 construction packages for SAS Phase 1 Project have been awarded to date.

e. Railroad Force Account (Support and Construction)

As of March 31, 2011, force account expenditure is \$2,281,973. The majority of the expenditures continue to be associated with 63rd Street/Lexington Avenue Station Restoration (Contract C3).

While MTACC is heavily involved in construction activities, it does not have its own employees to support these activities. It relies on NYCT in-house labor for this purpose. The SAS Construction Support Services Force Account Plan details the services that will be provided by NYCT, including general orders, flagging, work trains, access and protection, inspections, and crowd control.

f. Vehicles

No additional vehicles will be procured for the SAS Phase 1 Project. MTACC/NYCT's assertion that recent services reductions will provide ample spare vehicles for the SAS Phase 1 Project has been reflected in the Rail Fleet Management Plan which was accepted by FTA Region II. A "zero" dollar budget for the procurement of vehicles is reflected in the projects Current Working Budget (CWB) and also in the latest cost estimate (Rev. 9).

g. Systems Testing and Start-Up

Systems testing and start-up is allocated to the Track, Power, Signals and Communications Systems Contract C-26009 (C6). The C6 contract was awarded at a value of \$261,900,000. *The scope of the contract calls for the hiring of a Systems Integration Manager (SIM) supported by Systems Engineering Specialists (SES) to coordinate the efforts of the Systems Contractor and the Stations MEP Contractors in the preparation of their Systems Commissioning and Integration Testing (SCIT) Plans. The SCIT Plan provides the roadmap for the way forward for systems integration to ensure that the systems elements are integrated and tested in a structured, managed, comprehensive manner that enables MTACC/NYCT to confirm that the SAS system installation is "built-up" on a segment-by-segment basis and is compliant with the SAS plans and specifications. The plans will be developed based on the MTA Capital Construction Guidelines for a Systems Commissioning and Integrated Test Plan.*

The tests that are to be conducted can be separated into three categories:

- ***Proof of Construction Tests:*** *These tests include contractual specified material and equipment tests, factory/plant acceptance tests, post-installation checkout tests, inspections, and various site acceptance tests which provide verification of standalone functional performance and contract compliance. Successful execution of these tests is a pre-requisite for initiating the systems integration testing.*
 - *Tests are to be conducted by the Stations Contractors for the MEP and other systems installed under their contracts.*

- *Tests of the communication infrastructure, systems and equipment included in the Systems Contract to verify the robustness of the network and the interface between the network and the MEP equipment.*
- *The Systems contractor will support the MEP Contractors with the LAN network for end-to-end tests.*
- ***Integrated System Tests:*** *These tests demonstrate and document that the individual systems perform as an integrated whole and function as a rail system in accordance with the design. These tests demonstrate the operational characteristics of the various subsystems in the shared, system environment. These tests will generally be conducted by the Systems Contractor with the support of and coordination with the Stations Contractors. During this period, additional proof of construction tests may be scheduled and completed by the Stations Contractors.*

The MEP Contractors will support the Systems Contractors with their hardware and software for debugging any software and traffic interference between subsystems.

Following successful completion of the System Integrations Tests, the maintenance contracts and the extended warranties, as included in the Stations contract, will hold the Stations contractors responsible for their equipment until the Project is turned over to NYCT for Pre-Revenue Operations.

- ***Pre-Revenue Testing:*** *These tests are overlaid with service operations which allow the integration of the validated system with approved operating procedures. These tests and operations can also be utilized to provide familiarization and training for operating and maintenance personnel, as well as the emergency responders who must be prepared to provide support when needed during revenue operations. These tests will be conducted by the Systems Contractor and will provide the NYCT Operations and Maintenance departments with the opportunity to simulate and respond to normal, abnormal and emergency operating scenarios (conditions) without the constraints imposed by “live” revenue/passenger service.*

Although not specifically part of the SCIT Plan program, the Systems Safety Certification process relies on obtaining and utilizing a significant body of testing data from the SCIT Plan to verify and validate the certifiable elements. All MTACC and NYCT areas that are responsible for the System Safety Certification process will be active agency members of the Contractor-Agency SCIT Plan team to ensure that the detailed requirements of the System Safety Certification process are included in the SCIT Plan and associated test and documentation procedures.

h. Project Schedule

Table 1: Summary of Critical Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	October 25, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

i. Project Budget/Cost

Table 2: Project Budget/Cost Table 

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of March 31, 2011	
	\$ Millions	% of Total	Obligated (\$ Millions)	TBD	\$ Millions	% of Total	\$ Millions	% of Total
Grand Total Cost:	4,866.614	100	4,137.911		5,489.614	100	1,673.285	30.48
Financing Cost	816.614	16.78			816.614	14.88		
Total Project Cost:	4,050.000	83.22	4,137.911		4,673.000	85.12	1,673.285	30.48
Total Federal:	1,350.693	27.75	*866.760		1,350.693	24.60	540.988	9.85
Total FTA share:	1,300.000	96.25	838.667		1,300.000	23.68	529.876	9.65
5309 New Starts share	1,300.000	100	838.667		1,300.000	23.68	529.876	9.65
Total FHWA share:	50.693	3.75	28.093		50.693	0.92	11.112	0.20
CMAQ	48.233	95.15	25.633		48.233	0.88	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	63.92	1,132.297	20.63
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.

j. Project Risk

The overall risk of project schedule and cost increases has been reduced during the 1st Quarter 2012 as a result of:

- *Substantial Completion of Contract C1 on March 30, 2012.*

- *Award of Contract C6 on January 18, 2012.*
- *Resolution of local funding issues on March 26, 2012.*

No significant events or issues have been observed that substantially increase the risk of cost or schedule increases. Coordination of work between multiple prime contracts and management of interfaces with third parties and the affected local community will be major risks that could have adverse cost and schedule impacts for the foreseeable future.

MONTHLY UPDATE

The information contained in the body of this report is limited, in accordance with Oversight Procedure 25, to “inform the FTA of the most critical project occurrences, issues, and next steps, as well as professional opinions and recommendations.” Where a section is included with no text, there are no new “critical project occurrences [or] issues” to report this month.

ELPEP SUMMARY

Status:

No ELPEP meetings were held during the 1st Quarter of 2012. The current status of each of the main ELPEP components as discussed and updated during the 1st Quarter of 2012 is summarized as follows:

- **Technical Capacity and Capability (TCC):** The TCC for SAS Phase 1 was submitted on 3/11/10 and approved by the FTA on 4/6/10. The PMOC completed its review of the Revision 8 SAS PMP and is monitoring and verifying implementation and compliance with this plan.
- **Schedule Management Plan (SMP):** On November 3, 2011, the FTA confirmed that MTACC has responded to the Candidate Revisions identified in FTA's conditional approval letter, dated October 26, 2010, and that the SMP is fully approved. *The PMOC continues to verify SAS substantial compliance with the SMP since August 2010. There were no additional updates during this period.*
- **Cost Management Plan (CMP):** FTA conditional approval of the Cost Management Plan, including five (5) Candidate Revisions was received on September 1, 2011. MTACC has submitted its final revisions to the CMP, which incorporate its responses to those Candidate Revisions. *The PMOC has noted specific MTA expenditures and planned expenditures which are not included in any cost baseline nor are they documented by any support or basis documentation. As such, it is the opinion of the PMOC that MTA is not in compliance with the Cost Management Plan.*
- **Risk Mitigation Capacity Plan (RMCP):** *Drafts of the ESA and SAS Project Risk Management Plans were transmitted to FTA Region II during October 2011. MTA addressed all PMOC comments in its submittal of the RMCP on October 28, 2011. Resolution of any final comments to the RMCP will be coordinated and combined with a review of the ESA and SAS Project Risk Management Plans. Final FTA/PMOC comments have been addressed and this plan will be approved in the immediate future.*
- **Conformance and Compliance:** *MTA's final conformance and compliance documentation is being prepared for submittal.*

Observation:

MTACC has begun implementation of schedule, cost and risk management plans. The SAS Phase 1 PMP has been updated to support these management documents and processes. The PMOC has noted numerous instances where benefits conferred by these enhanced management tools have been realized. *Specific observations with respect to compliance of one or more of these plans are discussed in the appropriate section of this report.*

Concerns and Recommendations:

Development of formal implementation verification and reporting process for each of these ELPEP elements should be given priority. The verification process will ensure that all benefits associated with the ELPEP are realized to the greatest extent possible.

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

During the 1st Quarter 2012, MTACC enhanced its technical capacity and capability in support of the SAS Phase 1 Project. Within the Construction Support group, a Project Manager and Construction Manager were assigned to the Track, Power, Signals and Communications Systems Contract C-26009 (C6). An additional manager was added to oversee the activities of the Quality Assurance, Safety and Environmental functions. Within the Program Control group, additional personnel were assigned to assist in the management of inter-contract milestones and interfaces.

The SAS Project Management Team continues to be an integrated project organization utilizing personnel from MTACC, NYCT, *Consultant Construction Management (CCM)* and *Design Consultant (DC)*. There are five primary functional groups: Design Services Management; Construction; Construction Support; Budget, Administration and Accounts; and Program Control. The project has set up a Management Control System such that it can continuously manage, monitor, and report the scope, budget, schedule, and contingency levels of the project in order to ensure that the project progresses in accordance with the Enterprise Level Project Execution Plan (ELPEP).

Observation:

The Program Executive and Deputy Program Executive have implemented an organizational structure that is effective in managing the SAS Phase 1 Project. Adjustments in the structure are made as needed. The project team acts as an integrated organization with virtually no distinction between the employee's actual employers.

Concerns and Recommendations:

During the last reporting period, the PMOC expressed a concern that a Construction Manager for Contract C6 had not been identified and recommended that the position be mobilized as soon as possible. SAS Executive Management has addressed the PMOC's concern. A Project Manager and Construction Manager were assigned to support the award of the Track, Power, Signals and Communications Systems Contract C-26009 (C6). They have held various "Kick-Off" meetings with the C6 Contractor.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

PMOC review of the updated SAS Project Management Plan (Revision 8) has been completed. The PMOC has continued to evaluate the specific issues that resulted in a Candidate Revision, whether the proposed PMP revision has been implemented and whether the original issue was ultimately satisfied.

Observation:

The PMOC will review its findings with the FTA and subsequently present findings and recommendations to the MTA.

Concerns and Recommendations:

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

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

Status:

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

Observation:

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

Concerns and Recommendations:

See Section 1.1.2 a.

c) Grantee's Approach to Force Account Plan

Status:

During the 1st Quarter 2012, Force Account expenditures increased to \$2,281,973 is primarily associated with renovation of the 63rd Street/Lexington Avenue Station (Contract C3).

Observation:

The Force Account requirements are documented in the SAS Force Account Plan. The plan gives a description and a cost estimate of the NYCT services required for the design of the track and signal elements of the system and to support construction activities for each individual contract. The Force Account budget has been revised and updated as part of the review of Revision 9 of the SAS Cost Estimate.

Concerns and Recommendations:

None

d) Grantee's Approach to Safety and Security Plan

Status:

MTACC's approach to Safety and Security is defined in Section 4 – Safety, Security and Health Programs of the SAS PMP.

Observation:

Section 4 of the PMP includes the required project Health and Safety Plan (HASP) that describes the responsibility and protocols to maintain a safe environment throughout the construction of the SAS Project. The requirements for the contractor's security program are delineated. The section also outlines the Project Safety and Security Management Plan (SSMP) as required by 49 CFR Part 659, which includes the Safety and Security Certification Plan (SSPC) and the Systems Safety and Reliability Assurance Program Plan (SSRA).

Concerns and Recommendations:

None

e) Grantee's Approach to Asset Management

Status:

Asset Management – Identification and control of project assets will be coordinated between the Track, Power, Signals and Communications Systems Contractor (C6), Station Contractors (C2B, C4C and C5C) and NYCT's Department of Subways.

Observation:

SAS Asset Management Plan must be integrated with NYCT's Property Management System.

Concerns and Recommendations:

None

f) Grantee's Approach to Community Relations

Status:

The MTA's approach to community relations is set forth in detail in Section 12 of its Project Management Plan for SAS Phase 1. This plan is focused on the pre-construction activities generally involving dissemination of project-related information to the affected community and public hearings to support the NEPA process. Construction phase activities are described in Section 12.3.3 of the PMP as "appropriate outreach activities."

Observation:

During the 1st Quarter of 2012, MTA continued its community information and outreach efforts. In the PMOC's opinion, these efforts are well-intentioned and generally effective; however, they appear to be spontaneous and reactionary to the immediate situation.

Section 12.5 of the PMP states: "The Vice President GCR is responsible for identifying all material decisions related to Community Relations' activities and informing the Project Risk Manager of these decisions. The Project Risk Manager and Deputy Program Executive will determine which of these decisions require a risk based decision process".

To date, the PMOC has not observed any "risk based decision process" employed in the evaluation of "material decisions" involving community relations activities and initiatives.

Conclusions and Recommendations:

MTA's community outreach efforts have had a positive impact on relations with the affected community. Many of the specific issues and resulting actions may have been beyond contemplation prior to the start of construction. Based upon the "lessons learned" to date, the PMOC recommends the MTA develop a more comprehensive plan for construction phase community relations going forward, including a planned scope of activities and corresponding budget. The PMOC also recommends that "material decisions" pertaining to community relations issues be included in the ongoing risk management process.

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

a) Federal Requirements

b) Uniform Property Acquisition and Relocation Act of 1970

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

c) Local Funding Agreements

On March 26, 2012, it was announced that the New York State Legislature has agreed to fully fund the Metropolitan Transportation Authority's five-year capital budget, allowing several major projects, including the Second Avenue subway to proceed as planned.

The agreement provides an additional \$13.1 billion for the final three years of the MTA's 2010-2014 Capital Program. The state had originally funded only \$9.1 billion for the first two years of the program. Key elements of the agreement include:

- *The MTA's borrowing limit will increase from \$34 billion to \$41 billion.*
- *\$770 million in direct state funding.*
- *A \$2.2 billion loan request to the Federal Rail Road Rehabilitation & Improvement program.*
- *Additional unspecified federal funding assistance.*

1.2 Project Controls

1.2.1 Scope Definition and Control

Status:

During the 1st Quarter 2012, there has been no change in the scope of the SAS Project. The scope of the SAS Project is defined by the FEIS, ROD and the FFGA. The project scope will be delivered via ten (10) construction packages, with support from NYCT for rail systems engineering, installation and overall operating systems inspection and testing.

Observation:

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

Concerns and Recommendations:

Technical processes involving the modification or transfer of scope between construction packages are well-established and have been proven effective. Management processes involving the cost and schedule impacts of scope changes and transfers are less developed. *No additional concerns or recommendations were realized during the 1st Quarter 2012.*

1.2.2 Quality

Status:

The Second Avenue Subway Quality Management team held monthly Quality Meetings and Quarterly Quality Oversight of the Contractor with CCM, MTACC and PMOC participation. They participated in the job progress meetings, monitored quality matters in the field for each construction contract, reviewed and provided comments for Quality Work Plans, and participated in Preparatory Phase Sessions for numerous construction processes.

Observation:

The QA/QC processes are well-defined and are being implemented per the various quality plans and procedures. With the reassignment of Quality Personnel and the hiring of an additional Quality Project Manager, the PMOC feels that the MTACC is adequately staffed to provide quality oversight on the current contracts.

Concerns and Recommendations:

None

1.2.3 Project Schedule

Status:

A summary of project schedule information is as follows:

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	October 25, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

Observation:

The Revenue Service Date (RSD), as forecast by Update #68 of the MTACC's Integrated Project Schedule (IPS), has remained December 30, 2016. For the 1st Quarter 2012, the calculated completion of Phase 1 construction and testing is October 12, 2016, with 80 calendar days (CD) of schedule contingency when measured against the MTACC's target RSD of December 31, 2016.

MTACC uses December 31, 2016 as its target RSD and bases its schedule and schedule contingency reporting on this target. FTA/ELPEP used February 28, 2018 as its target RSD with the condition that a minimum 240 CD of contingency be maintained against this target through September 30, 2016. To date, the MTACC criteria has been the more stringent and has been the basis of routine schedule and schedule contingency reporting.

Concerns and Recommendations:

The SAS Project Team continues to demonstrate its capability and capacity to actively manage the project schedule and achieve the established schedule goals. No concerns were identified this period.

1.2.4 Project Budget and Cost

Status:

Total project cost in the approved FFGA is \$4,866,614,000 and is allocated into the Standard Cost Categories (SCC) as shown below in Table 1-1.

Table 1-1: Standard Cost Categories

Standard Cost Category (SCC) #	Description	Year of Expenditure \$000
10	Guideway & Track Elements	612,404
20	Stations, Stops, Terminals, Intermodal	1,092,836
30	Support Facilities: Yards, Shops, Admin Bldgs.	0
40	Site Work & Special Conditions	276,229
50	Systems	322,707
60	ROW, Land, Existing Improvements	240,960
70	Vehicles	152,999
80	Professional Services	796,311
90	Unallocated Contingency	555,554
Subtotal		4,050,000
Financing Cost		816,614
Total Project		4,866,614

Table 1-2 lists the associated grants in the Transportation Electronic Award Management (TEAM) System with respective appropriated and obligated amounts as of *March 31, 2011*.

Table 1-2: Appropriated and Obligated Funds

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru <i>March 31, 2011</i>
NY-03-0397	\$4,980,026	\$4,980,026	\$4,980,026
NY-03-0408	\$1,967,165	\$1,967,165	\$1,967,165
NY-03-0408-01	\$1,968,358	\$1,968,358	\$1,968,358
NY-03-0408-02	\$24,502,500	\$24,502,500	\$24,502,500
NY-03-0408-03	0	0	0
NY-03-0408-04	0	0	0
NY-03-0408-05	\$167,810,300	\$167,810,300	\$167,810,300
NY-03-0408-06	\$274,920,030	\$274,920,030	\$186,996,397

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru March 31, 2011
NY-03-0408-07	\$237,849,000	\$237,849,000	0
NY-03-0408-08	Pending	Pending	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$866,760,200.00	\$866,760,200.00	\$540,987,567.00



* Denotes American Recovery and Reinvestment Act (ARRA) funds.

A total of \$1,673,285,377 has been expended on the project through March 31, 2012, of which \$445,000,000 has been spent on design and \$771,146,813 on construction (MTACC's March 2012 Cost and Schedule Summary Input).

Observation:

Local funds totaling \$1,132,297,810 (\$1,673,285,377 – \$540,987,567) have been spent as of March 31, 2012. MTA's approved 2000-2004 and 2005-2009 Capital Programs provided \$2,964 million for SAS Phase 1 (\$1,050 million and \$1,914 million respectively). The proposed 2010-2014 Capital Program budgets \$1,487 million to complete the SAS Phase 1 project. Of the \$1,487 million, \$545 million was approved for the 2010-2011 timeframe. Recent actions by the New York State Legislature in March 2012 will provide the remaining \$942 million needed to carry the project forward (See Section 1.1.3.c for further details).

Concerns and Recommendations:

Availability of local funding had been identified as a major concern. However with the New York State Legislature agreeing to fund the remaining three years of MTA's 2011 – 2014 Capital Program, this issue is no longer a concern.

1.2.5 Project Risk Monitoring and Mitigation

Status:

The Project has been focusing on those risks that DHA indicated in its December 2009 Risk Analysis Report as the risks that contribute the most to the contingency requirements. This was considered a rational approach. In July-August 2011, a program- wide risk analysis was performed. A report was issued on August 2, 2011 with the results of this analysis. The most significant risks from this analysis were those discussed at subsequent risk mitigation meetings and are a matter of record in the first two Monthly Risk Reports as well as the Risk Mitigation Meeting Nos. 5-13. During the 1st Quarter 2012, Risk Mitigation Meetings number 12 and 13 were held on January 31, 2012 and February 29, 2012, respectively. The following risks were discussed at the meetings with action items and responsibilities assigned:

- **Risk CNS 4 (C6):** *Problems related to managing the contractual interfaces during construction may result in delays and related claims.*
- **Risk 89 (C5B):** *Differing site conditions during cavern mining lead to lost productivity and contractor delay resulting in change requests.*

- **Risk TRP 4 (C6):** *Systems Integration Testing Problems.*
- **Risk CNS 8 (C6):** *Delayed safety certification.*
- **Risk 147 (C4B):** *Vibration from mining operation.*
- **Risk C5B (Procurement Delay-Risk ID TBD)**
- **Risk-Shop drawings (Risk ID TBD):** *The review process for shop drawings is too time-consuming.*
- **Risk C4B Ancillary 1:** *There is a risk that completion of the repair of damage caused by others to a nearby fragile building will exceed schedule and thereby delay excavation of the egress/service adit.*
- **Risk (TBD):** *Several C4B risks involving gaining access to entrances and ancillaries due to various third-party issues.*
- **Risk C4B Ancillary 2:** *There is a risk that completion of the unplanned remediation to the adjacent fragile building at 245 E 72nd Street will exceed schedule and thereby delay work on Ancillary 2.*
- **Risk C4B Entrance 1 (301 E 69th Street):** *There is a risk that work on Entrance 1 will be delayed due to delays in obtaining design approval from Owner for utility relocation in the building at 301 E 69th Street.*
- **Risk C4B Entrance 1 (1322 2nd Avenue):** *There is a risk that work on Entrance 1 will be delayed due to delays in obtaining design approval from the owner at 1322 Second Avenue so as to advance the underpinning and utility relocation.*

Observation:

Risk monitoring and mitigation is ongoing and being performed per the SAS Risk Management Program, which is documented in Section 6.0 of the PMP and the Risk Management Plan. SAS Project Management is supportive and attends the risk mitigation meetings. Risks are routinely re-evaluated and updated with mitigation strategies developed and vetted through senior project managers (See Section 6.0 Risk Update for further details). Updated risk register data is used to support the Estimate at Completion (EAC) forecasting process.

Concerns and Recommendations:

The PMOC considers EAC forecasting an important element in the overall achievement of project cost. The project accepted a process for EAC forecasting in December 2011. The SAS Project Team is currently refining this process. The PMOC recommends the continuation of this effort. [Ref. SAS-23-Mar12]

1.2.6 Project Safety and Security

Safety – The Lost Time Accident Rate and OSHA Recordable Accident Rate from the start of construction until February 29, 2012 are 2.09 and 4.90, 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 3,348,675 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.

Observation:

The majority of the Recordable and Lost Time incidents are associated with two contractors. The Tunnel Boring Contractor (C1) Contract 26002 has the highest number of lost time and recordable injuries on the project, 16 and 32, respectively. Contract C1 has logged the highest number of construction hours (1,923,212) on the project. The 72nd Street Station Cavern Mining Contractor (C4B) C26007 has logged 578,289 construction hours on the project and has reported 10 Recordable and 4 Lost Time injuries. Contract C1 has been completed. However, the negative impact on the Recordable and Lost Time rates will continue until additional construction hours are accumulated by the other contractors. Contractor C4B has implemented a corrective action plan which includes additional and on-going training to address its high rates.

The monthly Project-wide Safety Meeting and Site Walk Through are ongoing and are beneficial in providing lessons learned across the project.

Concerns and Recommendations:

None

1.3 FTA Compliance Documents

Status:

No change this period.

1.3.1 Readiness to Enter PE

Status:

Preliminary Engineering (PE) began in December 2001.

1.3.2 Readiness to Enter Final Design

Status:

Final Design began in April 2006.

1.3.3 Record of Decision

Status:

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

1.3.4 Readiness to Execute FFGA

Status:

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

1.3.5 Readiness to Bid Construction Work

Status:

Readiness to Bid Reviews have been “on hold” in accordance with direction received from FTA Region II.

1.3.6 Readiness for Revenue Operations

Status:

No change this period.

Observation:

None

Concerns:

None

2.0 PROJECT SCOPE

2.1 Status & Quality: Design/Procurement/Construction

2.1.1 Engineering and Design

Status:

The design phase of SAS Phase 1 was completed in late November 2010.

Observation:

The primary role of the design team currently includes:

- *Construction Administration, generally including shop drawing review, responding to RFIs, providing design clarifications where needed and technical support during construction package bidding.*
- *Geotechnical mapping and support. Due to the nature of the work, geotechnical engineers from the design team are on site to provide an evaluation of actual subsurface conditions encountered and any consequential design modifications.*
- *Updating of station finish packages (C4C, C5C) with “as-built” information from predecessor packages and updates or modifications involving utilities, MPT, etc.*
- *Detailing and documentation of design changes as may be required.*

Concerns and Recommendations:

Maintaining the timely flow of technical submittals is a primary engineering functions at this time. This task is entering a particularly challenging phase due to the increasing volume of submittals, the parallel review by NYCT of rail and station systems submittals and the coordination of review comments for these submittals prior to their return. The PMOC is concerned that adequate and experienced staff resources will be consistently available to respond to varying workloads.

2.1.2 Procurement

Status:

Updated procurement status includes:

- **C-26010 (C2B): 96th Street Station Concrete, MEP & Finishes – Construction** documents were made available to prospective bidders for this contract on December 5,

2011. The mandatory pre-bid meeting and site tour were held on December 20, 2011. Bids are currently scheduled to be received on April 17, 2012.

- **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.

Observations and Analysis:

- **Contract C-26009 (C6):** On January 18, 2012, this contract was awarded to Comstock/SKANSKA, JV. The final, negotiated contract price is \$261,900,000.
- **Contract C-26010 (C2B):** Receipt of bids is currently scheduled for April 17, 2012.

New York State’s recent decision to fund the MTA’s 2010 – 2014 Capital Program provides a high degree of assurance that all future construction procurements will be awarded in accordance with the current schedule.

Concerns and Recommendations:

The SAS Project Team is exploring the possibility of advancing the scheduled procurement of the remaining station finish packages (C4C, C5C) in an effort to offset the apparently inevitable procurement delays associated with contracts of this size and complexity. The PMOC strongly supports this initiative. The project IPS has a very limited capacity to absorb additional delays of the magnitude (1 to 3 months) associated with procurement.

2.1.3 Construction

Status:

Seven (7) of the 10 construction contracts for the SAS Phase 1 Project have been awarded. Construction progress on the active contracts through March 31, 2012 includes:

Contract C-26002 (C1) – TBM tunnels from 92nd Street to 63rd Street

- The Tunnel Boring Contractor (Contract C1) completed surface preparation, waterproofing and lining of the tunnels with substantial completion reached on March 30, 2012.
- Punch-list work and demobilization expected to be completed by April 13, 2010.
- Contract close-out is on-going.

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

- **Slurry Wall Construction (East Side)**
 - Guide wall installation: completed from 95th to 99th Streets on the east side of 2nd Avenue
- **Entrance 1 Utility Conflict, Slurry Wall and Secant Pile Work**
 - Gas: Excavation and pipe installation completed.
 - Sewer: Excavation completed.

- *Slurry Wall: Excavation began on 3/23/12; Panel P105 installed (1 out of 7); Rebar cage fabrication for panels P103 and P106 is in process.*
- ***Entrance 2 Utility Conflict and Slurry Wall Construction***
 - *Gas: Excavation and installation of the pipe completed.*
 - *Slurry Wall: Excavation began on 3/19/12; Panel P204 installed (1 out of 7); Excavation for Panel P203 is in process.*
- ***Ancillary 1 Utility Conflict and Secant Pile Work***
 - *Con Ed: Pulling of the cables is now projected to start on 4/9/12; feeder (#43) outage is now planned for mid-June 2012; subsequently removal of the old and installation of the new transformer has slipped to mid-June also.*
 - *Guidewall: Installation approximately 95% complete; south wall will be completed after the old transformer is removed.*
 - *Secant Piles: 66 out of the 121 piles have been poured as of 3/27/12.*

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

- *The focus continues to be in the plaza at 63rd St. and 3rd Ave., which is the primary access to Area 5 on the project and the overall structural steel work in Area 5. The MPT continues to be maintained successfully at the plaza area.*
- *Continued with Special Inspections at the steel fabrication plant (Ohio).*
- *Continued with Special Inspections at the site, particularly structural steel.*
- *Surveying of the DMPs is ongoing. DMP installation at Ancillary #1 is complete.*
- *Completed the Gantry #2 load test.*
- *Completed removal of tree at Entrance #1.*
- *Continuing with scraping and priming walls in the East Fan Plant.*
- *Completed the concrete placement in the West Fan Plant shaft.*
- *Continued with concrete demolition in multiple Area 5 mezzanines.*
- *Continued with temporary and permanent structural steel fabrication & installation.*
- *Continued with crack repair at tracks G3/G4.*
- *Completed installation of temporary and permanent link stair steel.*
- *Continued with survey test pits and preliminary work at Entrance #1.*
- *Began new platform concrete placement.*

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

- ***Current Rock Excavation Locations:***
 - *Main Station Cavern between 69th and 72nd St. – Center drift and west slash completed; east slash and bench in progress.*

- *South Crossover at 69th Street –Excavation of east Slash completed, west slash and bench in progress.*
- *North Crossover at 72nd Street –Completed*
- *G4/S2 Cavern –Completed*
- *G3/S1 Cavern –Completed*
- *Horseshoe Tunnel –Completed*
- *Stub Cavern at 63rd Street –Top completed, bottom in progress.*
- *Ancillary 1 and 2, and Entrance 1 and 2 excavations are in progress.*
- ***Total rock excavated approximately 135,000 BCY of the overall total 184,657 BCY (adjusted from 170,507)***
 - *Mapping, shotcrete, and rock bolt installation is on-going.*
 - *Installation of mud slabs and drainage pipe throughout project is on-going.*
- ***Ancillary 2 (72nd St. – SW corner) Support of Excavation was completed; installation of decking on-going; drilling for production holes in preparation for blasting has started.***
- ***Ancillary 1 (69th St. – SW corner) Support of Excavation on-going; tiebacks completed; toe anchors to commence.***
- ***Entrance 3 (72nd St. – SE Corner) Building demolition has been placed on hold until chimney and wall tie work at 1390 1/2 2nd Ave. has been completed.***
- ***Building Remediation –ongoing (239 E 73rd St., 1343 2nd Ave, 259 E 71st St, 1390 1/2 2nd Ave, 1405 2nd Ave, 1409 2nd Ave, 307 E 70th St., 242 E 73rd St 220 E 65th St., 300 E 68th (support of pool) currently in final design.***

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

- This contract was declared Substantially Complete on November 16, 2011.

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

- *Continued erection of steel framing for the north muck station. This is scheduled to be completed April 13, 2012.*
- *Continued erecting steel for the south muck station.*
- *Continued with the utility trench along 2nd Ave.*
- *Completed ConEd duct bank at Ancillary #2.*
- *Completed demolition of the Gothic Building (Ancillary #1)*
- *Completed erection of the “Hoghouse” trailer complex (trailers for the Sandhogs) between 87th and 88th Streets.*
- *Completed utilities along 86th St.*
- *Began rock excavation at Ancillary #1.*
- *Test blasting remains scheduled for April 2012 in the south open cut area.*

Contract C-26009 (C6): Systems – Track, Power, Signals and Communications

- *Notice of Award (NOA) issued January 18, 2012*
- *90 Day Preliminary Schedule received; comments generated with re-submittal required.*
- *Awaiting submission of Detailed Baseline Schedule (NOA + 45 Days)*
- *Submission of Signal Block Design (MS#1; NOA + 7 Months)*
- *Early work includes:*
 - *MTACC Approval of Key Personnel*
 - *Kick-off meeting held for Quality, Safety, and Schedule*
 - *Preparation of Key Submittals including Quality Work Program, Accident Prevention Program, and Hazardous Communication Program*

Observations:

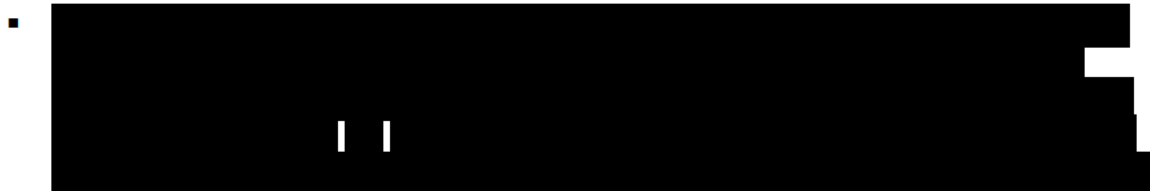
Key elements of work or issues requiring resolution in the near future to avoid delays to the work are described below:

For Contract C2A:

- *Utility and structural issues resolved; need to negotiate AWO to support start of work in May 2012.*
- *Impact of concurrent slurry wall installation on east side of 2 Ave. with Entrances #1 & #2 and impact to MS#2.*

For Contract C3:

- *Maintaining the steel fabrication schedule for timely steel erection is critical to maintaining the overall project schedule. The project has experienced delays in the shop drawings process related to the structural steel in Area 5. Both the designer and the contractor have and are taking steps to mitigate this problem. The designer has hired an additional 6 engineers to help speed up the submittals review and approvals process. For the contractor, they are adding a second shift of ironworkers to speed up erection once the steel deliveries pick up.*
- *Entrance #1 continues to be a problem for the project. The building owner is only allowing limited access to the building. Although access has recently been granted to the first floor area, access to the basement area is restricted limiting the test pits that can be excavated there. The inability to perform test pits is limiting the ability to take field measurements for the new escalator shop drawings which has that activity temporarily on hold. This issue being addressed by the Project Team and the MTA Legal and Real Estate Departments.*



For Contract C4B:

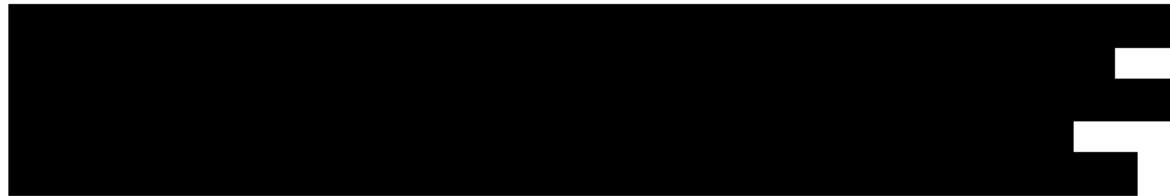
- *Negotiation and execution of AWO #5 for MEP utility relocation work at 301 E. 69th St continues.*
- *Negotiation and execution of AWO #11 for MEP utility relocation work at 1322 2nd Avenue continues.*

For Contract C5B:

- *The beginning of blasting in the north shaft continues to be projected for April 2012 and the south shaft in May 2012. This is earlier than the June 2012 contract date but later than the January date discussed in the pre-bid meeting. The PMOC will continue to monitor how the start of blasting affects the project milestones.*

Concerns and Recommendations:

The SAS Project Team continues to identify, prioritize and address construction problems which have the potential to delay the project.

**2.1.4 Force Account (FA) Contracts****Status:**

As of March 31, 2011 force account expenditure is \$2,281,973. The majority of the expenditure continues to be associated with 63rd Street/Lexington Avenue Station Restoration (Contract C3).

Observation:

Force account expenditures have increased as additional general orders, work trains, and flagging support have been required to support the 63rd Street Station Upgrade. This will remain the principal source of force account expenditures for the foreseeable future.

Concerns and Recommendation:

None

2.1.5 Operational Readiness**Status:**

NYCT has developed a Concept of Operations Plan for the SAS Project. NYCT will validate SAS Phase 1 readiness during Pre-Revenue Service Operations Training and Testing scheduled from June 15, 2016 to October 25, 2016.

Observation:

The IPS will be updated to reflect any adjustments or changes in pre revenue service activities.

Concerns and Recommendation:

None

2.2 Third-Party Agreement

Status:

During the 1st Quarter 2012, the SAS Project Team continued its Interagency Coordination as defined in Section 12 of the SAS PMP. Section 12 describes the plans and agreements that need to be made with city and state agencies and utility providers in order to expedite the construction process.

Observation:

MTACC/NYCT has entered into cooperative and force account agreements as needed with other agencies and utility providers to perform construction work for the Project. *As of March 31, 2012, third-party reimbursements totaling \$33,538,719 have been made, a sufficient increase from the previous reporting period.* Revision 9 of the Current Working Budget has allocated \$75,300,000 for third party reimbursements.

Concerns and Recommendation:

The PMOC had expressed concerned about the apparent delay in the utility companies submitting its invoices. The PMOC recommended that the SAS Project Team investigate and report on all outstanding invoices. This recommendation is being addressed during the SAS Cost and Schedule meeting held each month.

2.3 Contract Packages and Delivery Methods

Status:

Phase 1 of the Second Avenue Subway is being delivered via ten separate construction packages. Each construction contract package utilizes the design-bid-build process based upon a fixed price construction contract. Competitive procurements are based on NYCT standard procedures.

Procurement of general construction packages has been primarily based on the IFB (lump-sum bid) process. Due to the technical complexity of the Systems Package (C6), the RFP process was judged to be the best procurement alternative. There was no change to the procurement or delivery method for any of the construction packages during the 1st Quarter of 2012.

Table 2-1 below shows specific procurement procedures for each open construction contract package and its current status.

Table 2-2 Construction Procurement Method and Status

Pkg.	Contract	Description	Procurement	
			Type	Status
C2B	C-26010	96th Street Station: construction of the entrances and ancillary facilities, architectural finishes and MEP equipment.	IFB	<i>Bid Phase</i>
C4C	C-26011	72nd Street Station: construction of ancillary finishes, station finishes and MEP equipment.	IFB	Design Completed
C5C	C-26012	86th Street Station: construction of the ancillary facilities, station finishes and MEP equipment.	IFB	Design Completed
C6	C-26009	Power, Signals and Communications; includes the installation of track, 3 rd Rail traction power, way-side signals, and all communication components, integration of the communication network with the NEP SCADA system and commissioning the system for revenue service.	RFP	<i>Awarded this period</i>

Observation:

NYCT procurement procedures and guidelines do not reflect activity durations that are necessary for the procurement of large packages such as those included in SAS. Significant schedule delays have been encountered during the procurement of the last four (4) construction packages (C4B, C3, and C5B and C6). Currently, the procurement of Contract C2B has experienced approximately 2 months during the bidding process. Procurement delays have made a significant contribution to the overall shift of construction activity later in the project. As the project schedule is compressed, the project's ability to absorb procurement delays without major schedule impact is reduced.

Concerns and Recommendations:

The SAS Project Team recognizes the project schedule's reduced capacity to absorb subsequent procurement delay without a significant impact to the RSD. A recommendation to advance the procurement of packages C4C and C5C, thereby increasing the overall period available for procurement, is under consideration. The PMOC recommends initiative be approved and implemented as soon as possible.

2.4 Vehicles**Status:**

No change. No additional vehicles will be procured for the SAS Phase 1 Project.

2.5 Property Acquisition and Real Estate

Status:

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

All real estate acquisitions required for the construction of SAS Phase 1 have been completed.

Observation:

On December 1, 2011, the United States District Court rendered its opinion in Yorkshire Towers Company, LP, et al, versus United States Department of Transportation, et al. In this litigation, the plaintiffs sought to relocate the 86th Street Entrance from its current mid-block position in front of the Yorkshire Towers (Alternate 7) to the southeast corner of Second Avenue and 86th Street (Revised Alternative 5). *The plaintiff has reserved its right to appeal the decision in this matter.*

Cost-to-cure work resulting from real estate transactions is ongoing. In several locations, lack of cooperation and progress involving less than fully cooperative property owners is posing potential schedule delays. The SAS Project Team is fully aware of these issues and is actively working to overcome the problem and develop contingency plans if required.

Conclusions and Recommendations:

Real estate and right of occupancy acquisition has not affected construction progress to date. With the completion of all acquisition activities, the risk of delay involving property acquisition has been significantly reduced.

2.6 Community Relations

Status:

During the 1st Quarter of 2012, MTACC continued its community information and outreach efforts which included:

- *Preparation and posting of “Look Ahead” schedules describing construction work for all active contracts. Information is e-mailed to community, local elected officials and Community Boards 8 and 11 and also posted on MTA’s website.*
- *Providing community stakeholders monthly newsletters (newsletters are developed for each active SAS contract, i.e., 63rd Street, 72nd Street, 86th Street and 96th Street) via print, email and posting on MTA website. The first issue launched in February 2012.*
- *Holding Monthly Construction Advisory Meetings with the stakeholders from each station area. Working meetings comprise representation from affected building owners, associations, Community Board Members, MTACC and NYCT staff to work on construction related issues affecting the community.*
- *Responding to questions via the Field Office Telephone, SAS Hotline (access is now 24/7 utilizing after hour call center) and MTA web mail regarding all aspects of the project, including various issues related to construction impacts.*

Observation:

Community relations efforts have been effective in responding to the concerns of the affected community and preventing the escalation of issues to the extent that the progress of the project could be seriously affected.

The recent initiative involving public tours of the 72nd Street Station cavern excavation appears to have been particularly effective in defusing local concerns regarding the effects of construction on the local environment.

Conclusions and Recommendations:

The community relations effort has proven to be an important element of the management of this project. It is the recommendation of the PMOC that the community relations effort be fully incorporated into the mainstream of project scope, budget and risk management activities to support the goals of cost-effective and transparent decision making and the related goals of the ELPEP.

3.0 PROJECT MANAGEMENT PLAN AND SUB-PLANS

3.1 Project Management Plan

Status:

PMOC recommended FTA Region II conditionally accept Revision 8 of the SAS PMP. Resolution of open items is ongoing.

Observation:

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

Concerns and Recommendations:

The PMOC is concerned that the processes identified in the PMP might not be implemented as defined by the recently developed procedures. The PMOC recommends that selected sections of the PMP be audited to verify implementation. [Ref: SAS-09-Jan10]

3.2 PMP Sub Plans

Status:

As part of the ongoing PMP review, the referenced Sub-Plans are reviewed to verify conformance of ongoing project activities with the appropriate governing document.

Observations:

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

Concerns and Recommendations:

The PMOC has noted significant expenditures devoted to local community relations within the area affected by construction, and indications that MTA is considering major future expenditures

of this nature. The PMOC notes that neither the PMP nor any applicable sub plan identify this work, the manner by which it will be executed or any budgetary or financial controls.

If significant future expenditures for non-construction, community relations-type activities are being planned, the PMOC recommends the update of applicable plans and procedures governing such work be updated as a necessary predecessor to its start.

3.3 Project Procedures

Status:

During this reporting period, MTACC did not issue any additional procedures. MTACC has approved and issued 75 procedures, with four procedures still under development.

Observation:

MTACC failed to meet its original commitment to have all the procedures approved and issued by April 12, 2010. MTACC has not specified a time period for the completion of the four procedures still under development. Of the four procedures under development, the PMOC believes that AD.15, Program Change Control, is critical to the management of the project.

Concerns and Recommendations:

The PMOC is still concerned about the length of time it has taken MTACC to develop and issue the procedures. The PMOC recommends that the MTACC complete development of the remaining (additional) procedures, particularly AD.15, as quickly as possible [Ref: SAS-11-Jan10].

4.0 PROJECT SCHEDULE STATUS

4.1 Integrated Project Schedule

Status:

The IPS is a management level schedule that integrates all ten construction packages along with design, procurement, startup and other support activities. *IPS Update #68 was received on April 2, 2012 and is based on a Data Date of March 1, 2012.* Update #68 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 unchanged for this period; MTACC is forecasting completion of all construction and pre-revenue testing activities on October 12, 2016, with 80 calendar days (57 WD) of contingency as measured against its target Revenue Service Date (RSD) of December 31, 2016.*

During the 1st Quarter of 2012, the approved construction schedule for Contract 5B was been incorporated into the IPS, providing enhanced reliability and accuracy to the forecast RSD and affected intermediate milestones.

Table 4-1: Summary of Schedule Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	March 20, 2007A	March 20, 2007A
Construction Complete	December 31, 2013	October 25, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

During the this 1st Quarter 2012, progress continued on six (6) active construction packages:

- *C-26002 (C1) TBM Tunneling and 96th Street Box,*
- *C-26005 (C2A) 96th Street Site Work and Heavy Civil,*
- *C-20006 (C3) 63rd Street Station Rehabilitation,*
- *C-26007 (C4B) 72nd Street Station Cavern Mining & Lining,*
- *C-26013 (C5A) Open Cuts and Utility Relocation,*
- *C26008 (C5B) 86th Street Station Cavern Mining & Lining.*

No major additions, deletions or significant changes were made to the schedule during the latest update period. Changes were limited to routine updating to reflect the current status of the ongoing activities. The schedule status of individual construction contracts is illustrated in the table below.

Table 4-2: Summary Schedule Performance by Construction Package

Pkg.	Award Date	Contract S/C	Upd. #65 Forecast S/C	Upd. #68 Forecast S/C	% Complete	Contract Schedule Status	Quarterly Change
C1	3/20/07	7/20/10	3/18/12	3/20/12	94.4%	609 CD	2 CD
C2A	5/28/09	1/7/13	5/30/13	7/23/13	60.2%	197 CD	54 CD
C2B	Future	7/20/15	7/20/15	11/25/15	0.0%	128 CD	128 CD
C3	1/13/11	5/13/14	6/2/14	5/13/14	14.2%	0 CD	-20 CD
C4B	10/1/10	10/31/13	12/16/13	11/21/13	39.2%	21 CD	-25 CD
C4C	Future	6/2/15	6/2/15	10/2/15	0.0%	122 CD	122 CD
C5A	7/9/09	1/7/11	11/16/11	11/16/11A	100.0%	313 CD	0 CD
C5B	8/4/11	9/4/14	9/4/14	9/4/14	10.4%	0 CD	0 CD
C5C	Future	4/8/16	4/8/16	7/11/16	0.0%	94 CD	94 CD
C6	1/18/12	8/31/16	8/31/16	8/16/16	0.0%	-15 CD	-15 CD
<p>1. "Future" contracts use MTACC estimated dates based upon preliminary schedules.</p> <p>2. Monthly Change reflects schedule gain/loss over most recent reporting period. Negative sign denotes time gain and positive sign denotes time loss.</p> <p>3. The contracts marked as Future have not been awarded.</p> <p>4. C5A Substantial Completion achieved on 11/16/2011.</p> <p>5. C1 Substantial Completion achieved on March 30, 2012.</p>							

Observations and Analysis:

Based on a review of construction contracts, schedule progress (Table 4-2) during the 1st Quarter of 2012 was acceptable.

- Contracts C1 and C5A have achieved Substantial Completion and all “handoffs” to other contracts have been executed. Any subsequent delays to these packages will involve contract closeout and will not affect the overall project schedule.
- The extended duration of the three finish packages (C2B, C4C, C5C) is the result of a reorganization of testing and commissioning activities, performed by the Systems Contractor (C6). The respective general contractors will be required to support these activities until all systems are commissioned. This change was implemented in Update #66 and affects the contractual completion dates and is reflected in the “Quarter Change” column of Table 4-2. This change does not affect the project RSD.
- Contracts C3 and C4B both recovered time previously lost and remained on or close to their scheduled completion. The potential for steel delays on C3 remains a concern.
- Contract C2A lost time this quarter, primarily through delayed mobilization of a second slurry wall installation operation.

At the request of the FTA, the PMOC has initiated quarterly tracking of major schedule activities and/or “milestones” that are in progress during that quarter as a means of reviewing and evaluating the project’s ability to achieve short-term schedule goals. Due to the one-month lag in reporting schedule update progress, the 1st Quarter 2012 baseline and intermediate results are published in this report and shown in the following table:

Table 4-3: Quarterly Schedule Target Comparison

			Tracking Milestone Dates		
Pkg.	Act.	Description	Baseline	M-2	Δ
3rd Qtr 2011 Tracking Milestones (Carryover)			1-Jul-11	1-Mar-12	
C4B	72C1185	Excavate Top Heading Area 2	30-Jun-12	6-Mar-12	-116
C6	PR40	Award Systems Contract	27-Oct-11	18-Jan-12	A 83
4th Qtr 2011 Tracking Milestones			1-Oct-11	1-Mar-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	20
C2A	A117	Complete ANC #1 Secant Piles	11-Jul-12	27-Jul-12	16
	4S210	Compl Deck Inst'l South - West Side	27-Feb-12	10-Feb-12	A -17
C2B	PR25d	Open Bids	6-Feb-12	5-Apr-12	59
	PR40	Award C2B Contract	30-Apr-12	1-Jun-12	32
C3	LP025	Complete Demo – Lower Platform	31-May-12	17-Aug-12	78
	UP040	Complete Demo – Upper Platform	11-Apr-12	21-Jun-12	71
C4B	72C1225	Excavate Cavern Bench	9-May-12	17-Apr-12	-22
	HST1000	Compl Horseshoe Tun'l 155+94->152+94	20-Mar-12	10-Jan-12	A -70
	NCC1000	North Crossover Excavate	4-May-12	15-Mar-12	-50
1st Qtr 2012 Tracking Milestones			1-Jan-12	1-Mar-12	
C1	S9140	Exc Pump Room #16 East	26-Jan-12	12-Mar-12	46
	999	Substantial Completion	20-Mar-12	20-Mar-12	0
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	-14
	6S235	Start Invert Inst. 93rd -> 95th Streets	8-Feb-12	29-Jun-12	142
	E113	Compl. Guidewalls @ Entrance #1	28-Mar-12	15-Mar-12	-13
	E225	Compl. Guidewalls @ Entrance #2	30-Mar-12	12-Mar-12	-18
C3	005	Complete Sub/App Struct. Steel Shop Dwgs	20-Jul-12	23-Jul-12	3
	A1010	Begin Demo - Ancil #1	2-May-12	2-Jul-12	61

Pkg.	Act.	Description	Tracking Milestone Dates		
			Baseline	M-2	Δ
	EN105	Begin Structural Work - Ent #1	22-May-12	20-Jun-12	29
	MZB05	Compl. Asbestos/Lead Abatement - Fan Plant	27-Mar-12	8-May-12	42
	010	Begin Elevator Fab	7-Mar-12	12-Apr-12	36
C4B	SCC1000	South Crossover Excavate	31-Jul-12	21-Apr-12	-101
	A2C1045	Ancil 2 - Compl SOE/Decking/Excavation	4-Apr-12	29-Mar-12	-6
	G3S11060	G3 TBM F/P/S Tunnel Invert	28-Mar-12	3-Jul-12	97
	C4B ENT1200A	Contractor (Start) Cost to Cure Work	N/A	12-May-12	71
	ETA1000	Ent #2 Adit Excavation Complete	11-Jan-12	8-Mar-12	57
	E3C1010	Ent #3 Bldg Demo Complete	29-Mar-12	23-Apr-12	25
C5B	S110a	Complete Installation of Mucking Sys-South	N/A	25-Apr-12	0
	S110a	Complete Installation of Mucking Sys-North	N/A	16-Apr-12	6
	S150	Begin Blast/Mining Ops (North)*	N/A	17-Apr-12	6
	S110b	Begin Blast/Mining Ops (South)*	N/A	26-Apr-12	0

C5B activities measured against Update #67 (DD=02/01/12; first data from Contractor's schedule that was available)

C4B ENT1200A Milestone revised; measured against M-1; 1st forecast available

Summary	
# Calendar Days Elapsed	60
Average Δ from Baseline - all activities	15.75
Average Δ from Baseline - completed activities	1.67
Average Δ from Baseline - ongoing activities	18.57
1st Qtr. Milestone Summary	
# Activities Forecast this Qtr.	23
# Activities forecast to complete this Qtr.	9
# Activities completed this Qtr.	2
# Activities on/ahead of schedule	8
# Activities behind schedule	13

Carryover Milestone Summary	
<i># Activities Carried Over</i>	13
<i># Activities forecast to complete this Qtr.</i>	4
<i># Activities completed this Qtr.</i>	4
<i># Activities on/ahead of schedule</i>	3
<i># Activities behind schedule</i>	6

Concerns and Recommendations:

Based upon schedule progress through March 01, 2012:

- *Construction progress through the first two months of the 1st Quarter, 2012 has maintained the current schedule; however, delays have been experienced in several areas.*
- *Cost-to-Cure activities are currently impacting C3 and C4B. These delays are not critical at this time, but have the potential to seriously impact these individual contracts. The PMOC will continue to monitor these issues.*
- *Blasting and rock excavation at C5B is scheduled to start in April 2012, approximately 1.5 months earlier than forecast. This improvement has occurred independent of any secondary schedule mitigation efforts and has not resulted in any improvement in contract completion or intermediate milestone dates.*

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#68 (DD=03/01/12), major activities that can be anticipated to either start or complete over the upcoming 90 days include the following:

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

Activity ID	Start	Finish
C1-- TBM Construction – Tunnel 96th Box (91st to 95th)		
<i>C1 Substantial Completion</i>		<i>03/20/12</i>
C2A – 96th Street Station Sitework& Heavy Civil		
<i>Demo Rainbow Hardware</i>	<i>03/06/12</i>	<i>04/02/12</i>
C2B – 96th Street Station Concrete, Finishes & Utilities		
<i>Bid Opening</i>		<i>04/05/12</i>
C3 – 63rd Street Station Rehab		
<i>Elevator Fabrication</i>	<i>04/12/12</i>	
<i>MEP Rough-In; Lower First Mezz. Area 5</i>	<i>05/10/12</i>	
<i>53rd Street Rail Control Center</i>	<i>05/16/12</i>	
<i>Complete steel shop drawing review/approval</i>		<i>07/23/12</i>
C4B – 72nd Street Station Mining & Lining		

Activity ID	Start	Finish
<i>Cost-to-Cure; Entrance #1; Owner Approval for Utility Relocation</i>		03/30/12
<i>F/R/P/S Horseshoe Tunnel Invert</i>		05/31/12
<i>63rd Street Stub Cavern Waterproofing</i>	04/17/12	04/30/12
<i>Ent #3; Complete SOE and Overburden Exc.</i>	04/23/12	05/30/12
C5B – 86th St. Station Mining & Lining (IFB)		
<i>South Shaft – F/D/I/T Muck House & System</i>		04/25/12
<i>Chase Bank – Cost to Cure Work (by Owner)</i>		06/01/12
<i>Ent #1 – 83rd Street East Underpinning</i>	05/25/12	

Observations and Analysis:

90-Day Look-Ahead Notes:

- 1. C6 activities are not included. Development, review and approval of the C6 Baseline Schedule are in progress.*
- 2. The bid date for C2B was revised to April 17, 2012 after the preparation of Update #68.*
- 3. C1 Substantial Completion was achieved on March 30, 2012.*
- 4. “Dustoff” activities for Contract C4C are expected to start in April 2012. These activities have not been incorporated into the IPS however, based on prior experience; their duration is within that which is required for normal procurement activities.*

Concerns and Recommendations:

The receipt of bids and start of the award process for package C2B are the most important activities scheduled for the upcoming 90-day period. Significant progress on cost-to-cure activities on C4B (Entrance 1) must be made over the next ninety days or this activity will become “near-critical” to the entire project.

4.3 Critical Path Activities

Status:

Project Critical Path: *As previously noted, the C5B approved construction schedule has been fully incorporated into the IPS. The project critical path is initiated by the construction of the South Shaft Muck Handling System. South Cavern Excavation subsequently controls the critical path until June 2013. South Cavern waterproofing and concrete work are critical until the Main Cavern is handed off to C5C via MS#1 in March 2014. Critical activities for this package include the start and completion of mezzanine and platform concrete work, structural concrete work in Ancillary #1 in early September 2014, followed by 1st and 2nd fix work in 86th Street Station south Ancillary (No. 1), where it is handed over to C6 in April 2015. The critical path continues into C6 Systems Signal and Traction Power work for the next six (6) months within the 86th Street Station, followed by Integrated Testing of the Traction Power system beginning in mid-December 2015. Upon completion, this area is handed over for Pre-Revenue Operations Testing beginning in late June 2016 and is forecast to complete by 25-Oct-16. The MTACC’s forecast RSD remains as 30-Dec-16.*

Secondary Paths: Construction involving the 86th Street Station (C5B -> C5C -> C6) occupies all secondary float paths between +1 and +63 Calendar Days (CD) (except as noted below). Additional independent, near-critical paths involving the 86th Street Station construction include:

- + 8 WD: Excavation and concrete work at the North Shaft and Cavern. This work extends through C5B Substantial Completion, at which time the path moves to C5C and finally C6.
- + 16 WD: Utility relocation, support of excavation, excavation and structural concrete work at Entrance #2, followed by handoff to C5C for architectural, escalator, elevator and MEP installation.
- + 30 WD: Demolition, underpinning, excavation and structural concrete at Entrance #1, followed by handoff to C5C for architectural, escalator, elevator and MEP installation.

Major secondary float paths of significance to the overall status of the project are presented in Work Day (WD) order, and include the following:

- +63 WD: This path extends through the construction of the 96th Street Station (C2A -> C2B -> C6) starting with slurry wall installation from 95th Street to 97th Street. Following excavation and cleanup, this path passes to C2B for structural, architectural and MEP installation.
- +68 WD: C4B -> C4C handoff (8/14/13) followed by mezzanine and platform concrete construction.
- +82 WD: Contract C6 preconstruction submittals. The schedule generally indicates that engineering submittals will be the predominant activity for this package in 2012, followed by equipment fabrication and assembly in 2013, with installation activities commencing by the 2nd Qtr. 2014.
- +109WD: C4B -> C4C handoff (August 30, 2013) followed by Ancillary 2 structural and architectural construction. The C4C contractor has thirteen (13) months to construct Ancillary 2 (including MEP) and makes spaces available to the C6 contractor for systems installation.
- +95 WD: C2A -> C2B -> C6 through Entrance #1.
- +97 WD: Procure and award construction contract C2B.
- +111 WD: Cost-to-cure at 301 East 69th Street and 1322 2nd Ave. This work controls the demolition, underpinning and excavation performed by C4B at Entrance #1. This work is scheduled for completion and turnover to C4C on November 22, 2013.
- +146 WD: Cost-to-cure construction at Chase Bank: Completion of this construction and delivery of this site for Ancillary #2 construction is forecast by June 1, 2012.

Observations and Analysis:

86th Street Station

- Multiple critical and near-critical paths through the 86th Street Station construction have been identified as a result of the incorporation of the Contractor's construction schedule.

Any schedule acceleration initiatives in this area will be complicated by the multiple near-critical paths.

- *The current schedule incorporates start of blasting operations on or about April 4, 2012. This represents a 43 WD improvement over the contractual milestone (NOA + 10 MOS, or June 4, 2012); however, this relaxation has not resulted in the betterment of any contractual milestones or project level critical path performance.*

96th Street Station

- *The first independent secondary path continues to run through the 96th Street Station. The float value for this path has been relatively constant for the past 4 update periods.*

72nd Street Station

- *The C4B baseline schedule forecasts the completion of main cavern excavation on September 29, 2012. The current forecast for completion of main cavern excavation is April 17, 2012. Excavation work has generally progressed at a better-than-forecast rate.*
- *Construction problems at Entrance #1 have the potential to significantly delay work in this area, however as of this update, substantial float remains and there is no immediate concern over a delay to the package or the project.*

Concerns and Recommendations:

The multiple, independent critical paths through the 86th Street Station Cavern Excavation (C5B) Contract increases the difficulty and/or cost of developing meaningful secondary schedule mitigation via this package. Schedule mitigation involving C5C, C6 and their interfaces with C5B may provide better opportunities for schedule compression.

Similarly, the importance of avoiding or minimizing delays involving these packages is increased. The SAS Project Team is attempting to accelerate the procurement process for C4C and C5C in an effort to avoid the high risk of procurement delay to these packages. The PMOC strongly recommends implementation of this initiative.

4.4 Compliance with Schedule Management Plan

Status:

Since August 2010, the PMOC has monitored and evaluated the SAS Project Team's compliance with its Schedule Management Plan, developed as part of the overall ELPEP process. The PMOC will continue this effort until the MTACC undertakes the role of ELPEP compliance reporting and verification.

Observations and Analysis:

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: 503 CD*
- *Minimum Allowable Float; Real Estate Acquisition*
 - *ELPEP Requirement: 60 CD*
 - *Current Forecast: All Real Estate Takings are complete as of November 1, 2011.*
- *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: The estimate of secondary schedule mitigation achieved as a result of renegotiating C5B contract milestones has been reduced to 30 CD (±). Other strategies to achieve this goal are under active consideration by the project team.*

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

Concerns and Recommendations:

With respect to schedule, the MTACC is realizing the beneficial outcomes envisioned by the ELPEP on SAS. MTACC is generally in compliance with its Schedule Management Plan and the schedule requirements established by the ELPEP.

5.0 PROJECT COST STATUS

5.1 Budget/Cost

Status:

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

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

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

* Includes \$47M Cost-to-Cure

** FTA Region II has accepted MTACC/NYCT's assertion that recent services reductions will provide ample spare vehicles for the SAS Phase 1 Project.

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

Observation and Analysis:

Based upon financial expenditures reported by the MTACC during March 2012, SAS Phase 1 is approximately 37.6 % complete. The completion status of the active construction contracts through March 2012, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 94.4%
- C26005 (96th Street Station) – 60.2%
- C26013 (86th Street Station) – 99.2%
- C26008 (86th Street Station) – 10.36%
- C26006 (63rd Street Station) – 14.2%
- C26007 (72nd Street Station) – 39.2%

Aggregate Construction % Completion:

- 68.9% of all construction work is under contract

- 49.5% of active construction contracts are complete
- 29.8% of all construction is complete

Based upon cost data received from MTACC for December 2011:

- Value of construction in place this period = \$51,325,949
- Estimated value of construction remaining = \$1,899,274,261
- Target construction completion = August 1, 2016
- # Months remaining = 53

Average rate of construction required to achieve target completion date = \$35,835,363/MO

Notes to this evaluation include:

- The average monthly progress (payments) for the past 6 months equals \$34,090,187.
- Contract C5A has been 100% physically complete since mid-November 2011, yet is still only 99.25% complete based upon payments, demonstrating an apparent lag or variance in this type of analysis.
- Contract C1 was declared substantially complete on March 30, 2012, yet is only 94.4% complete based upon payments.
- These variances support the conclusion that this type of analysis is approximate and primarily useful for identifying long-term trends in overall project performance.

As introduced in the December 2011 PMOC Monthly Report, the PMOC has constructed cash flow models based on “early” and “late” schedule dates. These models form the upper and lower boundaries of estimated progress per month that will achieve current schedule goals. For March 2012, this range is defined by:

- Upper Limit (Early Dates): \$42,207,000
- Lower Limit (Late Dates): \$38,558,000

Using cost data for March 2012, the PMOC concludes that insufficient overall progress was made on the project during this period to support current schedule goals.

Conclusions and Recommendations:

Variances noted in actual progress vs. payment status suggest a lag of several months. This analysis suggests that overall construction progress is trending along the lower limit or late finish limit that is derived from the IPS, but suggests that current project schedule goals can still be achieved. This conclusion is consistent with the schedule based analysis.

The relatively small range between the upper and lower limits (< \$4M) emphasizes the compression of the schedule and relative criticality of the entire schedule. This conclusion is also consistent with schedule based analysis.

The PMOC recommends continuing efforts to identify schedule improvement opportunities for both critical and near-critical paths are implemented where feasible as a means of enhancing the chances for achieving project schedule goals.

5.1.1 Project Cost Management and Control

Status:

SAS estimates the percent of work complete based on cumulative payments divided by contract (or budget) value as may be appropriate.

As of March 31, 2012, MTACC reports total project expenditures of \$1,673,285,377. When compared against the CWB of \$4,451,000,000, this results in an estimated total project completion of 37.6%.

Observation:

When compared against values reported as of February 29, 2012, total expenditures for the month of March 2012 equal \$69,200,871. Based on these values, approximately 1.55% of SAS Phase I was completed during this period. This evaluation does not take into account “payment lag” or other time offsets.

The SAS Project Team accumulates and reports actual cost expenditures against MTA-established cost categories. The aggregate budget value of the cost categories equals the CWB of \$4.451B.

Concerns and Recommendations:

The SAS Project Team has demonstrated effective and comprehensive cost tracking, reporting and analysis capability. Recent reporting has been enhanced to provide a forecast EAC for all construction on a monthly basis. As of the writing of this report, EAC reporting has not been extended to soft cost categories.

5.1.2 Project Expenditures and Commitments:

Status:

As of March 31, 2012, a summary comparison of the SAS Current Working Budget (Estimate Revision #9) and expenditures is as follows:

Description	CWB	Expended	%
Total Construction	\$2,775,988,299	\$833,219,742	29.8%
Total Soft Cost	\$1,675,011,701	\$840,065,436	67.9%
Subtotal	\$4,451,000,000	\$1,673,285,178	37.4%

Observations:

The PMOC notes that expenditures are generally representative of the level of completion of each project element. It is noted that “soft costs” as defined on this project, include significant front-end costs (property acquisition, OCIP, etc.) which skew the value expended to date.

Concerns and Recommendations:

None at this time

5.1.3 Change Orders

Status:

As of March 31, 2012, the status of Additional Work Orders (AWOs) on Phase 1 of the Second Avenue Subway Project is summarized as follows:

Table 5-2: AWO Summary

Contract	% Complete	Award	Exposure		Executed	
			\$	% of Award	\$	% of Award
C26002 (1)	94.4%	\$337,025,000	\$47,185,074	14.00%	\$45,259,514	13.43%
C26005 (2A)	60.2%	\$325,000,000	\$18,665,438	5.74%	\$14,167,242	4.36%
C26006 (3)	14.2%	\$176,450,000	\$162,000	.09%	\$122,000	0.07%
C26007 (4B)	39.2%	\$447,180,260	\$7,698,167	1.72%	\$520,075	0.12%
C26013 (5A)	100.0%	\$34,070,039	\$6,728,892	19.75%	\$3,859,496	11.33%
C26008 (5B)	10.36%	\$301,860,000	\$963,361	.32%	\$126,767	0.04%
TOTAL	49.49%	\$1,621,585,000	\$81,402,932	5.02%	\$64,055,094	3.95%

Observation and Analysis:

The value of AWOs reported by MTA/NYCT in March 2012 is summarized as follows:

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
<i>March-2012</i>	\$64,055,094	\$81,042,932
<i>Feb-2012</i>	<u>\$62,315,047</u>	<u>\$80,661,169</u>
<i>Monthly Change</i>	\$1,740,047	\$741,763

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

- 1. Contract C2A: Cumulative adjustments and additions to forecast exposure totaling \$1,037,549.*
- 2. Contract C4B: Cumulative adjustments and reductions to forecast exposure totaling <\$179,000>*
- 3. Contract C5A: Cumulative adjustments and reductions to forecast exposure totaling <\$143,930>*

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

- 1. Contract C1: Execution of AWO # 70 for a total cost of \$1,200,000.*
- 2. Contract C2A: Execution of AWO # 82 and 96 for a total cost of \$476,047.*

To date, MTA has obligated or expended approximately \$700,000 in non-construction, community-relations activities. These expenditures include “Good Neighbor Initiatives” and public tours of the underground construction sites. Contract Modification Logs for several contracts include additional, similar activities currently under MTA consideration, including:

Proposed Contract Mods – Contract CM1338			
Mod	Description	NTP	Retro (?)
<i>Contract CM1338</i>			
10	<i>Increase PB's ODC Budget by \$200,000 as Part of MTACC's Good Neighbor Initiative</i>	<i>Pending</i>	<i>N</i>
11	<i>Allow PB to Hire Pedestrian Managers for 96th, 86th & 72nd St Construction Areas</i>	<i>Pending</i>	<i>Y</i>
12	<i>Expand Community Outreach Work</i>	<i>Pending</i>	<i>Y</i>
<i>Contract CM 1188</i>			
74	<i>To support the Add James Carpenter JCDA Concept Design for Bldg. Facade</i>	<i>Pending</i>	<i>?</i>
80	<i>Provide Entrance Façade Changes</i>	<i>Pending</i>	<i>?</i>

Concerns and Recommendations:

The MTA’s financial management of the SAS, Phase 1 has not considered the expenditure of significant project funds towards community relations. Project management documents do not address this function. The MTA Current Working Budget (CWB) does not contain a line item where budget and actual cost for such items can be logically tracked. Of greater concern is the uncontrolled spending of project funds which could possibly be required to complete the project at a later date.

The PMOC recommends that community relations activities be considered in a formal and disciplined manner consistent with all other elements of the project. Specifically:

- Define the scope of work required.
- Develop detailed cost estimates for the work.
- Formally modify the CWB to include the new work element.
- Track actual expenditures to verify conformance with the budget and to facilitate corrective actions as may be required.

5.2 Project Funding

Status:

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

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

Grant Number	Amount (\$)	Obligated (\$)	Disbursement (\$) thru March 31, 2012
NY-03-0397	\$4,980,026	\$4,980,026	\$4,980,026
NY-03-0408	\$1,967,165	\$1,967,165	\$1,967,165
NY-03-0408-01	\$1,968,358	\$1,968,358	\$1,968,358
NY-03-0408-02	\$24,502,500	\$24,502,500	\$24,502,500
NY-03-0408-03	0	0	0
NY-03-0408-04	0	0	0
NY-03-0408-05	\$167,810,300	\$167,810,300	\$167,810,300
NY-03-0408-06	\$274,920,030	\$274,920,030	\$186,996,397
NY-03-0408-07	\$237,849,000	\$237,849,000	0
NY-03-0408-08	Pending	Pending	0
NY-17-X001-00	\$2,459,821	\$2,459,821	\$2,459,821
NY-36-001-00*	\$78,870,000	\$78,870,000	\$78,870,000
NY-95-X009-00	\$25,633,000	\$25,633,000	\$25,633,000
NY-95-X015-00	\$45,800,000	\$45,800,000	\$45,800,000
Total	\$866,760,200.00	\$866,760,200.00	\$540,987,567.00



* Denotes American Recovery and Reinvestment Act (ARRA) funds

Local funds totaling \$1,132,297,810 (\$1,673,285,377 – \$540,987,567) have been spent as of March 31, 2012. MTA’s approved 2000-2004 and 2005-2009 Capital Programs provided \$2,964 million for SAS Phase 1 (\$1,050 million and \$1,914 million respectively). The proposed 2010-2014 Capital Program budgets \$1,487 million to complete the SAS Phase 1 project. Of the \$1,487 million, \$545 million was approved for the 2010-2011 timeframe. Recent actions by the New York State Legislature in March 2012 will provide the remaining \$942 million needed to carry the project forward (See Section 1.1.3.c for further details).

Observation and Analysis:

Availability of local funding had been identified as a major concern. However with the New York State Legislature agreeing to fund the remaining three years of MTA’s 2010 – 2014 Capital Program this issue is no longer a concern.

Concerns and Recommendations:

None

5.2.1 Overall Project Funding

Refer to Section 5.2 of this Report.

5.2.2 Local Funding

Refer to Section 5.2 of this Report.

5.3 Cost Variance Analysis

Status:

Using the MTACC financial reporting format contained in its Capital Construction Reports, the PMOC will maintain an independent Estimate-At-Completion (EAC) report for Phase 1 of the Second Avenue Subway Project until such time as the MTACC assumes this reporting function in accordance with its recently submitted Cost Management Plan.

This EAC is based on the following:

- *The results of MTACC's cost estimate (Revision 9) for SAS Phase 1.*
- *Cost information provided by the SAS project team through established periodic reporting.*

Observation and Analysis:

During the 1st Quarter 2012, MTA reported the following changes that affected the project EAC.

- *In-house concrete testing expenses have been reclassified as a project expense. A new line item entitled "Engineering Expense" has been added to the budget report. A budget value of \$660,085 has been transferred from contingency and represents the estimated cost of the remaining work.*
- *The C6 contract award value of \$261,900,000 was lower than the escalated cost estimate + AFI by \$7,612,153.*

A summary of the EAC estimated by the PMOC, based on values supplied by MTA is as follows:

Table 5-4: Estimate @ Completion

	CWB	EAC
<i>Awarded Const. Contracts</i>	<i>\$1,883,485,000</i>	<i>\$2,065,213,698</i>
<i>Const. Contracts to be bid</i>	<i>\$849,909,003</i>	<i>\$937,074,150</i>
<i>Total Construction</i>	<i>\$2,733,394,003</i>	<i>\$3,002,287,848</i>
<i>Engineering Services</i>	<i>\$576,541,264</i>	<i>\$591,338,287</i>
<i>Third Party Expenses</i>	<i>\$534,800,000</i>	<i>\$534,800,000</i>
<i>TA Expenses</i>	<i>\$125,160,085</i>	<i>\$128,160,085</i>
<i>Contingency</i>	<i>\$321,104,648</i>	
<i>Exec Reserve</i>	<i>\$160,000,000</i>	
TOTAL	\$4,451,000,000	\$4,256,586,220

Conclusions and Recommendations:

Based on the information available, the PMOC's 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. This effort will be revisited periodically, to incorporate updated information and evaluate its effect on the overall EAC.

5.4 Project Contingency

Status:

The ELPEP requires the MTACC to maintain specific contingency funds in accordance with the following "achievement driven" schedule:

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

The independent analysis of contingency drawdown maintained by the PMO is generally consistent with that maintained by the SAS Project team and confirms it to be in compliance with the required minimum contingency balance of \$220,000,000.

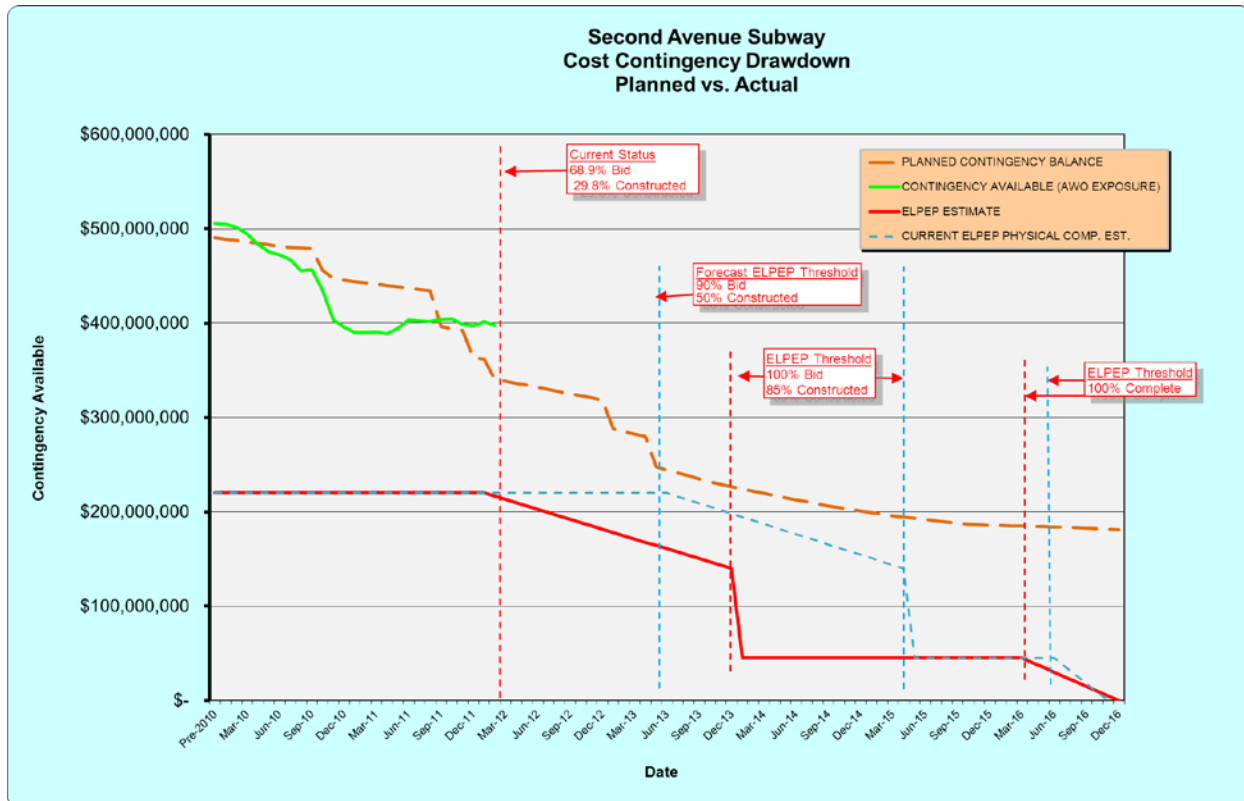
Observations and Analysis:

Using the monthly AWO Tracking Logs, the PMOC has estimated the contingency balance based on AWO Exposure. The current contingency balance exceeds both the planned balance and the ELPEP Threshold.

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

<i>Required Balance (ELPEP):</i>	<i>\$ 220,000,000</i>
<i>Planned Contingency Balance:</i>	<i>\$ 338,527,768</i>
<i>Actual Contingency Balance (PMOC):</i>	<i>\$ 396,731,399</i>
<i>Actual Contingency Balance (February 2012):</i>	<i>\$ 397,335,000</i>

In graphic form:



Concerns and Recommendations:

This evaluation is driven by a thorough evaluation of construction contingency. Soft cost contingency is evaluated periodically and the analysis adjusted accordingly.

6.0 PROJECT RISK

6.1 Initial Risk Assessment

No change this period.

6.2 Risk Updates

Status:

Using the 2009 SAS Relook Cost Risk Summary as a baseline, the PMOC has tabulated risks realized to date and summarized the results to match the baseline for the purpose of evaluating the adequacy of current contingency reserves.

Observation and Analysis:

A summary of estimated risk and risks realized to date is shown in the following table:

	Design/Prof. Services	Differing Site Conditions	Geotech	Real Estate	Schedule	Stakeholder	Vehicles/ Procurement	TOTAL
Baseline Risk Est.	\$ 60,000,000	\$ 50,000,000	\$ 140,000,000	\$ 30,000,000	\$ 80,000,000	\$ 40,000,000	\$ 20,000,000	\$ 420,000,000
Realized AWO	\$ (10,841,674)	\$ (3,510,097)	\$ (33,489,213)	\$ (855,123)	\$ (1,048,916)	\$ (2,313,532)		
Realized AWO		\$ (10,256,492)						
Realized AFI							\$ 27,017,000	
Rev 9 Soft Cost Adds	\$ (110,575,000)							
Conc Testing	\$ (660,000)							
T/A Labor	\$ (2,800,000)							
	\$ (64,876,674)	\$ 36,233,411	\$ 106,510,787	\$ 29,144,877	\$ 78,951,084	\$ 37,686,468	\$ 47,017,000	\$ 270,666,953
Exec Reserve								\$ 126,668,047
Available Contingency								\$ 397,335,000

The Executive Reserve has been adjusted so the calculated Available Contingency matches the actual contingency currently available to the project, as described in Section 5.4 of this report.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

6.3 Risk Management Status

Status:

Risk Management includes the manner by which the project team deals with retained risks. The SAS Risk Manager supports and coordinates specific risk management efforts, which may involve a wide range of senior project management personnel.

Observation and Analysis:

Specific Risk Management activities observed by the PMOC include:

- *Development of a specific action plan to deal with each of the cost-to-cure elements currently affecting C4B Entrance #1 construction. Durations were assigned to each task and a summary activities representing the total cost-to-cure effort were inserted in the IPS. Coordination and tracking of these issues is now integrated with the project schedule and can be managed accordingly.*
- *Managing the risk of procurement delay through the advancement of the advertisement of the remaining finish packages to offset procurement delays. Previously discussed in Section 4.3 of this report.*
- *Increasing staff and development of support systems dedicated to the management of interfaces between multiple prime construction contracts.*

- *Added NYCT Pre-Revenue Service Planning and NYCT Testing and Commissioning activities to the IPS.*
- *Added the systems testing schedule to the station finish bid packages to ensure these general contractors will be aware of the overall time period and requirements for systems testing.*
- *Development of a Safety Certification Implementation Plan that will provide necessary detail to the Safety and Security Management Plan and a blueprint to coordination with the System Integration Contractor, NYCT and regulatory oversight.*

Conclusions and Recommendations:

The SAS Project Team has utilized the Risk Management Process to identify threats to the project schedule and cost performance goals as well as to actively take charge of retained risks and actively work through them to the best overall benefit of the project. The PMOC notes that some of the peripheral elements of the project could be better integrated in this process.

Examples include:

- *Identification of preparatory tasks and inclusion of the Safety Certification Program into the IPS.*
- *Inclusion of public relations activities into the risk based decision and cost forecasting efforts.*

6.4 Risk Mitigation Actions

Status:

Risk Mitigation Meetings (Nos. 12, 13 and 14) were held each month during the 1st Quarter 2012. Tangible mitigation of risk is generally associated with the completion of an activity or achievement of a specific milestone. Project-level 1st Quarter 2012 achievements and the risks that have been mitigated are summarized as follows:

- *Substantial Completion – Contract C1: geotechnical risk, inter-contract coordination, including interface milestones with Contracts C2A and C5B.*
- *Contract Award – Contract C6: procurement risk.*
- *2010-2014 Capital Plan Funding Agreement – Contracts C2B, C4C, C5C procurement risk.*

Observation and Analysis:

The SAS Project Team is actively engaged in the mitigation of project risk, including those risks directly retained by the MTACC as well as those risks for which direct responsibility has been transferred to other parties. Major risks reviewed and updated during this Quarter include:

- 1) **Contract Interfaces (Risk CNS 4 (C6)):** *Managing contractual interfaces during construction. The interfaces between C1 & C2A/C4B/C5B and C5A & C5B have been effectively managed and have not resulted in contractual disputes or disruptions in the work. Concern over the interfaces between C2B, C4C and C5C is the focus of this risk.*

To date, the tools and procedures to track the relevant schedule activities associated with the interfaces have been developed. There is general agreement that the initial development of

these tools has been successful and that some updating and refining will occur as the effort continues.

An Interface Manager has been added to the staff. This position will work with field construction managers assigned to specific contracts to expedite and coordinate work involving two or more construction contracts.

- 2) **System Safety Certification (Risk CNS 8 (C6))**: Future steps in completing the certification process do not appear to be clearly understood by the Project Team. This may be due to a lack of available experience regarding the certification of a new start project. The Safety and Security Management Plan, prepared by the DC in May 2007, provides a general description of the certification process, and identifies Safety and Security Certification Committee (SSCC) which is responsible for the management of the certification process. The PMOC recommends elevating the management of this risk to the SSCC which will provide regular updates to the Risk Manager regarding the status of this risk. The PMOC also recommends that the SSCC becomes familiar with the FTA's Handbook for Transit Safety and Security Certification which explains the safety and security certification methodology, provides a brief description of each step and present sample forms to support the certification process.*
- 3) **Shop Drawing Processing (Risk ID TBD)**: Flow charts and key liaisons for this process have been identified; the process has been explained in detail to the involved parties. Nonetheless some delays in processing have been noted. These involve contracts and submittals where NYCT review is not required. An "in-depth" tabulation of processing time was to have been prepared for this meeting. It was not available. A complete investigation of delays incurred to date will be performed and presented at the next meeting.*
- 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; however the process of dealing with building owners through design and construction has many opportunities for additional delay. Transferring this work to the C4C Package may have to be considered.*

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.

A complete tabulation of risks, their impact on the project and their probability of occurrence is contained in the contract and overall project risk registers. These risks are updated regularly and provide a comprehensive tabulation of the project risk "status".

During the 1st Quarter of 2012, the SAS Project Team will integrate the updated risk register with the EAC forecasting process. Risk information will be used instead of fixed percentages of construction cost to forecast remaining cost exposure and the contract and project EAC.

Concerns and Recommendations:

The Risk Mitigation effort has been successful in identifying issues that have the potential to negatively affect project cost and schedule and provide a forum for developing alternatives and solutions.

Integrating the risk management process with the EAC forecasting process is a potentially very significant enhancement in the management of the project. This process will capture the net effect of incremental changes in risk exposure and forecasting that might otherwise not be reported. It will further integrate the risk management processes into the “mainstream” of project management and create collaboration between processes that will mutually enhance reliability.

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status:

Refer to Section 5.4 of this report.

6.5.1 Schedule Contingency

Status:

Schedule contingency reported by MTACC, based upon Update #68 of the SAS IPS, conforms to schedule contingency threshold limits established by the ELPEP. Based on this update, schedule contingency measured against MTACC’s RSD commitment date of 12/31/16 is 80 CD. When measured against the FTA/PMOC RSD estimate of 02/28/18, the contingency is currently 503 CD vs. the 240 CD stipulated by ELPEP.

Observations:

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

Table 6-1: Schedule Contingency

IPS Update #	59	62	65	68
Data Date	06/01/11	09/01/11	12/01/11	03/01/12
Contingency (CD)				
RSD=12/31/2016	67	67	67	80
RSD=02/28/2018	490	490	490	503

Concerns and Recommendations:

Schedule contingency has remained fairly constant over the 4th Quarter of 2011 and for most of calendar year 2011. This is discussed further in Section 4 of this report.

Previous forecasts of the recovery of as much as 70 CD of float through mitigation of the C5B procurement delay have been reduced to a maximum of approximately 30 CD. The project team should continue to evaluate schedule mitigation strategies, particularly along the critical and near-critical paths as a means of increasing schedule contingency and offsetting the impact of future delays.

7.0 LIST OF ISSUES AND RECOMMENDATIONS

Priority in Criticality column 1 – Critical 2– Near Critical

Number with Date Initiated	Section	Issues/Recommendations	Criticality
SAS-09-Jan10	3.0 PMP	<p>The PMP and its sub-plans must be updated to reflect the new management processes and strategies of the ELPEP.</p> <p><u>PMOC Recommendation:</u> Update the PMP and its sub-plans within the timeframes established in the ELPEP.</p> <p><u>Update:</u> This effort is underway. MTACC has initiated new management processes in the areas of schedule, cost and risk management in advance of the formal completion of new plans or procedures. Candidate Revisions to the PMP have been identified and the associated sections of the PMP are being updated.</p> <p><u>Update (January 2011):</u> Revised draft PMP issued and currently being reviewed by PMOC. Review anticipated to be completed by February 2011.</p> <p><u>Update (March 2011):</u> PMOC review of PMP update is substantially complete.</p> <p><u>Update (April 2011):</u> The PMOC has completed its review of PMP Revision 8 (update). The PMOC will review its findings with the FTA and compare findings with the corresponding PMP review which is currently underway for the East Side Access Project. After these tasks are complete, the PMOC and FTA will present findings and recommendations to the MTACC.</p> <p><u>Update (May 2011):</u> No additional information this period.</p> <p><u>Update (June 2011):</u> PMOC is monitoring the implementation and effectiveness of Candidate Revisions per discussions with FTA. Results to be included in review comments.</p> <p><u>Update (Sept 2011):</u> In general, Revision 8 of the SAS PMP was updated in accordance with the “PMP Update” process defined in the ELPEP. Candidate Revisions were issued and approved by the Technical Advisory Committee for all “Material Decisions”, i.e., project decisions that affect scope, cost, schedule or funding.</p> <p><u>Update (December 2011):</u> Resolution of PMOC comments/recommendation and FTA concurrence is anticipated by mid-February 2012.</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
		<u>Update (March 2012):</u> Review of recommendation is on-going.	
SAS-10-Jan10	3.1 PMP Sub-Plans	<p>MTACC is required to develop and finalize a Cost and Schedule Management Plan, and a Cost and Schedule Contingency Management Plan for the SAS in conformance with ELPEP requirements within 60 days of January 15, 2010. The PMOC is concerned that the 60-day requirement may not be met.</p> <p><u>Update:</u> This process is ongoing. Schedule Management Plan complete; conditional approval forwarded by FTA on October 25, 2010. Review of Cost and Cost Contingency Management Plan is in progress.</p> <p><u>Update (March 2011):</u> SMP outstanding comments resolved. Updated CMP submitted and PMOC comments returned. Reconciliation of comments to be scheduled in April 2011.</p> <p><u>Update (April 2011):</u> Revisions to the CMP are anticipated on May 3, 2011 and will be discussed at the ELPEP meeting on May 5, 2011. Based upon the clarifications and understandings achieved at this meeting, MTACC will revise the CMP accordingly and resubmit it on or about May 13, 2011.</p> <p><u>Update (May 2011):</u> A final revision to the CMP will be published in June 2011 based upon comments received to date. The CMP is at a high level of completion. Final comments should be developed in June leading to a conditional approval of the plan.</p> <p><u>Update (June 2011):</u> PMOC final review comments transmitted to MTACC.</p> <p><u>Update (September 2011): Schedule & Schedule Contingency Management Plan –</u> The PMOC has verified SAS substantial compliance with the SMP since August 2010. The process of transferring the verification process to the respective project teams has been generally discussed in several recent ELPEP meetings. Refer to “Conformance Demonstration” for additional information.</p> <p>Cost & Cost Contingency Management Plan (CMP) –Conditional approval of this plan was transmitted to the MTACC from the FTA on September 1, 2011. The MTACC is</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
		<p>working to address the five (5) Candidate Revisions upon which final approval is conditioned.</p> <p><u>Update (December 2011):</u> MTACC has submitted its final revisions to the CMP, which incorporate its responses to those Candidate Revisions. FTA/PMOC final review of these revisions is in progress.</p> <p><u>Update (March 2012):</u> Review is ongoing.</p>	
SAS-11-Jan10	3.3 Procedures	<p>The PMOC is concerned whether the new procedures will actually be utilized by the different operating agencies within the MTACC, given that NYCT will implement SAS, and the procedures of the SAS PMP reflect the NYCT quality management system.</p> <p><u>PMOC Recommendation:</u> The PMOC recommends that the MTACC develop a process to assure itself that all of these procedures are in use on all of its projects. An example of such a process would be a new procedure distribution system that would require the recipients (the individual Project Managers) to acknowledge receipt of each new procedure as it is released for implementation. This system could be monitored by the parent MTACC to assure implementation across all its organizations and provide it with the opportunity to correct any non-conformances as they develop.</p> <p><u>Update (April 2011)</u> The MTACC is behind schedule in developing the revised project procedures. To date, it has adopted a total of 69 revised procedures of 75. MTACC originally committed to have all revised procedures adopted by April 12, 2010.</p> <p><u>Update (May 2011):</u> No update this period.</p> <p><u>Update (June 2011):</u> No update this period.</p> <p><u>Update (Sept 2011):</u> The MTACC released one additional procedure during September 2011. The total number of revised procedures is now 73 of a potential 75.</p> <p><u>Update (December 2011):</u> Two procedures were issued, which brings the total number of procedures issued to 75. Four additional procedures are under development with no specific time period identified for their completion.</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
		<u>Update (March 2012):</u> No additional procedures have been issued.	
SAS-20-Dec10	5.1.3 Change Orders	<p>Processing duration for AWOs is excessive. The average processing duration currently equals the published MTA maximum duration of 90 days. Improvement is required to facilitate contractor cooperation and reduce risk of “backlash” through perceived unfair treatment.</p> <p><u>Update (February 2011):</u> Meeting to be set up with MTACC/SAS/ESA for review and comparison of AWP processing procedures and identification of specific ways to accelerate SAS process.</p> <p><u>Update (March 2011):</u> Meeting with MTACC/SAS/ESA not scheduled. No improvement in processing observed to date. Open Item.</p> <p><u>Update (April 2011):</u> With regard to the procurement of additional work orders (AWO's), NYCT and MTACC have jointly implemented a more streamlined approach to approving Procurement Staff Summaries. This adjustment has reduced the number of signatures necessary for approval and should save time during the approval phase of the AWO process. Specifically, NYCT has removed the following 4 executive level signatures: NYCT President, NYCT Executive Vice President, NYCT General Counsel, and NYCT Chief Officer - Civil Rights. Additionally, the NYCT VP Capital Programs and the NYCT VP Subways have been replaced with lower level designees who should cut down further the amount of time necessary for approval.</p> <p><u>Update (May 2011):</u> Some marginal improvement in AWO processing has been noted – see Section 5 of this report. PMOC will continue to monitor and report.</p> <p><u>Update (June 2011):</u> Some marginal improvement in AWO processing has been noted – see Section 5 of this report. PMOC will continue to monitor and report.</p> <p><u>Update (September 2011):</u> In recent months, the MTACC has implemented certain staffing changes and process improvements directed at reducing the time required to estimate, negotiate and administratively process Additional Work Orders (AWOs). The</p>	1

Number with Date Initiated	Section	Issues/Recommendations	Criticality
		<p>PMOC is monitoring and evaluating the quantifiable indicators associated with AWO processing in an effort to evaluate the effectiveness of the MTA's improvement efforts.</p> <p><u>Update (December 2011):</u> PMOC monitoring of the AWO process is on-going. To date, no significant reduction in the time to process an AWO has been noted.</p> <p><u>Update (March 2012):</u> PMOC monitoring of the AWO process is on-going. AWO status and processing is discussed during each construction contract Job Progress Meeting.</p>	
SAS-21-Dec10	2.1.2 Procurement	<p>Excessive recent delay to C-26009 package is noted. PMOC recommends MTACC initiate corrective action and/or develop "recovery schedule" to regain time lost.</p> <p><u>Update (February 2011):</u> Additional delays noted.</p> <p><u>Update (March 2011):</u> RFP documents were made available to the qualified proposers on March 7, 2011 and the pre-proposal meeting was held on March 31, 2011.</p> <p><u>Update April 2011:</u> Receipt of proposals has already been delayed from May 18, 2001 to June 3, 2011. Further, unspecified delays are forecast for the receipt of proposals for this package as a result of MTA's intention to "coordinate" systems procurement among the three "mega-projects" (No. 7 Line, SAS, and ESA).</p> <p><u>Update (May 2011):</u> Additional one-month delay to package award was realized during May 2011 as a result of ongoing "coordination" with other systems procurements. MTA Executive Management is apparently directing this effort.</p> <p><u>Update (June 2011):</u> Additional one-month delay to package award was realized during June 2011 as a result of bidder requests for a time extension. Criticality of other delays have superseded this issue. PMOC to continue monitoring progress of this procurement.</p> <p><u>Update (September 2011):</u> Additional one-month delay to package award was realized during June 2011 as a result of bidder requests for a time extension. Criticality of other delays have superseded this issue PMOC to continue monitoring progress of this</p>	2

Number with Date Initiated	Section	Issues/Recommendations	Criticality
		<p>procurement.</p> <p><u>Update (December 2011):</u> On December 21, 2011 the MTA Board approved the Track, Power, Signals and Communication Systems Contract C-26009 (C6) for award. Notice of Award is scheduled for mid-January 2012. This concern is closed with no further action planned by the PMOC.</p> <p><u>Update (March 2011):</u> <i>Contract C-26009 (C6) was awarded to Comstock/Skanska JV on January 18, 2012.</i></p>	

8.0 GRANTEE ACTIONS FROM QUARTERLY AND MONTHLY MEETINGS

Priority in Criticality column

1 – Critical

2 – Near Critical

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
SAS-A17-Aug08	2.4 Vehicles	<p>The PMOC requested additional information regarding certain statements in the draft Rail Fleet Management Plan:</p> <ul style="list-style-type: none"> ▪ NYCT should provide a test plan for increasing the period between inspections of the new technology fleet. ▪ NYCT should explain why, in light of the ongoing state of good repair fleet replacement program, the cars financed under the SAS project are no longer needed. ▪ MTACC should explain why they are considering removing the vehicles from the project scope without reducing the project funding. <p>Update: The supply of vehicles for SAS Phase 1 will be addressed in the Draft Fleet Management Plan, scheduled for distribution in July 2010.</p> <p>Update: A Draft Fleet Management Plan was not submitted during July 2010. This item remains open.</p> <p>Update: As of August 31, 2010, a Draft Fleet Management Plan has not been submitted.</p> <p>Update: A Draft Fleet Management Plan was received, reviewed with comments provided to the FTA.</p>	2	7/30/10

Number with Date Initiated	Section	Grantee Actions	Criticality	Projected Resolution
		<p><u>Update:</u> Vehicle requirements and associated cost to be addressed as part of the FFGA amendment.</p> <p><u>Update:</u> No additional vehicles will be procured for the SAS Phase 1 Project. MTACC/NYCT's assertion that recent services reductions will provide ample spare vehicles for the SAS Phase 1 Project has been reflected in the Rail Fleet Management Plan which was accepted by FTA Region II. A "zero" dollar budget for the procurement of vehicles is reflected in the projects Current Working Budget (CWB) and also in the latest cost estimate (Rev. 9). No further action is planned by the PMOC.</p>		
SAS-A18-Aug08	ELPEP Updates	<p>The change in the Contingency Drawdown Curve, particularly the latent contingency, needs to be clarified.</p> <p><u>Update:</u> At the quarterly meeting, a new contingency drawdown curve was presented. Management of the contingency is being addressed in the newly required Cost Contingency Management Plan.</p> <p><u>Update:</u> The latest submission of the Cost Contingency Management Plan is under review. MTACC has initiated contingency management and reporting which generally conforms to the requirements of the ELPEP.</p> <p><u>Update:</u> Review and resolution of all issues is anticipated to be completed in February 2011.</p> <p><u>Update:</u> See ELPEP section of report.</p>	2	6/30/10

APPENDIX A -- LIST OF ACRONYMS

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

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

APPENDIX B-- PROJECT OVERVIEW AND MAP

Project Overview and Map – Second Avenue Subway



Scope

Description: The project will connect Manhattan’s Central Harlem area with the downtown financial district, relieving congested conditions on the Lexington Avenue line. The current project scope includes: tunneling; station/ancillary facilities; track, signal, and electrical work; vehicle procurement; and all other subway systems necessary for operation. The current phase, Phase 1 of 4, will provide an Initial Operating Segment (IOS) from 96th Street to 63rd Street, and will connect with the existing Broadway Line that extends to Lower Manhattan and Brooklyn. Subsequent phases will extend the line northward to 125th Street and to the southern terminus at Hanover Square in Lower Manhattan.

Guideway: Phase 1 is 2.3 miles long, from 63rd Street to 105th Street. It is a two-track project that is below grade in tunnels, and does not include any shared use track.

Stations: In Phase 1 there are: two new mined stations located at 72nd and 86th Streets, one new cut and cover station at 96th Street, and major modifications of the existing 63rd Street Station on the Broadway Line.

Support Facilities: There are no additional support facilities planned for Phase 1 of the project.

Vehicles: MTA envisions the need for eight-and-one-half train sets to satisfy the Phase 1 operating requirements (7) and to provide sufficient spares (1½).

Ridership Forecast: Upon completion of Phase 1, ridership is expected to be 191,000 per average weekday (MTA’s Regional Travel Forecast Model).

Schedule

12/20/01	Approval Entry to PE	06/12	Estimated Rev Ops at Entry to PE
04/18/06	Approval Entry to FD	03/14	Estimated Rev Ops at Entry to FD
11/19/07	FFGA Signed	06/30/14	Estimated Rev Ops at FFGA
12/30/16	Revenue Operations Date at date of this report (MTA schedule)		
29.8%	Percent Complete Construction at March 31, 2012		
68.5%	Percent Complete Time based on Rev Ops Date of December 30, 2016		

Cost (\$)

3,839 M	Total Project Cost (\$YOE) at Approval Entry to PE (w/o Financing Costs)
3,880 M	Total Project Cost (\$YOE) at Approval Entry to FD (w/o Financing Costs)
4,866 M	Total Project Cost (\$YOE) at FFGA signed (w/ \$816 M Financing Costs)
4,673 M	Total Project Cost (\$YOE) at Revenue Operations (w/o Financing Costs)
5,489 M	Total Project Cost (\$YOE) at date of this report including \$ 816 M in Finance Charges
1,673M	Amount of Expenditures at date of this report from Total Project Budget of \$4,451M
37.6%	Percent Complete based on Expenditures at date of this report
397M	Total Project Contingency remaining (allocated and unallocated contingency)

* Being revisited as a result of the Enterprise Level Project Execution Plan

APPENDIX C – LESSONS LEARNED

There were no Lessons Learned to report for *1st Quarter for 2012*

#	Date	Phase	Category	Subject	Lessons Learned
1	Oct-09	Construction	Schedule	Delays to excavation caused by adjacent Fragile Buildings	The PMOC recommended and MTACC adopted a plan to review the stability of all of the buildings affected by the Second Avenue Subway project. MTACC instructed the DC to review all the buildings along the project. Furthermore, they have the designer developing shoring plans for the fragile buildings and including this work in the future contracts. In this way the stabilization work cannot delay the contracts as it is part of the contract.
2	Nov-09	Construction	Schedule	3 rd Party Utilities changed the size of an electric volt after construction began.	The PMOC recommended that MTACC get the utility companies to agree that once they have approved the plans, they cannot make major changes after award. MTACC's SAS Project Executive is meeting with the utilities to work out this problem.

