PMOC MONTHLY REPORT

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

March 1 to March 31, 2011

PMOC Contract No. DTFT60-09-D-00007
Task Order No. 2, Project No. DC-27-5115, Work Order No. 02
OPs Referenced: OP20-OP26, OP33, OP34, OP37, OP40, OP41, OP53, OP54

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Length of time on project: 1 year

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EXECUTIVE SUMMARY

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.

COST BASELINE

FFGA $4.87 billion (Federal = $1.35; Local = $3.52 billion including financing cost of $817 million).

SCHEDULE BASELINE

Key Milestones:

- Preliminary Engineering (PE): December 2001
- Final EIS Record Of Decision (ROD): July 8, 2004
- FFGA: November 19, 2007
- Final Design: April 2006
- Original FFGA Revenue Service Date (RSD): June 30, 2014
- Current MTA RSD: December 30, 2016
- Current FTA/PMOC RSD: February 2018

COMPLETION STATUS

A summary of the completion status of the four (4) active construction contracts as of March 31, 2011 is as follows:

- *C26002 (Tunnel Boring) – 81.0%*
- *C26005 (96th Street Station) – 29.70%*
- *C26013 (86th Street Station) – 58.5%*
- *C26007 (72nd Street Station) – 2.40%*

Aggregate Construction % Completion:

- *24.3% of active construction contracts are complete (C1, C2A, C3, C5A, C4B, C5B)*
- *34.40% of packages actively under construction contracts are complete (C1, C2A, C5A, C4B)*
- *15.50% of all construction is complete*

PROGRESS AND ISSUES

Contract C-26002 commenced the East Bore on March 21, 2011 and successfully bored through the "freeze zone".

MTACC presented the proposed 69th and 72nd Street Muck Handling facilities to the affected political and community groups throughout March 2011. Community reaction was generally positive and no adverse reactions to these temporary facilities are expected.

Construction procurement for Package C6 (Systems) continued without delay. RFP documents were made available to the qualified proposers on March 7, 2011 and the pre-proposal meeting was held on March 31, 2011. Proposals are currently due on May 18, 2011.

Vibration monitoring during blasting has indicated that buildings within the "Zone of Influence" are experiencing peak particle velocity (PPV) levels greater that the 0.5 inches per second limit. Mitigation methods implemented by SSK to reduce the vibration levels have not been successful in all cases. An investigation is ongoing.

Construction package C5B (86th Street Station Excavation & Heavy Civil) was previously forecast to be awarded during March 2011. This did not occur. Efforts to resolve "Buy America" and DBE Contracting issues continue.

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:

The official goal was to have the Enterprise Level Project Execution Plan (ELPEP) completely implemented on the SAS project by October 12, 2010. The goal has not been achieved. As of March 2011, MTACC continued the refinement of its various management plans. It has also demonstrated compliance with several management processes of the ELPEP. The MTACC requirement for intermediate deliverables to establish mutual and complete understanding of the concepts and requirements of the ELPEP, which in many cases differs from the original MTACC interpretation, has significantly delayed implementing the ELPEP. Full implementation of the ELPEP will require several more months of cooperative effort between the FTA and MTACC.

At the end of March 2011, the remaining intermediate deliverables include:

- *Risk Mitigation Capacity Plan –this plan describes the processes MTACC has or will implement to provide the level of Risk Mitigation Capacity necessary to meet the requirements of the ELPEP. This month, the PMOC finalized its review of the MTACC's Risk Mitigation Capacity and provided comments on March 17, 2011. These comments were reviewed at the March 24, 2011 ELPEP Meeting. MTACC has taken the position that many of the comments are addressed in other documents and too detailed for a high level document of this nature. These issues will be addressed at the ELPEP Meeting scheduled for 04/07/11.*
- *Cost Management Plan (Final Revision) -On March 30, 2011, MTACC resubmitted the revised Cost Management Plan. This submission addressed many of the comments submitted to MTACC by the PMOC on March 16, 2011 and generally discussed at the March 24, 2011ELPEP meeting.*
- *Schedule Management Plan (Post Acceptance Revision) -the Schedule Management Plan has been accepted with minor comments. SAS has been realizing the benefits of this effort since mid-2010. The PMOC has formally documented MTACC's conformance with the principal elements of this plan since August 2010.*
- *Project Management Plan (Revision 8 Draft) – During March 2011, the PMOC completed its review of the Revision 8 draft of the SAS PMP. The initial review was to verified that the "top ten" Candidate Revisions (CRs) had been incorporated as required by the TCC Implementation Plan approval letter. Subsequently, the PMOC reviewed all pending CRs. Review comments are being provided to the MTACC.*

During March 2011, the PMOC, MTACC, and SAS Management attended the following ELPEP meetings:

- *03/24/11 – ELPEP Implementation Bi-Weekly Meeting*

Based on the ELPEP effective date of January 15, 2010, the following items continue to be overdue:

- MTA will finalize the Cost and Cost Contingency Management Plan in conformance with ELPEP requirements.
- MTA to demonstrate a functioning process for achieving the traceability of contract package scope from the design basis documentation through pre-construction planning

into the contract package cost estimate, and schedule through a contract package level WBS or functional equivalent for one active SAS contract package (4B). MTA will provide the FTA with a plan to demonstrate similar ELPEP conformance on all other un-awarded contract packages for both projects except for construction risk mitigation capacity.

- MTA demonstrates an ELPEP conformant Construction Risk mitigation capacity for active awarded contracts for SAS
- MTA establishes internal control baselines for ELPEP conformance reviews for SAS with the first oversight report delivered to FTA
- MTA achieves full, across the board, ELPEP conformance

Observation:

Based on ELPEP requirements, the overall progress remains behind schedule; however, in March 2011 the MTACC made further progress in the completion of the TCC PMP review, the writing of the Construction Risk Mitigation Intermediate Deliverable and the final revision of the Cost Management Plan.

The FTA and MTACC continue to participate in a cooperative process to produce the deliverables described in the ELPEP. The bi-weekly ELPEP progress meetings continue to serve to review progress and look ahead to upcoming milestones. The PMOC worked closely with MTACC on the draft CMP and the revised SMP, as well as the Construction Risk Mitigation Plan.

Most significantly, the MTACC has realized benefit from the ELPEP implementation effort through its substantive implementation of the Schedule Management Plan, Cost Management Plan and updating of its Project Management Plan.

Concerns and Recommendations:

- *The PMOC had recommended that the MTACC develop its proposed method to demonstrate compliance with the ELPEP requirements for risk mitigation capacities in the form of an intermediate deliverable. MTACC has delivered its draft Risk Mitigation Capacity Plan ,to which the PMOC has responded with comments. The means by which this plan will be implemented require additional development. If possible, performance metrics should be identified to facilitate periodic review..*
- *Review and incorporation of PMOC comments to the CMP, most recently updated and distributed to MTACC on March 30, 2011 should bring this plan into a high degree of "substantial compliance" with the ELPEP. MTACC, FTA and PMOC should begin to consider the means by which the implementation of this plan will be validated. This sentence is to be removed. Urban must develop a plan and submit it to the FTA TOM for review on How it will begin validation of MTA's ELPEP responsibilities and actions. This is not a 3 way discussion with MTA.)*
- The PMOC has provided its final recommendations for revision to the SMP to meet the Acceptance Letter requirements.

Table 1: Project Budget/Cost Table

	FFGA			FFGA Amendments	MTA's Current Working Budget (CWB)		Expenditures as of *March 31, 2011*	
	($ Millions)	(%) Grand Total Cost	Obligated ($ Million)	TBD	($ Millions)	(%) Grand Total Cost	($ Millions)	% of Grand Total Cost
Grand Total Cost:	**4,866.614**	**100**	**4,137.911**		**5,489.614**	**100**	*1,171.729*	*21.34*
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**	*1,171.729*	*21.34*
Total Federal share:	**1,350.693**	**27.75**	***628.911**		**1,350.693**	**24.60**	*356.545*	*6.49*
Total FTA share:	**1,300.000**	**96.25**	**600.818**		**1,300.000**	**23.68**	*345.433*	*6.29*
5309 New Starts	1,300.000	100	600.818		1,300.000	23.68	*345.433*	*6.29*
Total FHWA share:	**50.693**	**3.75**	28.093		**50.693**	**0.92**	**11.112**	**.20**
CMAQ	48.233	95.15	25.633		48.233	0.88	8.652	.16
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	.04
Total Local share:	**2,699.307**	**55.47**	****3,509.00**		****3,509.00**	**63.92**	*815.184*	*14.85*
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 see Section 1.1.3 b for details.

Table 2: Summary of Critical Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	03/20/2007A	03/20/2007A
Construction Complete	December 31, 2013	May 23, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016(1)	February 2018

(1) SAS Phase 1 Integrated Project Schedule, Revision 3; *Update #56, and data date of March 1, 2011.*

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

The Design staff has been reduced as the work is substantially complete. Limited design work on specific issues/Contract Mods continues. Construction support services have not been adversely affected. The Construction Manager is adding staff as construction activity increases.

MTACC is currently utilizing consultant staff to fill positions it has otherwise been unable to fill through direct hire.

The current project team acts as an integrated organization with virtually no distinction between the employee's actual employers.

Observation:

The current project organization appears well integrated and very cohesive.

Concerns and Recommendations:

The PMOC had reservations about the Quality Manager reporting to the Program Manager of Construction Support. To address the PMOC's concern, MTACC's Quality Management agreed that the SAS Project Quality Manager will report to the Vice President/Deputy Program Executive. *As of March 31, 2011, the organization chart has not been revised to reflect this change.* PMOC will assure that the chart is revised prior to recommending FTA's acceptance of the updated organization.

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

a) Adequacy of Project Management Plan and Project Controls

Status:

Draft Revision 8 of the PMP has been updated to reflect the processes of the ELPEP. PMOC completed its review of the draft PMP and will provided comments to the MTACC by the end of April 2011.

Observation:

Integration of the ELPEP requirements into the SAS PMP will allow the MTACC to more effectively manage the SAS project. It will also give the FTA/PMOC a greater level of assurance that the SAS project can proceed through the construction phases and be delivered to the start-up phase consistent with the estimated total project cost and schedule.

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 underway to amend the FFGA because the baseline cost and schedule have been exceeded.

Concerns and Recommendations:

See section 1.1.2 a

c) Grantee's Approach to Community Relations, Asset Management, and Force Account Plan

Status:

Community Relations –During March 2011, the community relations representative continued to support the bi-weekly job progress meetings. Any concerns of the community that needed to be addressed were made known. *The Good Neighbor Initiative has been expanded to all SAS construction work zones.*

Asset Management –Identification and control of project assets will be coordinated between the System Contractor (Contract 6) and NYCT's Department of Subways. Development of the plan is on-going.

Force Account –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. *As of March 31, 2011, the MTACC has expended $142,637 of the $33,000,000 Force Account budget.*

Observation:

The Community Relations Program is meeting its objective to encourage an exchange of ideas and information on issues related to the project, to identify and resolve public issues and concerns as they arise, and to generate interest in and support for the project. The project recognizes that more community buy-in is needed to minimize the probability of community distress. SAS Asset Management Plan must be integrated with NYCT's Property Management System. The MTACC CWE for Force Account has been increased to $40,000,000 via Cost Estimate Revision 8. The increase is based on the estimated cost of systems testing and commissioning support activities.

Concerns and Recommendations:

None

d) Grantee's Approach to Safety and Security

Status:

Safety –Each construction contractor continued to implement its Safety Program in compliance with Section 011150 of the General Requirements Section of the Contract.

Security –Each construction contractor continued to implement its Site Security Plan in compliance with Section 011160 of the General requirements of the Contract. The section specifies requirements for the security of the work including: site and office security, and transportation and protection of explosives.

Observation:

During *March 2011*, each construction contractor continued being proactive in implementing its safety program. Weekly tool box meetings were conducted to keep the workforce informed on various safety topics. Root cause analysis is being performed to assure that the actual cause of an incident has been identified and positive corrective actions implemented to prevent recurrence. *The lost time rate and OSHA Recordable Accident Rate from the start of the project through February 2011 is 1.66 and 3.54 respectively. Both rates are below the national average of 2.2 and 4.2 respectively.*

Due to the sensitive nature of the security effort, the proposed 2010-2014 Capital Program identifies a single budgetary reserve of $250M, which will be used to progress the next group of projects. (Reference: Proposed MTA Capital Program 2010-2014, dated September 23, 2009).

Concerns and Recommendations:

None

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

a) Uniform Property Acquisition and Relocation Act of 1970

Real estate acquisition and tenant relocation is being 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 Polices Act of 1970, as amended, and FTA real estate requirements 5010.1C.

b) Local Funding Agreements

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. MTA needs to approve $942 million for the 2012-2014 timeframe.

1.1.4 Scope Definition and Control

Status:

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 design and overall operating systems inspection and testing.

Active issues involving the management and control of project scope include:

Issue	Description
Deletion of railcars	MTACC has proposed the elimination of the vehicle procurement from the scope of the project. The rationalization for the elimination of the vehicle is presented in the revised NYCT Fleet Management Plan. Approval of the FTA is required for the formal incorporation of this scope deletion. *No update on this issue for this period.*
Transfer of East Bore Tunnel Lining between 72nd and 86th Street Stations	MTACC proposes to transfer this work from construction package C1 to construction package C5B to reduce the risk of delay through construction interferences and priority conflicts. A bid option has been included in the C5B bid package. Negotiations regarding cost and schedule considerations have started with the C1 construction contractor. *No progress this period.*
Additional requests from NYCT operating departments	Final design reviews resulted in numerous requests from the NYCT operating departments for both additions and deletions of scope. The SAS Project Team is in the process of reviewing and evaluating these requests through the Configuration Control Board and, if implemented, the Technical Advisory Committee. *Individual issues are being evaluated and resolved.*
Transfer of select communications and revenue equipment from 3rd party to Force Account	*An additional $9.5M in Force Account work was added to the "Soft Costs" via Estimate Revision 8.*

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 and coordinating technical scope issues. *SAS has not demonstrated and effective WBS or functional equivalent for managing the associated cost and schedule revisions associated with scope transfers among packages or NYCT Force Account.*

Concerns and Recommendations:

The PMOC has been unable to trace transfer of the additional $9.5M in Force Account work back into the C6 (Systems Contract) Revision 7 Estimate. Revenue equipment was not cited in the Basis of Estimate for either estimate. No corresponding adjustment was made to the IPS to account for the transfer of this work.

Over the past 12 months, the configuration, contract packaging plan and completion status of the design for SAS has generally minimized the need for scope transfers between packages. However, when such transfers have been required, MTACC has been unable to demonstrate how corresponding cost and schedule are controlled and transferred.

Based on the current completion status of the project, extensive augmentation of project management systems to provide this capability may not be warranted. However, in specific instances where scope is transferred between packages, MTACC should develop complete cost and schedule analyses that demonstrate the cost and schedule consequences on all packages associated with such scope transfers.

1.1.5 Quality

Status:

During March 2011, the CCM's Quality Assurance oversight activity for each construction contractor focused on: review and approval of contractor's Quality Work Plans; review of the contractor's Quality Management System (internal audit of contractors and external audit of subcontractors); participation in Preparatory Phase Sessions for construction processes; bi-weekly quality meetings with contractor's management and PMOC; and monitoring the control of non-conforming material.

Observations:

None

Concerns and Recommendations:

None

1.1.6 Project Schedule

Status:

A summary of project schedule information is as follows:

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	03/20/2007A	03/20/2007A
Construction Complete	December 31, 2013	May 23, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

Observations:

The Revenue Service Date (RSD), as forecast by the Integrated Project Schedule (IPS), has essentially remained constant over the past six months. In maintaining this overall schedule, the SAS Project Team has overcome several individual package delays that could have impacted the overall project. Nevertheless, delays in TBM mining, procurement and utility relocation have extended several paths to "near-critical" status.

The start of the TBM East Bore and mining through the "freeze zone" were achieved slightly ahead of schedule and represent significant achievements and reductions in the risk of future schedule delays. However, delays to "near-critical" paths continue to push more construction later in the construction phase, increasing the probability of delays.

Conclusions and Recommendations:

The SAS Project Team has demonstrated the capacity and capability to manage and maintain the project schedule. The calculated RSD has remained constant for approximately six months.

Construction logic and physical constraints suggest limited opportunity to significantly resequence construction activities to regain time lost to delay. Efforts to regain lost time through "incentivation" or directed acceleration typically do not produce an acceptable return on investment. The limited opportunity to regain lost time places a premium on execution of the current schedule and minimizing delays.

Over the past six months, the PMOC has noted two areas of concern; construction contract procurement and processing of Additional Work Orders (AWOs). Both are two areas where the timeliness of MTACC performance could be improved and where the failure to do so represents significant risk to the scheduled completion date of the project. These issues have been discussed with senior MTACC management. To date, there have been no measureable or tangible improvements in these areas. The PMOC will continue to identify specific problem areas and suggest specific enhancements to improve overall project delivery.

1.1.7 Project Budget and Cost

Status:

The approved project budget in the approved FFGA is $4,866,614 million 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 *March 31, 2011*
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	*$65,334,404*
NY-03-0408-07	*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	$8,652,432
NY-95-X015-00	$45,800,000	$45,800,000	0
Total	$628,911,200.00	$628,911,200.00	*$356,505,006.00*

* Denotes American Recovery and Reinvestment Act (ARRA) funds

A total of $148,786,991 has been expended on the project through February 28, 2011, of which $404,302,152 has been spent on design and $393,336,565 on construction (MTACC's monthly financial input).

Observation:

Local funds totaling$815,183,833 ($1,171,728,839- $356,545,006) have been spent as of February 28, 2011. 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. MTA needs to approve $942 million for the 2012-2014 timeframe.

Concerns and Recommendations:

Availability of local funding has been identified as a major concern. Current funding appears to support SAS contract awards through mid-2012. Beyond that time, a detailed analysis of funding, obligations and expenditures is required to verify that the current construction schedule can be supported.

1.1.8 Project Risk Monitoring and Mitigation

Status:

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. Through March 2011, the project has held eight Risk Mitigation Meetings. A Risk Register has been developed and maintained on the

Project since late 2002. The present Risk Register is being updated to include Risk Mitigation Meeting proceedings as of March 2011.

The Risk Assessment for Contract Package C6 was conducted over a three day period between March 9 and March 11, 2011.

Observation:

SAS Project Management is being proactive in its efforts to monitor and mitigate risk. Currently, the focus is on evaluating owner-retained risk during the construction and start-up phases of the project.

Concerns and Recommendations:

None

1.1.9 Project Safety

Status:

Each construction contractor continued to implement its Safety Program in compliance with Section 011150 of the General Requirements Section of the Contract. *The lost time rate and OSHA Recordable Accident Rate from the start of the project through February 28, 2011 is 1.66 and 3.54 respectively. Both rates are below the national average of 2.2 and 4.2 respectively.*

Observation:

Each construction contractor continued its weekly tool box meetings to keep the workforce informed on various safety topics. Safety concerns identified by CCM safety personnel and the OCIP representative are quickly addressed by the contractors. When an incident occurs, root cause analysis is performed to assure that the actual cause has been identified and positive corrective actions implemented to prevent recurrence.

Concerns and Recommendations:

None

1.2 FTA Compliance Documents

Status:

No change this period.

1.2.1 Readiness to Enter PE

Status:

Preliminary Engineering (PE) began in December 2001.

1.2.2 Readiness to Enter Final Design

Status:

Final Design began in April 2006.

1.2.3 Record of Decision

Status:

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

1.2.4 Readiness to Execute FFGA

Status:

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

1.2.5 Readiness to Bid Construction Work

Status:

The PMOC's implementation of the OP53 reviews during *March* 2011 included the following actions:

- Scheduled and conducted two internal progress meetings per week and prepared and issued meeting minutes for SAS *2B* Contract reviews and 4B updates and general information on SAS *5S* contract reviews to be performed;
- Distributed additional package-level design documents directly, through internal server access, and through an FTP server to OP53 Review Team;
- The OP53 review of the *2B and 5C packages* and *4B* package *update* continued with the research of needed documents in the EDMS system, and further chronology development;
- Continued analyses and *updated* various Contract 4B report sections;
- Prepared additional *updating,* analyses and development of Contract *2B* report sections pertaining to *Baseline Data,* Demonstrated Management Capacity and Control in Procurement, Package Chronology and Package Level Verification. *Extended review into real estate and safety/ security activities.*
- *Performing study of schedule vulnerabilities by analyzing results of assumed 2B & 4B schedule overruns on the project level. This study focused on TAC paper 44 which talks about changing muck removal productivity, which is the outstanding issue.*
- *Requested 2B 100% Design Cost Estimate backup pricing, etc. in order to evaluate the process of estimate development and assumptions made. Proceeding with evaluation of selected finish unit prices, together with potential schedule impacts from labor intensive finish installations.*
- *Evaluating open issues for design contracts "on the shelf" for feasibility of obtaining resolutions prior to bid phase. Evaluated AWO's associated with utility delays on contracts in construction, to assess cost risks and potential mitigation on "on the shelf" contracts.*
- *Participated in FTA review meeting on an updated 4B OP53 report section.*

Observations:

The 12/30/2011 100% Final Design Submission Status Report/Design Memorandum for Contract C-26010 (2B) stated: "All outstanding items are to be resolved prior to Contract solicitation in 2011 or updated during construction... ". Several of these involve out-of-scope station design items, requested by NYCT that were received too late to be incorporated into the final design, or are under consideration by MTACC. Selected outstanding issues with potentially significant impacts, include:

- Platform edge rubbing board
- Con Edison Power to Concessions
- Add fall protection for maintaining light fixtures above escalators
- Staging and Maintenance and Protection of Traffic updates for interfaces with Contracts l, 2A and 6
- Resolution of limits of work with various stakeholders including NYSDOT, NYCDOT, and NYCHA
- Resolution of tree planting scope of work inside and outside Second Avenue areas with NYCDPR
- NYCDEP approval for applications for discharge of track drainage and sanitary sewers, as well as Ancillary buildings and storm drainage from Entrances

Review of the Contract C-26010 (2B), 12/30/2011 100% Final Design Submission revealed that the scope appears to be well defined and the design appears to be coordinated with the other design packages. Comments on selected elements of the Submission are made to illustrate the type of work yet to address MTA Design Review comments or to otherwise be completed and coordinated including:

- The designer should verify all communication device locations are coordinated with architectural plans and requirements for conduit and wire sizes not indicated on the drawings.
- Coordinate the conduit and cable breakpoints between stations at 86th, 96th, 96th and 106th Streets
- Verify riser locations on other floors, within tunnels and within concrete walls.
- Drawings notes indicate to route condensate to closest drain; verify that drains are close and condensate pumps are not needed for condensate removal.
- Requirements for ADA compliant benches require additional coordination for conflicting specification reference, lack of resolutions with NYCT comments on bench backs
- A Fare Control Equipment Schedule and area plan dimensions are shown on Sheet AA6601 as noted in designer's response to NYCT comments. However no TTY equipment is noted on the equipment schedule or reference tags or symbols are shown on the review set of documents.

Concerns and Recommendations

- *The PMOC strongly recommends that the C26010 (2B), 100% Final Design documents be reviewed by the designer to address MTA Design Review comments referenced above,*

and like comments, as well as to complete and coordinate the type of work items illustrated above.

Concerns and Recommendations

None

1.2.6 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:

MTACC reported the design phase of the SAS Project is to be 100% complete in late November 2010. The PMOC has received and reviewed 100% Design Memorandums for all completed packages.

Observation:

The PMOC notes that there are several elements of design work that are incomplete; however, they are not currently delaying the progress of procuring any of the construction packages. As such, the PMOC considers the term "substantially complete" to be a more accurate description of the current status of the design phase. Design work items that are incomplete at this time include:

- *Incorporation of items beyond the scope of the current design contract. These items have been identified as "Design Scope Changes" and are currently being assembled as a final modification to the design contract. Some of this work will be incorporated in the construction packages after award as a change order.*
- *Evaluation of scope changes requested by NYCT during the 95% Design Review. Over 50 changes were requested. All must be reviewed by the project team for technical merit as well as cost and schedule impacts. Scope changes that will be added must then be evaluated by the TAC and formally incorporated into the design.*
- *Updating the design of station finish packages (C2B, C4C, and C5C). "Dusting off" these designs include final scopes for all utility work, incorporation of "as-built" information from predecessor contracts, and similar updating activities.*
- *Added 60"dia. Watermain to Package C2B. This design is being coordinated with NYCDEP. All design work and agency approvals will be in place prior to construction advertisement.*

Recent experience with C3 and C5B construction procurements suggest the project team is effectively managing the design process. These packages experienced limited cost and schedule growth during procurement resulting from design quality issues.

Concerns and Recommendations:

Outstanding design issues do not appear to represent a significant risk to the design or construction phase budgets. Estimates of remaining work have been included in the Revision 8 Cost Estimate..

2.1.2 Procurement

Status:

No significant procurement events occurred during March 2011. There are currently two (2) construction packages for which procurement is in progress:

- **C-26008: 86th Street Station Cavern & Heavy Civil** – *bids were opened on February 4, 2011, at which time the joint venture of SKANSKA Civil and Traylor Bros. was identified as the apparent low bidder with a bid of $301,860,000. Resolution of "Buy America" and DBE Contracting Goals has delayed award of this package, originally forecast for March 29, 2011.*
- **C-26009: Transit & Rail Systems** - *RFP documents were made available to the qualified proposers on March 7, 2011 and the pre-proposal meeting was held on March 31, 2011. Proposals are currently due on May 18, 2011*

Table 2-1: Construction Procurement

Activity #	Description	Date*	Comment
Contract C-26008 (C5B): 86th Street Station Cavern & Heavy Civil			
C5B 20m	*Procurement – Advertise C5B Bid Package*	*10/25/10A*	*Review of this package delayed due to "Buy America" and DBE issues. Forecast award unknown.*
C5B 25d	*Procurement (IFB) Open Bids*	*02/04/11A*	
C5B PR40	*Award Contract 5B*	*?*	
Contract C-26009 (C6): Systems			
SYPR20e	Authorization to Advertise	09/10/10A	*RFP Documents were made available to teams whose qualifications were deemed acceptable in Step 1. No delays this period.*
SYPR 20k	Prep RFP Short List (Step 1)	11/29/10A	
SYPR 25t	*Issue RFP (Step 2)*	*03/07/11A*	
SYPR30d	Submit Proposals	05/18/11	
SYPR40	Award Contract	09/29/11	
Station Finish Packages (C2B, C4C, C5C)			
Remaining packages will not be advertised for construction until 10/17/11, 07/26/12 and 12/12/12 respectively. The PMOC will initiate detailed tracking of these procurements upon Authorization to Advertise.			

** Note: All dates reference IPS Update #56 (DD=03/01/11) U.N.O.*

Observations and Analysis:

On March 31, 2011, the Preconstruction Conference for the C26009 (Systems) Construction Package was conducted by MTACC. At this meeting, MTACC reviewed the role and responsibility of the Systems Integrator. This is a key element of the C6 Package.

Step 2 proposals will be evaluated for "technical approach as well as other matters" and overall project cost. Proposers who are considered to be within a "competitive range" will enter into subsequent negotiations culminating in submission of "Best and Final Offers". [redacted]

Concerns and Recommendations:

The PMOC considers the Systems Integrator to be the key to successful execution of this package, Integration of the various elements and sub-systems into an operational system is a critical responsibility assigned to this package. The PMOC recommends the Systems Integration component of this package be given a high priority and value in the technical evaluation of proposals for this package.

2.1.3 Construction

Status:

There are five (5) active construction contracts on the SAS project. Construction progress on these contracts through March 2011 includes:

- **Contract C-26002(C1) –TBM tunnels from 92nd Street to 63rd Street**
  - *Mining of TBM-2 commenced on 3/21/11. As of April 5, 2011, approximately 283 LF of tunnel had been mined.*
  - *S3 is has completed mining through the ground freeze zone and started installation of the concrete interliner. Disassembly of the freeze plant has commenced.*
  - *Installation of the bulkhead in the West tunnel was completed. The bulkhead will allow the 4B contractor to mine the 72nd St. Station.*
  - *AWO-100 work continues at the Waterford Building.*
  - *Installation of cellar ties at 1814 Second Avenue has not started.*
  - Sidewalk improvements/Good Neighborhood Program initiatives continue.
- **Contract C-26005 (C2A) 96th Street Station Heavy Civil, Structural and Utility Relocation**
  - *Installed insulated flange joint chamber, thrust block pad and new 36" water main (Westside of 2nd Avenue and 99th Street)*
  - *Started sewer excavation (Westside of 2nd Avenue between 97th and 98th Streets, also completed AWO-66 work).*
  - *Installed new fencing around work zones (97th Street between 2nd and 3rd Avenues, and Westside of 2nd Avenue between 95th and 96th Streets).*
  - *Diverted 12" water main around new ConEd pull box (Westside of 2nd Avenue and 97th Street)*
  - *Continued secant pile operation at Ancillary 2 (Start of south wall –SW corner of 97th Street and 2nd Avenue. Twenty-seven (27) primary piles and 12 secondary piles have been installed.*
  - *Backfilled electrical services on the Westside of 2nd Avenue between 96th and 97th Streets.*
  - *Removed S3 precast decking to access steel plate in dividing wall between C1 and C2A (Eastside of 2nd Avenue and 95th Street). AWO-68 work.*
- **Contract C-26006 – (C3) 63rd Street Station Upgrade**
  - Notice to Proceed issued January 13, 2011.
  - CPM Baseline Schedule under development.

- Mobilization is underway.
- *Work is anticipated to start in April 2011.*

- **Contract C-26007 (C4B) 72nd Street Station Mining and Lining**
  - *Blasting at 69th Street Shaft -Shaft and turn-under rock excavation is complete. Contractor is excavating the center drift.*
  - *Blasting at 72nd Street Shaft -vertical blasting is complete. Turn-under is approximately 75% complete.*
  - *Total rock excavation to date (69th and 72nd St.) approximation 4600 BCY.*
  - *69th Street Utility Relocation (North side) –gas main and electric feeder relocation ongoing'*
  - *72nd Street Utility Relocation (North side) –gas main relocation ongoing*
  - *Water Treatment Plant construction on-going (Commissioning of the plant to be completed by 4/22/11*
  - *Preconstruction Building Surveys south of 66th Street on-going*
  - *Asbestos abatement of the buildings at Ancillary 2 location is on-going (253, 255, 257, and 259 East 72nd St.). Projected completion is 4/27/11.*
  - *Ground instrumentation south of 69th is on-going*
  - *Installation of foundations for the Muck Conveying System(s) as well as procurement of the hoist, hoppers and related equipment. Fabrication of structural steel for the system/building support.*

- **Contract C-26013 (C5A)86th Street Station Excavation, Utility Relocation and Road Decking**
  - *Started the installation of electrical ducts from Manhole Z to Manholes Q, P, and C.*
  - *Excavated trenches for water and electric work*
  - *Completed the work on the 12" water main*
  - *Continued mechanical rock excavation in the south Shaft.*
  - *Started installing toe anchors and tiebacks.*
  - *Completed Manhole F.*
  - *Completed installing hangers and insulating the 48" and 12" water mains.*
  - *Supported ConEd work in vaults and pulling and splicing cables.*

Observations:

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

For Contract C1 - As of March 31, 2011, TBM progress is summarized as follows:

	Second Avenue Subway TBM Summary - PMOC Projection							
	Date	Station	Total Progress	Unit	Period Progress	Work Days/ Period	Progress/ Period	Unit
Actual	6/8/10	Sta 1221+89.0	0.0					
					261.0	16	16.31	LF/WD
	6/29/10	Sta 1219+28.0	261.0	LF				
					374.2	22	17.01	LF/WD
	7/29/10	Sta 1215+02.96	635.2	LF				
					1292.8	18	71.82	LF/WD
	8/31/10	Sta 1202+61.0	1928.0	LF				
					1054.0	17	62.00	LF/WD
	9/29/10	Sta 1192+07	2982.0	LF				
					769.0	24	32.04	LF/WD
	11/2/10	Sta 1183+85.72	3751.0	LF				
					877.0	20	43.85	LF/WD
	11/30/10	Sta 1175+09.17	4628.0	LF				
					368.0	4	92.00	LF/WD
	12/6/10	Sta 1171+93	4996.0	LF				
		Original limit, TBM-1			392.0	6	65.33	LF/WD
	12/14/10	Sta 167+48.8	5388.0	LF				
					883.5	18	49.08	LF/WD
	1/9/11	Sta 158+65.6	6271.5	LF				
					943.5	12	78.63	LF/WD
	2/4/11	Sta 1150+00	7215.0	LF	**Completion of TBM-1 (West Bore)**			
	TBM-1 TOTALS		7215.0	LF		157	45.96	LF/WD
Forecast	2/4/11	Extract & Remobe TBM						
						45		
	3/21/11	Sta 1221+49	0.0	LF				
					283.0	11	25.73	LF/WD
	4/5/11	Sta 1218+66	283.0	LF				
					7544	164	45.96	LF/WD
	11/20/11	Sta 1143+80	7827.0	LF				

- *TBM-2 started on 3/21/11, approximately 18 CD earlier than previously forecast. Based upon the average production rate of 45.96 LF/WD achieved over the length of TBM-2, the forecast completion of TBM-2 is approximately 11/20/11.*
- The extraction of the TBM from the east bore was not impacted by blasting and excavation activities at the C4B cavern.
- Quality Work Plan (QWP) for Tunnel Waterproofing and QWP for the Preparation of Surfaces Prior to Waterproofing still have not been submitted.
- S3 has proposed to discontinue the probe drilling in the east tunnel because of safety concerns (poor rock conditions at the face of the TBM).

- Remediation plan required to rectify deficient concrete (honeycombing) in ground freeze zone interliner.
- Transfer of the concrete lining of the east bore (72nd to 86th Streets) from contract C1 to contract C5B is anticipated to satisfy New York City Fire Department (NYCFD) requirements and coordinate the work of these packages. To date, a proposal detailing the corresponding schedule reduction has not been submitted by the Contractor.

For Contract C2A:

- *MTACC and CTJV agreed on re-sequencing the work in order to mitigate the delay in the substantial completion date from September 13, 2013 to April 10, 2013. CTJV is claiming approximately 91 days of impact (ref AWO #48 estimated at $6,577,396). AWO #48 has not been negotiated. The re-sequencing doesn't include ECS impacts which could possible push the substantial completion to the end of June 2013. The original substantial completion date was January 7, 2013. Resolution is anticipated next week (Ongoing)*
- *ECS manhole/slurry wall conflict at 95th Street: CTJV to investigate/probe manhole. Constructability review meeting to be held on 3/30/2011.*
- *Entrance #3 Waiver Request: Redesign approved. DHA is approximately 75% complete on the redesign.*
- *ECS/Sewer conflict at 98th Street: AWO #66 work is completed. AWO need to be negotiated.*
- *Schedule Resequencing AWO #48: Plan is reflected in updates #16 thru #21. Scope meeting will be held on 4/4/11.*
- *Stabilization of 1802 2nd Avenue: Compensation grouting not effective. Underpinning of the building is required. RFP issued for Phases I and II. DOB submission is expected this week. Tenant relocation is expected to start on 4/16/11.*
- *Utility Conflict (meetings are being held with utility agencies to address concerns):*
  Entrance 1 (gas, sewer, and ECS)
  Entrance 2 (gas and sewer)
  Ancillary 1 (gas)

For Contract C3:

- *None to date.*

For Contract C4B:

- *Vibration monitoring during blasting has indicated that buildings within the "Zone of Influence" are experiencing peak particle velocity (PPV) levels greater that the 0.5 inches per second limit. Mitigation methods implemented by SSK to reduce the vibration levels have not been successful in all cases. An investigation is ongoing. SSK has been requested to correlate the PPV measurements with the mitigation action taken for each blast that exceeded the limit and make it available to the CCM. There is a concern that the limit set by DHA might not be realistic.*
- *Baseline CPM is still being finalized. CCM reported that SSK is 21 workday behind schedule and that a recovery schedule needs to be submitted.*

- *Throughout March, 2011, presented its modified muck handling system to the affected political and community groups adjacent to the 69th Street and 72nd Street shafts. In general, community response has been reported to be positive. Community feedback has generally preferred "Option 2", the enclosed upper level. Adverse community reaction to these facilities does not appear to be a significant issue.*

For Contract C5A:

- *Completion of critical ConEd cable pulling and splicing to the east side of 83rd Street and at the Chase Bank Building by mid-March 2011.*

Concerns and Recommendations:

MTACC continues to make progress in resolving problem issues and avoiding major construction delays. The PMOC considers there to be significant risk of delay and cost increases associated with the following issues:

- *Reported PPV measurements (C4B) are exceeding specified thresholds. The magnitude of the blasts have been reduced which has impacted the amount of rock removed per blast. The PMOC is concerned that significant delays to construction will occur until the matter is resolved.*
- *Ongoing utility-related delays at 96th Street (C2A). The number and significance of the utility problems on this package suggest a significant deficiency in utility investigation and documentation during the design phase. The SAS Project Team should review the history of this package and identify potential "lessons learned" that may still be applied to future packages to avoid this level of "field problems".*
- *The PMOC considers the length of time required to process AWOs to be an area requiring improvement. The average processing duration exceeds NYCT established thresholds.*

2.1.4 Force Account (FA) Contracts

Status:

During March, 2011 no MTA Force Account expenditures were made.

Observation:

Force account efforts on the project have been very low to date. A substantial portion of Contract 3 will be performed during "General Outages". This will be the first significant expenditure for NYCT Force Account.

Concerns and Recommendation:

None

2.1.5 Operational Readiness

Status:

NYCT has developed a Concept of Operations Plan for the SAS Project. Operational Readiness will be validated during NYCT's Pre-Revenue Service testing scheduled from March 21, 2016 to June 15, 2016. SAS and NYCT met during February 2011 to start dialog on what tests will be performed and possible generation of a test plan.

Observation:

The specific tests with its associated durations that NYCT will perform during Pre-Revenue Service testing are not identified on the IPS.

Concerns and Recommendation:

The PMOC recommends that the Concept of Operations Plan be updated to reflect any changes from the optimization effort which could affect the SAS project. An Operational Readiness review will be performed as outlined in FTA's OP54.

2.2 Third-Party Agreement

Status:

No change this period.

Observation:

None

Concerns and Recommendation:

None

2.3 Contract Packages and Delivery Methods

Status:

Phase 1 of the Second Avenue Subway will be delivered via ten separate construction packages. All construction contract packages will be delivered through a design-bid-build process utilizing a fixed price construction contract. Competitive procurements are based on NYCT standard procedures.

There was no change to the delivery method for any of the construction packages during the first Quarter of 2011. Specific procurement procedures for each open construction contract package and its current status are shown in the following table.

Table 2-1 Construction Procurement Method and Status

			Procurement	
No.	**Contract**	**Description**	**Type**	**Status**
C2B	C-26010	96th Street Station: construction of the entrances and ancillary facilities, architectural finishes and MEP equipment.	IFB	*Design Completed*
C4C	C-26011	72nd Street Station: construction of ancillary finishes, station finishes and MEP equipment.	IFB	*Design Completed*
C3	C-26006	63rd Street Station: renovation of existing station involving open-cut excavation for the construction of entrance and ancillary facilities.	IFB	*Contract Awarded*

			Procurement	
No.	**Contract**	**Description**	**Type**	**Status**
C5B	C-26008	86th Street Station: construction of the station cavern, entrances and access shafts.	IFB	*Bids Received*
C5C	C-26012	86th Street Station: construction of the ancillary facilities, station finishes and MEP equipment.	RFP	*Design Completed*
C6	C-26009	Systems, Power, Signals and Communications; includes the installation of the low-vibration track, aluminum rail, 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	*RFP Process Started*

Observation:

Significant delays have been encountered during the procurement of construction packages C4B, C3, and C5B. Based on this history, it appears that construction procurement durations currently in the IPS are somewhat optimistic. A more realistic duration for construction procurement would enhance the overall integrity and reliability of the IPS.

Concerns and Recommendations:

PMOC recommends the SAS Project Team review construction procurement history for recent packages and compare against those durations currently in the IPS. PMOC recommends future procurement durations be adjusted to better reflect historical performance.

2.4 Vehicles

Status:

No change in status this period.

Observations:

None this period.

Concerns and Recommendations:

None this period.

2.5 Property Acquisition and Real Estate

Status:

Real estate acquisition is ongoing in support of contract procurement.

Observation:

MTA re-submitted 2 C-3 appraisals to FTA on March 3, 2011, Block 1417, Lot 45 – 200-201 East 63rd Street and Block 1397, Lot 61 – 124-126 East 63rd Street and submitted 1 C-5 appraisal based on design change on March 10, 2011 to FTA, Block 1532, Lot 22 – 250 East 87th St.

MTA will send out offer letters for acquisition of C-3 properties as well as C-5 property as soon as FTA approves appraisals.

1802 2nd Ave – Fragile building that requires structural remediation, temp relocations to begin April 15, 2011.

Remaining property acquisitions:

Contract 3:

1- 128 E 63rd St – TE - Air space above building needed for crane maneuvering
2- 124-126 E 63rd St – PE/TE in garage for rooftop mounted cooling tower
3- 186 E 64th St – PE/TE in garage for exhaust shaft
4- 200-201 E 63rd St – PE/TE for entrance – commercial relocation required

Contract 4:

1- 233 E 69th St – acquisition pending NEPA lawsuit
2- 260 E 72nd St – subsurface PE/TE needed for cavern

Contract 5:

1- 250 E 87th St – PE/TE needed for ancillary facility

# of Parcels Identified	*# Parcels Closed*	*# Parcels Under Contract*	*# Parcels In Negotiation*	*# Parcels In Appraisal*	*# Parcels In Condemnation*	*# Parcels Right of Occupancy*
95	*91*	*0*	*4*	*4*	*94*	*88*

Concerns and Recommendations:

PMOC will conduct a site visit in early April 2011 to review status of condemnations and files; verify schedule of completion of all remaining relocations; meet with MTA Real Estate to discuss cost to cure on interior building utilities and how it impacts schedule deliverables; and review property management plan for FTA compliance under OP23. PMOC will review the temporary relocations and verify cost to complete budgets and schedules.

2.6 Community Relations

Status:

In late October 2011, MTACC announced its "Good Neighbor Initiative" in Contract C1 work zones. Elements of this initiative include:

- Implementing way-finding signage for stores that is uniform, legible and clean
- Ensuring sidewalks are in good condition without holes, cracks, and trip hazards
- Replace bent/worn fencing
- Painting all barriers
- Maintaining sidewalks, crosswalks, and safe sight lines for pedestrians/vehicles
- Maintaining full access to businesses/residences

During March 2011, this initiative was expanded to include all SAS work zones.

Observation:

Outreach efforts of this nature are necessary to counter the ongoing complaints of businesses allegedly affected by construction. Responses to community and business concerns are timely. The project recognizes that more community buy-in is needed to minimize the probability of community distress.

Concerns and Recommendations:

None

3.0 PROJECT MANAGEMENT PLANAND SUB-PLANS

Status:

The PMOC has completed its review of PMP Revision 8 (update) and is tabulating its comments. Comments will be provided to MTACC by the end of April 2011.

Observations:

The SAS Project Management Team has developed Candidate Revisions to its Project Management Plan. These proposed revisions and accompanying work papers have been provided to the PMOC. *In general the updated PMP addresses the processes defined in the ELPEP*

Concerns and Recommendations:

Any specific concerns will be documented in the review comments to be forwarded to the MTACC

3.1 PMP Sub Plan

Status:

As part of the Candidate Revision process for the update of the PMP, the Sub-Plans have been identified and will be referenced in the section of the PMP, which relates to its subject matter. *The Sub-Plans are being updated to assure consistency with the PMP.*

Observations:

SAS Sub-Plan documents to be referenced 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:

None

3.2 Project Procedures

Status:

No change in status this period.

4.0 PROJECT SCHEDULE STATUS

4.1 Schedule Status

Status:

IPS Update #56 was received on April 01, 2011 and is based on a Data Date of March 01, 2011. Update #56 contained a narrative report, a schedule variance report, a schedule revision log and "PDF" versions of several schedule reports. Project schedule completion milestone dates remained essentially unchanged for this period. MTACC continues to forecast completion of all construction on 07/15/16, with 165 calendar days of contingency until its committed RSD of 12/30/16.

Table 4-1: Summary of Schedule Dates

	FFGA	*Forecast Completion*	
		Grantee	*PMOC*
Begin Construction	*January 1, 2007*	*03/20/2007A*	*03/20/2007A*
Construction Complete	*December 31, 2013*	*May 23, 2016*	*October 2017*
Revenue Service	*June 30, 2014*	*December 30, 2016*	*February 2018*

During the month of March 2011, progress continued on the four (4) active construction packages:

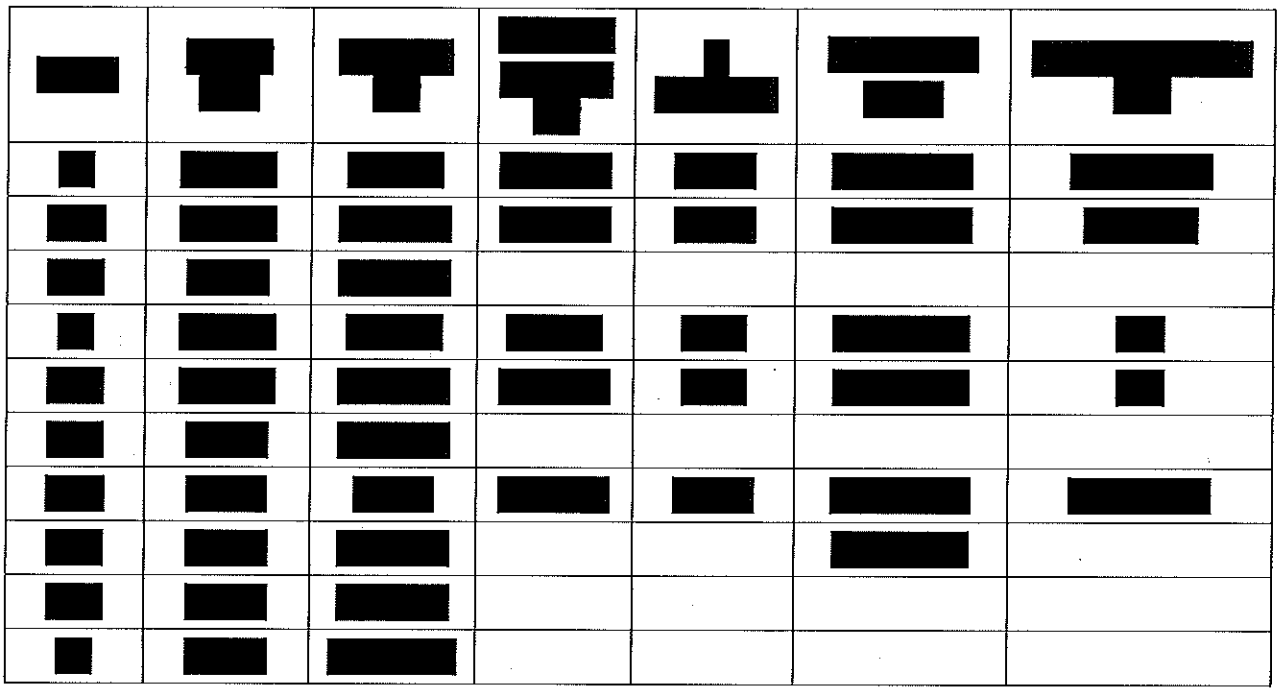
- C-26002 (C1) TBM Tunneling and 96th Street Box,
- C-26005 (C2A) 96th Site Work and Heavy Civil,
- C-26013 (C5A) Open Cuts and Utility Relocation, and
- C-26007 (C4B) 72nd Street station Cavern mining & Lining.

The IPS does not currently reflect the C4B contractor's work plan. The C4B baseline CPM schedule has been accepted and a summary of that schedule will be incorporated in the IPS during the next reporting period. Construction has not started on Package C3 (63rd Street Station). The Contractor's 90-day schedule has been accepted and development of the Detailed Baseline Schedule is underway..

Work activities required to "dust-off" the three (3) station finish packages have been identified this period. Sequence and duration will be established and the activities cut-in to the IPS for the next update.

[redacted]

[redacted]



[redacted]

Observations and Analysis:

A partial listing of schedule statistics for this update includes the following:

Category	*Value*	*Explanation*
Total # of open schedule activities	*1643*	*Total of 3730 activities contained in the schedule. 2087 activities have been statused as 100% complete*
Schedule Duration (DD->FD)	*70 MO*	*03/01/11 -> 12/30/16*
Open Ends; activities with no successor.	*349*	*Ideally, there are only two open ends for a schedule, the first and last activities. Too many open ends may indicate incomplete logic and affect the schedule float calculations*

Category	*Value*	*Explanation*
Added/Deleted activities	*9/2*	*Small changes indicate a fine-tuning of the schedule. Large number of changes may indicate a change in overall plan.*
Change in Total Float greater than the duration of the reporting period		*Suggests significant changes in logic. Validation of changes resulting in change should be conducted.*
Lags with duration >0/Negative lags	*9/2*	*Lags with duration value may not be clearly identified in schedule reports and distort the evaluation of a schedule.*

The following table identifies milestones or other significant "target activities" that will be monitored over Q12011. IPS #54 will serve as the "baseline" for this near-term evaluation of actual vs. planned schedule performance.

Table 4-4: Quarterly Schedule Target Comparison

Act #	*Description*	*IPS Update #54 DD=01/01/11*	*IPS Update #56 DD=03/01/11*	*Difference (CD)*
C-26002; TBM Mining				
S6100d	***Mine West Tunnel; Launch Box to 65th Street (Complete)***	***22-Feb-11***	***04-Feb-11A***	***-18***
S9100b,c,d	***Mine East Tunnel; 96th Street Launch Box to 63rd Street (Start)***	***02-May-11***	***21-Mar-11A***	***-45***
C-26005; 96th Street Station – Site Work/Heavy Civil				
4S200	Commence Slurry Walls	*23-May-11*	*16-Jun-11*	*24*
A117	Commence Temp SOE @ Ancillary #1 *(Note 3)*	*08-Jun-11*	*05-Apr-11*	*-64*
C-26007; 72nd Street Station – Cavern Exc./Heavy Civil				
CS110	***Complete 69th Street Shaft Exc.***	***17-Jan-11***	***09-Feb-11A***	***23***
CN110	Complete 72nd Street Shaft Exc.	*14-Jan-11*	*10/Mar-11*	*55*
C-26006; 63rd Station Upgrade				
035	Commence Demo	08-Apr-11	08-Apr-11	0
C-26013; 86th Street Station – Utility & Site Work				
5N020	Start Drill/Blast/Exc. – North	*07-Jun-11*	*24-Jun-11*	*17*

Act #	Description	IPS Update #54 DD=01/01/11	IPS Update #56 DD=03/01/11	Difference (CD)
	Shaft			
HO2	C5A->C5B Handoff; Mech. Mining @ North Shaft	*25-Jul-11*	*11-Aug-11*	*17*

1. "Baseline" schedule for this quarter is Update #54
2. Negative (-) value indicates earlier date than baseline
3. *Completion date remains the same despite earlier start date.*

Concerns and Recommendations:

Schedule progress during February 2011, with the exception of construction procurement, generally proceeded in accordance with the previous month's forecast.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project Schedule (IPS) Update#56 (DD=03/01/11), major activities that can be anticipated over the upcoming 90 days include the following:

Table 4-5: 90-Day Look-Ahead Schedule

Activity ID	Start	Finish	Note
C1- TBM Construction – Tunnel 96th Box (91st to 95th)			
Start TBM-2	*03/21/11*	*03/21/11A*	*1*
Tunnel Concrete 72nd ->86th Street Stns	*04/19/11*	*07/13/11*	
C2A – 96th Street Station Sitework & Heavy Civil			
Complete AW) #62 #66 Utility Relocations		*05/16/11*	
Begin Slurry Wall Const. (Stage 4; 95th to 97th St, West Side)	*06/16/11*		*2*
C4B – 72nd Street Station Mining & Lining			
72nd Street Muck Handling Superstructure/Muck Handling System.	*04/19/11*	*05/19/11*	*3*
69th Street Shaft; Drill & Blast	*04/04/11*	*05/13/11*	
Instrumentation			
Cavern Zone of Influence Baseline	*04/04/11*	*04/18/11*	
G3 Cavern Zone of Influence Baseline		*04/12/11*	
G4 Cavern Zone of Influence	*04/29/11*	*05/07/11*	
C5A-86th St. Station Sitework			
Drill/Excavate SW Shaft		05/06/11	4
C5B – 86th St. Station Mining & Lining (IFB)			
Contract Award		03/29/11	5

Activity ID	Start	Finish	Note
C6 – Systems (RFP)			
Submit Proposals	*05/18/11*		
Proposer Presentation	*06/20/11*		

Observations and Analysis:

90-Day Look-Ahead Notes:

1. *Actual date incorporated in this forecast.*
2. *Secondary Critical Path Activity, TF=2.*
3. *Planned activity obtained from Contractor's six-week look-ahead schedule, dated 04/07/11.*
4. *Critical Path Activity*
5. *Contract award currently delayed while "Buy America" and DBE contracting issues are resolved.*

Concerns and Recommendations:

The SAS Project Team actively manages the project schedule and has been able to hold the currently calculated RSD for over six months. Forecasting and managing problems in the 90-Day Look-Ahead window has generally been well executed.

As construction delays have significantly eroded float on secondary paths, increasing the risk of a delay impacting the critical path before corrective action can be implemented. Identification and mitigation of potential delays beyond the 90-Day Look-Ahead window will be a key to maintaining the current schedule. PMOC recommends additional resources be allocated to intermediate and long-term schedule evaluation as a means of upgrading the project teams capability to manage the schedule.

4.3 Critical Path Activities

Status:

Table 4-6 summarizes the critical path as reported in IPS Update #56.

Table 4-6: Critical Path Activities

Activity ID		Update #55 Duration	Start	Finish
C5	***86th Street Station***	***1232***	***01-Mar-11***	***27-Sep-15***
C5A	*86th Station - Excavation & Utility Work*	*246*	*01-Mar-11*	*05-Oct-11*
C5B	86th Station - Mining & Lining	551	10-Oct-11	20-Nov-13
C5C	86th Station - Architectural & MEP Finishes	435	20-Nov-13	24-Jul-15
C6	System Installation (86th Street Station)	170	12-Jan-15	4-Sep-15

Activity ID		Update #55 Duration	Start	Finish
C6	**Systems (Track, Signal, Traction Power & Communication)**	**185**	**7-Sep-15**	**20-May-16**
C6	Construction	185	7-Sep-15	20-May-16
NYCT	Pre-Revenue Operation Test & Revenue Service	85	21-Mar-16	15-Jul-16
	Phase 1 Substantial Completion	0	15-Jul-16	15-Jul-16
	Phase 1 Schedule Contingency	**120**	**16-Jul-16**	**30-Dec-16**
	Completion w-Schedule Contingency	120	16-Jul-16	30-Dec-16

The formal IPS critical path, as reported, is initiated by Contract 5A utility relocations and shaft excavations. In October 2011, upon completion of the south shaft by C5A, the critical path is "handed off" to Contract 5B where it follows the south cavern excavation and structural concrete work until November 2013, when the critical path shifts to Contract 5C. This Contract continues with the structural construction and turns over select work areas to Contract 6 in September 2015. Systems installation continues through May 2016, followed by system testing and startup activities. *With minor variations resulting from construction delays on C5A, this path has been "critical" for approximately six months.*

The calculated completion of Phase 1 is currently July 15, 2016, which provides 120 WD of contingency (float) for the RSD on December 30, 2016, which is unchanged from the last update.

Observations:

Closer examination of specific tasks on the project critical path indicates that some changes have occurred this period.

Update #	*#55*	*#56*
Activity #:	*C5A 4S120*	*C5A 4S120*
Description:	*Excavate Soil/Install Lagging/Support Utilities*	*Excavate Soil/Install Lagging/Support Utilities*
Duration:	*27 WD*	*34 WD*
% Complete:	*0%*	*0%*
Successor Relationship:	*C5A 4S125* *Finish-to-Start* *Lag = 0*	*C5A 4S125* *Finish-to-Finish* *Lag = 31*

During this update, it was determined that the planned duration of Activity # 4S120 needed to be increased by 7 working days. However, the successor relationship with Activity # $S125 was also changed in such a way that there was no net change to the schedule float along the path containing these activities. This is a significant issue because:

- *Both activities are on the project critical path.*

- *If the original schedule logic was retained, the project would have experienced a delay of 7 working days; 7 working days of available schedule contingency would have been consumed.*
- *This change was not within the narrative or the revision history which accompanied Update #56.*
- *The revision to the schedule logic should be explained and validated with construction personnel to ensure that it is not simply a "paper change" that cannot really be implemented in the field.*
- *An undocumented change to the critical path of this nature allows the potential conclusion of schedule manipulation and concealment of the real status of the project.*

Every change to the schedule made during an update need not necessarily be documented to the extent described above. However, changes made on, or near the critical path should be substantiated as a means of supporting the accuracy and reliability of the information in the schedule and the transparency of the update process.

The PMOC has identified the following "near-critical" paths of the IPS:

- *TOTAL FLOAT = 2 WD. This path runs through construction of the 96th Street Station. It is initiated by the completion of Stage 2 Utility Work, followed by Stage 4 and 5 Slurry Wall and Deck Installation. Completion of C2A work controls the handoff to C2B, currently forecast for June 3, 2013. Station structural and MEP work through April 2015, at which time station systems are connected to the LAN system. From that time, station and tunnel system testing activities control this path.*
- *TOTAL FLOAT = 10 WD. The third most critical path has a total float of 10 days and begins in the Contract C26002 TBM excavation. After completion and withdrawal of the TBM, the path connects to the C5B 86th Street Station for cavern mining. From that point forward, the path intersects the current critical path. Variances in TBM production and general CPM accuracy render the 10 days of float difference between these paths as insignificant. The actual date for the start of TBM-2 was incorporated in this update. Consequently all float improvements resulting from recent schedule gains have already been realized in this update.*
- *TOTAL FLOAT = 27 WD. Ongoing delays resulting from cable TV/sewer line interferences (AWO#066 and 068) initiate this path. C2A continues to encounter problems and delays resulting from utility interferences, which impact slurry wall and deck installation as well as station excavation work. C2A work subsequently controls the start of C2B via three handoffs to structural concrete work. After completion of structural and MEP work this path becomes concurrent with the TF=2 WD path.*
- *TOTAL FLOAT = 37 WD. The next independent float path is initiated by C6 (Systems) procurement, mobilization and engineering submittals. Signal installation begins in March 2013 and controls this path through the start of station and integrated testing. however, C6 shares responsibility for several other near-critical paths via testing and commissioning of station systems. This path is of great concern due to the numerous risks that remain for delays to procurement, construction and systems integration and testing activities.*

- *TOTAL FLOAT = 58 WD. This path extends through C4B cavern excavation. It is transferred to C4C at contract substantial completion. C&C structural and finish work control this path until the start of station MEP testing in February 2015.*

Concerns and Recommendations:

There are numerous dependent paths that are subsidiaries of these primary paths. There are 1642 "active" activities in Update #56 of the IPS. 427 (26%) of those activities have a calculated float value of less than 60 working days. Any of the paths described above could encounter a delay and rapidly overtake and become the "primary" and controlling critical path.

- *The ongoing utility interference issues and numerous control/handoff points between C2A and C2B suggest that this may be the "most critical" path.*
- *There is a very significant risk that procurement delays will consume much of the 37 WD of float along the C6 independent path.*
- *TBM mining and work at 96th Street Station are currently maintaining their respective schedules, but geotechnical variations and unknowns remain a major risk to the project schedule.*

As a result of the many exterior constraints on the project as well as the inflexibility of the construction logic, the ability to economically accelerate the schedule to recover lost time appears extremely limited. This emphasizes the "criticality" of actively managing activities on the critical path(s) to avoid major delays that could dramatically affect the schedule. Over the past year, the SAS Project Team has successfully managed issues and delays on or near the critical path.

One reason the SAS Team has been successful in maintaining schedule is the cooperation they have received from the package general contractors. Prompt execution of its administrative duties is the best way MTACC can maintain this cooperation. MTACC's current inability to execute AWOs in a timely manner (Section 5 of this Report) is a significant risk to this ongoing cooperation. As has been noted previously, the PMOC recommends meaningful steps be taken to improve MTACC ability to manage this aspect of the project. .

4.4 Compliance with Schedule Management Plan

Status:

The PMOC has established a structured review of the MTACC's compliance with its Schedule Management Plan, developed as part of the overall ELPEP process. The initial formal review was conducted this period.

Observations and Analysis:

Schedule Management Plan compliance is based upon achieving four (4) "Beneficial Outcomes" identified in the ELPEP and related documents.

1. Establish the IPS' usefulness as a management tool for the planning and organizing the work, and as a decision support tool for evaluation of alternatives and risk-based scenarios.
2. MTACC is actively managing and controlling individual packages and the overall project with input from and consideration of the project schedule.

3. Provide reliable forecasts of the SAS revenue service date (RSD) and other major accomplishments.
4. Facilitate communication of project time-related information, priorities, issues, and changes, as may be required.

Specific Processes, Products and Metrics cited in the ELPEP and companion documents, supporting each "Beneficial Outcome" have been summarized and grouped in a worksheet. A summary of the review conducted this period:

- *MTACC "Conforms" to 20 of 24 performance measures.*
- *MTACC "Does Not Conform" to 4 of 24 performance measures.*

There are several items noted as a part of this review that should receive attention:

- *The PMOC identified what appears to be an undocumented change to the critical path this period. As numerous paths converge on "critical", the impact of changes to these paths is amplified. Changes to critical and near critical paths should be documented.*
- *Excessive float exists for certain activities, primarily for the station finish contracts. This suggests incomplete schedule logic and represents a potential compromise to the reliability and accuracy of the IPS forecast.*
- *The IPS is a summary schedule; as such, it may not contain the level of detail necessary to demonstrate the effect of certain scope changes or transfers. If this is the case, supplemental reporting or analysis should be employed as a true "functionally equivalent" model of the resulting schedule (and cost) changes).*

Concerns and Recommendations:

In general, the PMOC notes that MTACC is realizing the beneficial outcomes established by the ELPEP. Based upon this analysis, the MTACC's IPS currently "Conforms" to the Schedule Management requirements established by the ELPEP.

Several of the issues noted above represent potential compromises to the accuracy and reliability of the IPS. As such, they should be addressed in the immediate future.

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 has not approved the removal of the vehicles from the scope of work.

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:

For the active construction contracts, AWOs to date are summarized as follows:

Table 5-2: AWO Summary

Contract	% Complete	Award	Exposure		Notes
			$	% of Award	
C26002 (1)	81.00%	$337,025,000	*$51,256,419*	*15.20%*	AWO#92 is included in this evaluation
C26005 (2A)	29.70%	$325,000,000	*$21,584,237*	*6.64%*	Options 1 & 2 included in award value
C26013 (5A)	58.30%	$34,070,039	*$7,442,805*	*21.85%*	
C26007 (4B)	2.40%	$447,180,260	*($124,446)*	*-0.03%*	
C26006 (3)	0.00%	$176,450,000			
TOTAL		$1,319,725,000	*$80,283,461*	*6.08%*	
TOTAL		$696,095,000	*$80,568,517*	*11.53%*	C26002, C26005, C26013 only
TOTAL		*$696,095,000*	*$61,883,517*	*8.89%*	C26002, C26005, C26013, w/o , *AWO#92*

During March 2011, the Authorized Work Orders (AWOs) document files, from the C-26002 (Contract 1) and C-26005 (Contract 2A) contracts, were reviewed and evaluated to determine if the project team followed procedures prescribed in the Project Management Procedure (PMP), "Processing Construction Additional Work Orders", dated September 4, 2007, revision 11.2. Additionally, the same set of AWO files were reviewed to determine if the files sufficiently included supporting documentation, such as request for proposals, contractor proposals, estimates, and other required documentation.

This evaluation started with an overall review of the time required to process AWOs. The source of this data was from the AWO status spreadsheets provided by the Construction Manager of the 2nd Avenue Program.

AWO Processing Duration Average				
Contract	*Type*	*Days Average (#of AWOs)*		*% change from previous year*
		2009	*2010*	
C-26002 (Contract 1)	*Board*	*234.5 (2)*	*212.8 (4)*	*-9.3%*
	Non-Board	*43.8 (16)*	*102.9 (9)*	*134.9%*
	Non-Board (Retroactive)	*316.5 (2)*	*125.0 (2)*	*-60.5*
C-26005 (Contract 2A)	*Board*	*127 (1)*	*234 (1)*	*84%*
	Non-Board	*27.1 (9)*	*49.8 (14)**	*83.7%*
	Non-Board (Retroactive)	*172.0 (2)*	*155.8 (10)*	*-9.4%*
C-26013 (Contract 5A)	*Board*	*n/a*	*n/a*	*n/a*

AWO Processing Duration Average				
Contract	Type	Days Average (#of AWOs)		% change from previous year
	Non-Board	n/a	80.3 (19)	n/a
	Non-Board (Retroactive)	n/a	141.6 (8)	n/a

** AWOs 16 & 18 were not included with this calculation because the duration was substantially greater than the other AWOs. AWO 16 duration was 222 days and AWO 18 duration was 441 days. If these AWOs were included with the average calculation, the resulting average was calculated to be 85 days, an increased duration of 213.7%.*

This table is reflective of the measurement between the RFP/AWO Issued date and the Notice to Proceed date as shown in the spreadsheets (E-A in the table below).

A	B	C	D	E	(E-A)
RFP / AWO Issued	Retroactive Variance Submitted	Retroactive Variance Approved	Direction To Proceed Letter	Notice To Proceed (NTP)	AWO Processing Duration
Date	Date	Date	Date	Date	Days

According to this brief comparison of processing duration of AWOs, the overall processing duration average for non-board AWOs for contracts 1 and 2A has increased from 2009 to 2010, 134.9% and 83.7% respectively.

Additionally, the total number of retroactive non-board AWOs increased significantly from 2009 to 2010 for contract 1. The trend for retroactive non-Board AWOs appears to be increasing. Additionally, the duration for processing these AWOs appears to be significantly high, with an overall average of 151.8 days for all the completed retroactive non-Board AWOs.

A review of the spreadsheets did not show any pattern or trend for the significant time between each milestone date in the spreadsheet.

Evaluation of AWOs

The following AWOs were selected, reviewed, and evaluated.

Contract	AWO	Description	Amount
C-26002	93	Façade Ties 1821, 1823, 1825, 1827, & 1829 2nd Avenue	$233,000
	103	Ground Freezing Above East Tunnel	$6,582,000
	117	Freeze Zone Instrumentation	$249,318
C-26005	38	ECS Amplifying Drawings and Additional Related Work	$160,000
	55	Electrical Amplifying Drawings	In Progress
	66	ECS-Sewer Conflict at Former 98th St	In Progress

Please note: All the AWOs reviewed were retroactive AWOs and the cause code was identified as "Field Conditions."

C-26002 (Contract 1)

AWO-093: *A February 18, 2010 Documentation of Initiation memo indicated the reason for change was that the excavation of the TBM launch box caused movement of adjacent buildings, specifically the façades of these adjacent buildings. This information substantiated by tilt meters on the effected buildings in December 2009.*

The contractor provided a proposal on February 18, 2010, and the MTA estimate was dated February 19, 2010. The Record of Negotiations was dated February 19, 2010.

The MTA memo to the Deputy Program Executive was dated on February 23, 2010, and concurred by management between February 25, 2010 and March 3, 2010. This memo was reviewed and approved from June 11 to June 25, 2010, within the PMP prescribed 30-day period.

According to the PMP for change orders, 3.14 Retroactive Additional Work Orders, the Construction Manager (CM) was to notify the Procurement Manager (PM) immediately. Based on a review of the documentation within the AWO file, it appeared that the memo was not forwarded until at least five days after negotiations (from February 18 to February 23, 2010). The AWO file did not include any prior dated documentation. If any communication occurred, then copies or notations should be included within the AWO file.

AWO-103: *Technical Advisory Committee approval was sought for the ground freezing from STA 1221+10 to 1219+65. Initial RFP was dated May 6, 2010; however, another RFP was forwarded on June 4, 2010.*

Three Contractor proposals were found in the AWO file dated May 12, June 7, and July 7, 2010. Two confidential AWO estimates were included in the file dated May 25 and June 4, 2010.

A memo from Construction Manager to Procurement Manager requesting permission to proceed with work prior to formal approval was forwarded on June 7, 2010. This memo was reviewed and approved from June 11 to June 25, 2010, within the PMP prescribed 30-day period.

The Record of Negotiations (RON) was dated August 24, 2010, and included a hand-written noted a pre-meeting appeared to have occurred on July 12, 2010. Also noted on the RON was that schedule impacts were going to be addressed under a separate AWO.

One item of note was that the contractor submitted an October 15, 2010 letter that it received "the 'Fully Executed' Notice to Proceed for AWO 103 – Ground Freeze" on October 1, 2010." Also, the contractor submitted a time impact analysis indicating a request of 35 work days. The documentation within the file did not show if this request for time was addressed or responded.

AWO-117: *This AWO was related to AWO-103 Ground Freezing. This AWO was for the instrumentation necessary for the ground freezing operation. The same justification appeared to be used as AWO-103.*

The initial request was forwarded on July 28, 2010. However, three RFPs followed, dated November 3, November 15, and December 14, 2010.

The contractor submitted proposals on November 30 and December 16, 2010, and February 10, 2011, apparently as a result of a February 8, 2011 meeting, as referenced in its letter.

Additionally, there were three confidential AWO estimates dated November 18 and December 20, 2010, and February 9, 2011.

The RON was dated February 8, 2011. The RON notes indicated there were no impact costs or effect on the schedule.

It appears that the scope of the work was not finalized until the February 2011. The one noteworthy discrepancy was that the RON predated the final AWO estimate by one day.

C-26005 (Contract 2A)

AWO-038 - ECS Amplifying Drawings and Additional Related Work:

The following text provided the description of the change.

> *Following the review of the conformed communications drawings by ECS (Empire City Subway) the ECS system from 95th to 99th Streets along 2nd Avenue has been modified due to Amplifying Drawings issue No. 2 which incorporated comments from ECS. During the installation of an ECS duct to an existing vault along 97th Street the vault was discovered to be located approximately 200 LF further to the east than was indicated on the drawing requiring an additional length of duct to be installed.*

According the AWO file, the contractor notified MTA of the discrepancy on October 19, 2009. The following dates provide the timeline of events for this AWO.

May 25, 2010 – AWO Initiation

June 10, 2010 – RFP forwarded to contractor

July 7, 2010 – MTACC Estimate (revised September 14, 2010)

August 16, 2010 – MTACC time impact analysis

September 20, 2010 – Record of Negotiations

October 11, 2010 – request for approval for Retroactive AWO

October 18, 2010 – Procurement memo submitted

October 28 to November 23, 2010 – procurement memo coordinated for signature

November 30, 2010 – Assistant Chief Procurement Officer signs off

December 1, 2010 – NTP to contractor (please note that contractor signed NTP on October 11, 2010.

Process duration was 408 calendar days from the time of the contractor's notice to the NTP.

The next two AWO files reviewed were AWOs that were still in progress and not completed.

AWO 55 - Electrical Amplifying Drawings

The AWO concerned the electrical system modifications due to ConEd comments on "Amplifying Drawings." 91 changes were identified – deletion and addition of duct work, excavations, backfill, and manholes. An unidentified document appeared to show that an initial scoping meeting occurred on October 16, 2010.

Few records were found in this working file. An undated draft Request for Approval of Retroactive AWO was found. In the draft, the description for the change was "[t]he additional work is due to changes between the conformed drawings and the amplifying drawings and in addition due to unexpected conflicts encountered in the field."

According to the AWO spreadsheet, the Request for Approval was forwarded on November 16, 2010 and approved on December 13, 2010, within the PMP prescribed 30-day period.

The contractor was directed to proceed with the work of AWO 55 on January 10, 2011.

This AWO is not completed.

AWO 66 - ECS/Sewer Conflict at Former 98th St.

According to the records in the file, the scope meeting was held on November 18, 2010. The Request for Approval of Retroactive AWO was submitted on December 8, 2010. The spreadsheet

MTACC forwarded the RFP on December 29, 2010. MTACC provided a confidential estimate by January 21 and the contractor submitted its estimate by January 24, 2011.

Also, on December 20, 2010, MTACC provided a Retroactive Direction to Proceed, not to exceed $100,000.

This AWO is not completed.

Conclusions and Recommendations:

As a result of this review and evaluation of the estimates found in the AWO document files, it is requested that the PMO have the opportunity to review the detailed estimates of the sample AWOs that were reviewed.

The "Record of Negotiations" appeared to be insufficient describing the details of the negotiations. The PMO recommends that the Grantee prepare a more complete "Record of Negotiations" that describes the details of the negotiation process, the agreements and disagreements between the Grantee and the contractor, and deviations from the in-house estimates.

Time Impact Analyses have not been included with this current review and evaluation, except for AWO 093. However, time analysis was deferred to an overall time impact analysis evaluation for the project. A review of these analyses is necessary to determine the appropriateness of the extending the project completion dates for each of the contracts.

As noted in a previous review, over 70% of completed and executed AWOs had the Cause Code marked as "Field Condition."

Contract 1 *72%*

Contract 2A *70%*

Contract 5 *73%*

According to the definition in the PMP, "Field Condition" is an unforeseen condition discovered during construction that was not known or not reflected in the contract documents. Many of these AWOs appeared to have an unknown aspect. A review of the AWO descriptions appeared that most were related to utility work.

Based on the amount of utility-work AWOs, there appears to be a problem with the original contract documents related to the original scope of work for utility relocation. It is recommended that the Grantee may want to address the perceived problem for future procurements.

Construction cost increases will be the primary driver of cost variances going forward. To date, the project has experienced cost growth equal to approximately 9% of the value of construction contracts awarded. The SAS Phase 1 Cost Estimate (Revision 8), incorporates an AWO % between 5% and 8% for future construction packages. These rates are justified by reduced utility, geotechnical and "fragile building" risks for these packages.

5.2 Cost Variance Analysis

Status:

Using the MTACC financial reporting format contained in its Capital Construction Reports, the PMOC has prepared an independent Estimate-At-Completion (EAC) for Phase 1 of the Second Avenue Subway Project. This estimate is based on the following:

- *MTACC's SAS Phase 1Construction Cost Estimate (Revision 8, October 2010) for the project and the subsequent validation study.*
- *MTACC's SAS Phase 1 Soft Cost Estimate (Revision 8, December 2010).*
- *Cost information provided by the SAS project team through established periodic reporting.*
- *A risk-based evaluation by the PMOC. Each category of cost was evaluated. Risks of future cost growth were evaluated based upon level of completion, inherent volatility and project history. Low, medium and high levels of risk mitigation were considered.*

Observation and Analysis:

The PMOC's updated Estimate-At-Completion for the SAS (Phase 1) project is summarized in the following table:

Component	Current Working Budget	MTACC EAC	PMOC EAC	High Mitigation	Medium Mitigation	Low Mitigation	Comment2
EIS	$11,599,831	$11,599,831	$11,599,831	$11,600,000	$11,600,000	$11,600,000	Complete
PE & FP Eng.	$227,338,756	$227,338,756	$400,000,000	$395,000,000	$397,500,000	$400,000,000	Design phase 99.9% complete. Low risk of major cost increase
Final Design	$199,746,256	$180,000,000					
Const Support	Incl	$35,000,000	$42,000,000	$27,500,000	$34,500,000	$43,000,000	High mitigation = current budget of $27.5M. Low mitigation = revised estimate of $43M
Construction	$3,034,697,117	$2,951,802,142	$3,000,000,000	$2,951,802,142	$3,150,000,000	$3,326,344,978	High mitigation = current MTACC EAC. Low mitigation = previous PMOC EAC
NYCT F/A	$33,000,000	$40,000,000	$33,000,000	$40,000,000	$45,000,000	$50,000,000	High mitigation = current MTACC EAC. Low migiation = +$10M
NYCT F/A (1)		$9,500,000	$9,500,000	$10,000,000	$9,500,000	$10,500,000	Medium Mitigation = current estimate
Eng Force Account	$70,000,000	$70,000,000	$70,000,000	$70,000,000	$75,000,000	$80,000,000	Maintain current budget as high mitigation. Cost growth mitigated by adding positions under other categories via consultants. Low mitigation = + $10M
Utilities	$64,000,000	$75,300,000	$64,000,000	$70,000,000	$75,300,000	$85,000,000	Revised Estimate (Rev 8) = Medium Mitigation.
CCM	$96,000,000	$116,000,000	$96,000,000	$105,000,000	$116,000,000	$120,000,000	Revised Estimate (Rev 8) = Medium Mitigation.
Artwork	$6,000,000	$6,000,000	$6,000,000	$6,000,000	$6,000,000	$6,000,000	
Rolling Stock	$0	$0	$0				Direction from FTA required.
Real Estate	$245,000,000	$200,000,000	$200,000,000	$185,000,000	$200,000,000	$245,000,000	Revised Estimate (Rev 8) = Medium Mitigation.
Cost To Cure	$47,000,000	$37,000,000	$20,000,000	$32,000,000	$37,000,000	$47,000,000	Revised Estimate (Rev 8) = Medium Mitigation.
OCIP	$172,000,000	$172,000,000	$172,000,000	$172,000,000	$175,000,000	$180,000,000	Current quote thru 12/31/16 = high mitigation. Med/Low mitigation represents estimated increases due to schedule slippage
Exec Reserve	$238,302,883	$0					
TOTAL	$4,451,000,000	$4,119,940,898	$4,112,500,000	$4,075,902,142	$4,332,400,000	$4,604,444,978	

This approach yields a range for the Estimate-At-Completion between $4.08B and 4.50B. This estimate does not include the cost of railcars nor does it include any finance cost.

Conclusions and Recommendations:

Based on the information available, the PMOC's EAC essentially validates the reasonableness of the MTACC's Current Working Budget of $ 4.451B. This effort will be revisited periodically, at a minimum quarterly, to incorporated updated information and evaluate its effect on the overall EAC.

5.3 Project Funding Status

Status:

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

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

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru *March 31, 2011*
NY-03-0397	$4,980,026	$4,980,026	$4,980,026
NY-03-0408	$1,967,165	$1,967,165	$1,967,165

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru *March 31, 2011*
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	*$65,334,404*
NY-03-0408-07	*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	$8,652,432
NY-95-X015-00	$45,800,000	$45,800,000	0
Total	$628,911,200.00	$628,911,200.00	*$356,545,006.00*

* Denotes American Recovery and Reinvestment Act (ARRA) funds

Local funds totaling$815,183,833 ($1,171,728,839- $356,545,006) have been spent as of March 31, 2011. 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. MTA needs to approve $942 million for the 2012-2014 timeframe.

Observation and Analysis:

Concern over the availability of [redacted] local [redacted] funding has prompted considerable speculation regarding the future of the project. The PMOC's evaluation of funds currently obligated to the project vs. forecast expenditures is summarized as follows:

$4,451 - Project Cost (MTACC Current Working Budget)
$ 222 - Railcars
$4,673 - TOTAL PROJECT COST (Exclusive of Financing Costs)
$2,964 - Prior NY Local Funding (Capital Plans; 2000-2004, 2005-2009)
$1,709 - Subtotal
$ 545 - Funding received from 2010-2014 Capital Plan
$1,164 - Subtotal
$ 629 - Federal funding to date
$ 535 - Shortfall; with railcars
$ 313 - Shortfall w/o railcars

Without additional funding, no matter what the decision on railcars, SAS can award contracts scheduled through mid-2012 (C2B). Without additional funding, and without railcars, SAS can award contracts through 2012 (C4C).

Concerns and Recommendations:

The availability of funds to support the construction procurement process and its impact on the manner in which the project progresses is a key concern for all parties. PMOC will continue to monitor the situation and assist all parties in evaluating the funding situation.

6.0 PROJECT RISK

6.1 Initial Risk Assessment

Status:

No change this period.

6.2 Risk Updates

Status:

No updates for this period.

6.3 Risk Management Status

Status:

Two Risk Analyses are currently underway:

- *MTACC has received preliminary results of the 86th Street Station risk analysis. Minor comments and revisions were provided. Final report should be available in March 2011.*
- *C26009 Systems Risk Analysis will be conducted from March 9 through March 11, 2011.*

Observation and Analysis:

The results of these analyses will be evaluated against IPS schedule and project budgets. Adjustments will be made where warranted.

Conclusions and Recommendations:

None.

6.4 Risk Mitigation Actions

Status:

Mitigation of construction risk is an ongoing process. In recent months, the PMOC has identified the extended duration required by MTACC/NYCT to process construction AWOs. This problem has been acknowledged by MTACC. *As of March 2011, minimal progress on improving the situation has been achieved.*

Observation:

The matter was discussed at the February 24, 2011 Joint ESA/SAS Quarterly Meeting. At that time, it was determined that a follow-up meeting would be held to compare the SAS process with that of ESA. This was considered to be beneficial because ESA has a much more efficient process for administering AWOs.

Concerns and Recommendations:

It is generally recognized that the Project Owner's timely execution of its contractual obligations is a key to minimizing cost and schedule growth (risk) during the construction period. This generally includes:

- *Timely review of technical submittals*
- *Timely response and resolution of technical problems*
- *Timely payment to contractors*
- *Timely administration of contract modifications.*

To date, items of this nature have not been included in the MTACC's construction risk mitigation capacity. Objective metrics for monitoring these performance elements are available, however, to date they do not appear to be in widespread use on this project. PMOC recommends appropriate construction phase performance activities and metrics be identified and incorporated in the MTACC's Risk Mitigation Capacities that is currently under development.

6.5 Cost and Schedule Contingency

6.5.1 Cost Contingency

Status:

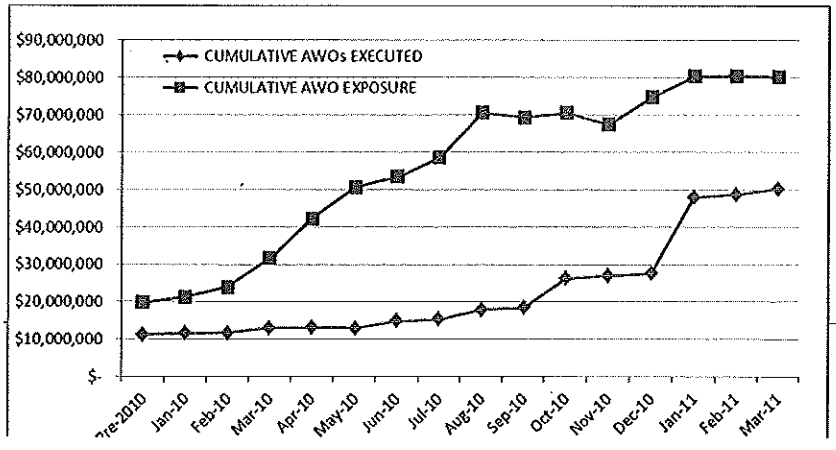
The ELPEP requires the MTACC to develop a Cost Contingency Management Plan (CCMP), which will define how the MTACC will forecast required contingency funds, manage and transfer all project cost contingency funds, and how the minimum level of contingency will be maintained. The MTACC submitted an updated CCMP, which is currently under review. MTACC has agreed to maintain minimum contingency balances referenced in the ELPEP:

- $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

Observations and Analysis:

Using the MTACC's methodology, the PMOC has developed a contingency analysis for the project. Through March 2011, cost contingency status is summarized as follows:

Planned Balance:	*$*	*431,799,247*
Actual Balance (using executed AWOs):	*$*	*513,900,860*
Actual Balance (using AWO Exposure):	*$*	*483,892,883*



The MTACC Draft Cost Management Plan indicates that Available Contingency is calculated based upon

executed AWOs. In the opinion of the PMOC, Available Contingency should be calculated using the "AWO Exposure" value tabulated in the monthly AWO tracking logs. *Currently, the difference between "AWO Exposure" and "Executed AWOs" is approximately $30M. Review of these tabulations over the past year indicates this difference has remained essentially constant. The accompanying graphic illustrates this point. By continuing to utilize "Executed AWOs" in the contingency evaluation, MTACC is essentially using information that is 7 months out-of-date.*

Concerns and Recommendations:

MTACC is using a rigorous and disciplined methodology for tracking and reporting on construction contract cost growth. As demonstrated above, at this time, using either method, the current contingency balance exceeds both the planned balance and the ELPEP Threshold.

The PMOC is concerned that the methodology utilized on the Second Avenue Subway Project is responsive to the specific issues and needs of the project and provides timely and useful information.

6.5.1 Schedule Contingency

Status:

Schedule contingency reported by MTACC, based upon Update #56 of the SAS IPS exceeds threshold limits established by the ELPEP. Schedule contingency measured against MTACC's RSD commitment date of 12/31/16 is 168 CD. When measured against the FTA/PMOC RSD estimate of 02/28/18, the contingency is currently 592 CD.

Observations:

There has been a minor change in schedule contingency during this period.

Table 6-1: Schedule Contingency *

IPS Update #	51	52	53	54	55	*56*
Data Date	10/01/10	11/01/10	12/01/10	01/01/11	02/01/11	*03/01/11*
Contingency (CD)						
RSD=12/31/2016	185	172	165	165	*165*	*168*
RSD=02/28/2018	617	604	589	589	*589*	*592*

*Estimated by PMOC based on IPS Update #56, provided by MTACC

It is the PMOC's opinion that the current IPS is a reasonable model of the SAS construction phase and that the contingencies shown above are reasonable indicators of the current schedule status of the project.

Concerns and Recommendations:

The PMOC will continue to evaluate the IPS for reasonableness and suggest improvements to enhance its reliability as a forecasting tool.

PMOC comments and concerns regarding the IPS are contained in Section 4.4 of this report.

APPENDIX B-- PROJECT OVERVIEW AND MAP

(Project Map is transmitted in a separate file)

Date: March 31, 2011

Project Name: Second Avenue Subway

Grantee: Metropolitan Transportation Authority

FTA Regional Contact: Mr. Hans Point du Jour

FTA Headquarters Contact: Mr. Dale Wegner

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)		

SSPP	System Safety Program Plan
TBD	To Be Determined
TBM	Tunnel Boring Machine
TCC	Technical Capacity and Capability Plan
TIA	Time Impact Analyses

12.76%	Percent Complete Construction at *December 31, 2010*		
33.3%	Percent Complete Time based on Rev Ops Date of December 30, 2016		
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)		
11.91%	Percent Complete Construction at September 30, 2010		
33.3%	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
1,103M	Amount of Expenditures at date of this report from Total Project Budget of $4,673M
32.75	Percent Complete based on Expenditures at date of this report
*	Total Project Contingency remaining (allocated and unallocated contingency)

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

APPENDIX C – LESSONS LEARNED

Lessons Learned Table for 1st Quarter 2011

#	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 their Designer 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	3rd 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.
	Mar-10	Construction		No new lessons learned this period.	
	Jun-10	Construction		No new lessons learned this period.	
	Sep-10	Construction		No new lessons learned this period.	
	Dec-10	Construction		No new lessons learned this period.	
	Mar-11	Construction		No new lessons learned this period.	

APPENDIX D – PMOC STATUS REPORT

(This is a separate attachment covering both East Side Access and Second Avenue Subway projects)

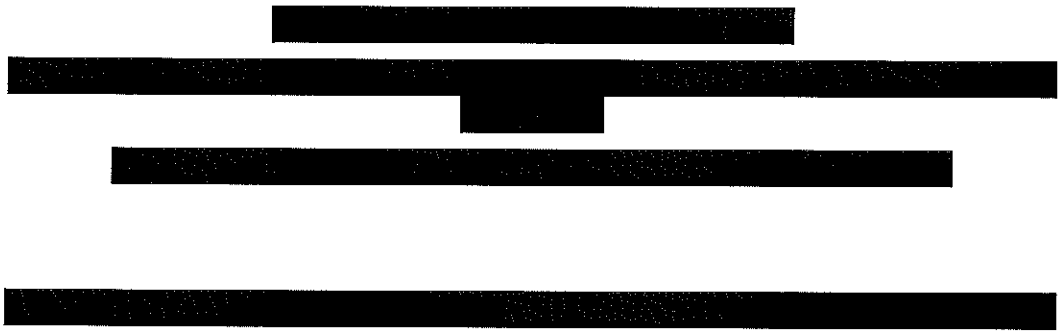
APPENDIX E – SAFETY AND SECURITY CHECKLIST

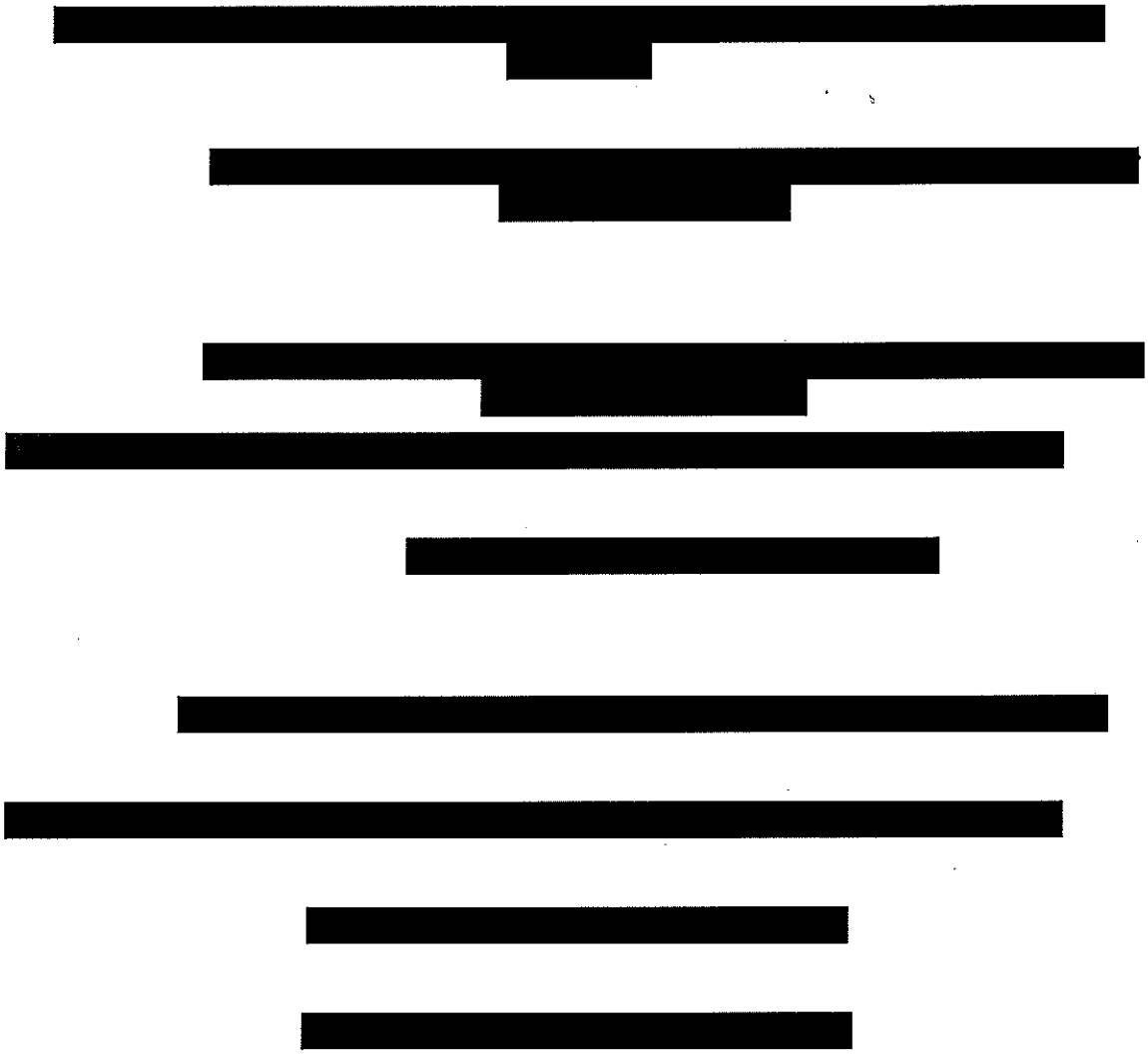
Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Rail		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Design and Construction		
Project Delivery Method (Design/Build, Design/Build/Operate/Maintain, CMGC, etc.)	Design/Bid/Build		
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan	7041.01.007308-0	11/15/07	Approved by FTA
Safety and Security Certification Plan			Certification by New York State Public Transportation Safety Board (NYSPTSB)
System Safety Program Plan			
System Security Plan or Security and Emergency Preparedness Plan (SEPP)			
Construction Safety and Security Plan		N	Each construction contractor is assigned the responsibility for developing a Construction Safety and Security Program Plan, as defined in the Contract Documents.
Safety and Security Authority			
Is the grantee subject to 49 CFR Part 659 state safety oversight requirements?	Y		
Has the state designated an oversight agency as per Part 659.9?	Y		NYSPTSB
Has the oversight agency reviewed and approved the grantee's SSPP as per Part 659.17?	Y		The NYSTB issued a letter of recertification on September 2, 2010.
Has the oversight agency reviewed and approved the grantee's Security Plan or SEPP as per Part 659.21?			
Did the oversight agency participate in the last Quarterly Program Review Meeting?	N		

Project Overview		
Has the grantee submitted its safety certification plan to the oversight agency?	N	
Has the grantee implemented security directives issues by the Department Homeland Security, Transportation Security Administration?	Y	
SSMP Monitoring	Y/N	**Notes/Status**
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	
Grantee reviews the SSMP and related project plans to determine if updates are necessary?	Y	
Does the grantee implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.	Y	
Does the grantee maintain a regularly scheduled report on the status of safety and security activities?	Y	Activity included in the monthly and quarterly reports from the grantee.
Has the grantee established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	Responsibilities during the design and construction phases identified
Does the grantee update the safety and security responsibility matrix/organizational chart as necessary?	Y	
Has the grantee allocated sufficient resources to oversee or carry out safety and security activities?	Y	
Has the grantee developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	Y	Included in Appendix F of the SSMP
Does the grantee implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?	Y	Frequency to be increased
Does the grantee monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	Three active construction contracts being daily monitored by the CCM with oversight being

Project Overview		
		performed by the grantee.
Does the grantee ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	Y	Hazard and Vulnerability Analysis
Has the grantee ensured the development of safety design criteria?	Y	Included in SAS project Design Criteria Manual
Has the grantee ensured the development of security design criteria?	Y	Included in SAS project Design Criteria Manual
Has the grantee ensured conformance with safety and security requirements in design?	Y	Ongoing part of design review process
Has the grantee verified conformance with safety and security requirements in equipment and materials procurement?	Y	
Has the grantee verified construction specification conformance?	Y	Reference Section D3.4 Construction Criteria Conformance of the SSMP
Has the grantee identified safety and security critical tests to be performed prior to passenger operations?	Y	Reference Section D3.2 Certification Items List of SSMP
Has the grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	NA	Project is currently in the Design/Construction Phase
Does the grantee evaluated change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	Y	Part of formal configuration control process
Has the grantee ensured the performance of safety and security analyses for proposed work-arounds?	NA	
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: Activation Plan and Procedures Integrated Test Plan and Procedures Operations and Maintenance Plan Emergency Operations Plan	Y	
Has the grantee issued final safety and security certification?	N	To be covered as part of the testing in Contract 6
Has the grantee issued the final safety and security verification report?	N	To be covered as part of the testing in Contract 6

Project Overview		
Construction Safety		
Does the grantee have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	
Does the grantee's contractor(s) have a documented companywide safety and security program plan?	Y	
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y	Reference sections 011150 Safety Requirements and 011160 Security Requirements of the Contract Terms and Conditions
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	*OSHA Year-to-Date Recordable and Lost Time accident rates are 5.28 and 2.30 respectively thru November 30, 2010*	National Average 4.2 and 2.2 respectively
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	NA	
Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y	
Federal Railroad Administration		
If shared track: has grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	NA	
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	NA	
Is the Collision Hazard Analysis underway?	NA	
Other FRA required Hazard Analysis – Fencing, etc.?	NA	
Does the project have Quiet Zones?	NA	
Does FRA attend the Quarterly Review Meetings?	NA	





APPENDIX G – SCHEDULE MANAGEMENT PLAN (SMP) CHECKLIST

(SEE ATTACHED)