PMOC MONTHLY REPORT

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

April 1 to April 30, 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

Urban Engineers of New York, P.C., 2 Penn Plaza, Suite 1103, New York, New York 10121
PMOC Lead, Charles A. Halboth, PE, 212-736-9100; cahalboth@urbanengineers.com
Length of time on project: 1 year

TABLE OF CONTENTS

TABLES

APPENDICES

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 April 29, 2011 is as follows:

- *C26002 (Tunnel Boring) – 85.40%*
- *C26005 (96th Street Station) – 34.00%*
- *C26013 (86th Street Station) – 64.6%*
- *C26007 (72nd Street Station) – 8.10%*

Aggregate Construction % Completion:

- *41.5% of active construction contracts are complete (C3 not included)*
- *17.50% of all construction is complete*

PROGRESS AND ISSUES

Contract C-26002 commenced the East Bore on March 21, 2011. As of April 30, 2011, 1,281 LF of a total 7,827 LF (16.4%) have been mined. TBM progress during April 2011 was generally better than forecast.

Construction Package C5B (86th Street Station Excavation & Heavy Civil) was previously forecast for award on March 29, 2011. To date, the award has been delayed. Resolution of the delay is necessary as major elements of this package are on the project critical path.

Seven teams have been qualified by NYCT to submit proposal for C-26009 (Systems). Proposals are due on approximately June 3, 2011. *Despite several addenda, this procurement has maintained schedule through April 2011.*

The C4B construction contractor has started erection of the muck handling facility superstructure at the 72nd Street shaft. No adverse reaction from the local business or residential community has been reported.

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:

Throughout April 2011, MTACC continued to work with the FTA to produce Management Plans and to demonstrate compliance with the Enterprise Level Project Execution Plan (ELPEP). As reported previously, the original schedule for accomplishment of portions of the ELPEP implementation has not been met; *however progress continues to be made in several key areas.*

October 12, 2010 was the original goal for complete implementation of the ELPEP. As of the writing of this report, this goal has not been achieved; however, major elements of each core component have been developed and partially implemented. The MTACC has begun to realize many of the benefits resulting from implementation of these plans. The PMOC forecasts that full implementation of the ELPEP will require several more months of cooperative effort between the FTA and MTACC.

The current status of the main ELPEP components is summarized as follows:

- ***Technical Capacity and Capability*** *– As of the end of April 2010, the final ESA PMP had not been submitted. The SAS PMP has been reviewed by the PMOC. When both PMPs have been reviewed, the results will be presented in joint session.*
- ***Schedule & Schedule Contingency Management Plan*** *– MTACC has incorporated the five (5) comments contained in FTA's October 26, 2010 letter. Procedures supporting this plan have also been revised. The PMOC has verified SAS substantial compliance with the SMP since August 2010. The process of transferring the verification process to the respective project teams will be discussed at the May 19, 2011 ELPEP Meeting.*
- ***Cost & Cost Contingency Management Plan*** *– Revisions to the Cost Management Plan are anticipated on May 3, 2011 and will be discussed at the ELPEP meeting on May 5, 2011. Based upon the clarifications and understandings achieved at this meeting, MTACC will revised the CMP accordingly and resubmit on or about May 13, 2011.*
- ***Risk Mitigation Capacity Plan*** *– Comments to this plan which were initiated at the April 7, 2011 ELPEP meeting were reviewed. Open issues will be revised and updated for discussion at the May 19, 2011 ELPEP meeting.*
- ***Conformance Demonstration-*** *MTACC is responsible for demonstrating full compliance to ELPEP requirements. Preliminary discussions regarding the manner by which conformance will be documented were held. Details of conformance demonstration and reporting will be developed for the next ELPEP meeting.*

Observation:

Major issues, both resolved and open include:

Schedule & Schedule Contingency Management Plan

1. *Verification of conformance by each project team.*

Cost & Cost Contingency Management Plan

1. *"Earned Value" is defined by MTACC Procedure CO14. That is the extent that MTACC utilizes the concept. Any changes to either project will be introduced as a Candidate Revision.*
2. *Monthly EAC reporting for each project will be initiated.*

3. *Monthly EAC reporting will include (if needed) a "Scope Transfer Register" detailing the value of any scope transfers among individual packages.*
4. *Both projects will be subject to an annual cost validation process similar to the recently completed SAS effort. Both soft costs and direct construction costs will be included in this effort.*
5. *Processes and procedures involving Force Account estimates and forecasts need not be repeated in the CMP. References to the respective approved plans are adequate.*
6. *Methodology of escalating construction costs will be reviewed. If the current methodology is different for each project, the reasoning and rationale for the difference will be clarified.*
7. *The integration of risk analyses into cost estimates has not been demonstrated. It was generally agreed that some sample products would be the best way to illustrate what MTACC envisions.*
8. *Clarification of the use of "Executed AWOs" or "AWO Exposure" in financial analyses and available contingency calculations, specifically on SAS was discussed and is an open item.*

Risk Mitigation Capacity Plan

1. *Organization and usage of retained risk estimates. Organization of the retained risk estimates into a "WBS" or functional equivalent has been discussed and suggests a lack of clarity as to the usage of this information throughout the construction phase. Additional discussion is needed on this topic.*
2. *Scope definition and subsequent control of schedule and cost during design revisions is a recurring topic. The methodology through which both projects control scope, cost and schedule through design modifications needs to be demonstrated, either via the respective PMPs or another document. This issue has continuing relevance through the construction phase.*

Concerns and Recommendations:

Although overall implementation of the ELPEP is somewhat behind schedule, the MTACC has begun implementation of schedule, cost and risk management plans. Both projects have updated their PMPs to support these management documents. The PMOC has noted numerous instances where benefits conferred by these enhanced management tools have been realized.

MTACC has commenced development of a formalized process by which ELPEP conformance will be verified and documented. This is a key element of the overall ELPEP implementation and should identify and focus management attention on any elements where implementation may be delayed.

Table 1: Project Budget/Cost Table

	FFGA			FFGA Amendments	MTA's Current Working Budget (CWB)		Expenditures as of *April 30, 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**	*1,217.818*	*22.18%*
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**	*1,217.818*	*22.18*
Total Federal share:	**1,350.693**	**27.75**	***628.911**		**1,350.693**	**24.60**	*358.054*	*6.52*
Total FTA share:	**1,300.000**	**96.25**	**600.818**		**1,300.000**	**23.68**	*346.942*	*6.32*
5309 New Starts share	1,300.000	100	600.818		1,300.000	23.68	*346.942*	*6.32*
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**	****3,509.000**		****3,509.000**	**63.92**	*859.764*	*15.66*
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 #57, and data date of April 1, 2011.
* From ELPEP

1.0 GRANTEE'S CAPABILITIES AND APPROACH

1.1 Technical Capacity and Capability

1.1.1 Organization, Personnel Qualifications and Experience

Status:

The Project Office will be relocated from 20 Exchange Place to Two Broadway on May 20, 2011. Construction field offices have been established to support the C3 and C4B construction packages.

Observation:

The current project staffing and physical configuration of a Project Office and satellite offices to support specific construction packages is well integrated, cohesive and supports the needs of the project in an efficient manner.

As has been noted in previous reports, the current SAS Organization Chart shows the Quality Manager reporting to the Program Manager for Construction Support, who reports to the Deputy Program Executive. Ideally, the Quality Manager would report directly to the Program Executive or Deputy Program Executive.

Based on current observations, the current organizational structure does not constrain the Quality Manager's access to senior management. In addition, the Quality Manager's reporting chain is independent of the design and construction organizations. Based on observation, the current organization provides an independent QA function and appears adequate to the needs of the project. The PMOC will monitor this aspect of the SAS project organization and provide further input if appropriate.

Concerns and Recommendations:

None at this time

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

a) Adequacy of Project Management Plan and Project Controls

Status:

PMOC review of the updated SAS Project Management Plan (Revision 8) has been completed.

Observation:

The PMOC will review its findings with the FTA and compare finding with the corresponding PMP review which is currently underway for the East Side Access Project. After these tasks are complete, the PMOC and FTA will present findings and recommendations to the MTACC.

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. *No update this period.*

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 April 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 was expanded to all 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 April 30, 2011, the MTACC has expended $146,524 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 primary concern of the neighbors is excessive noise.* 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 Force Account budget remains at $33,000,000 (Cost Estimate Revision 8).

Concerns and Recommendations:

None

d) Grantee's Approach to Safety and Security

Status:

No change in status this period

Observation:

During *April 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 until March*

30, 2011 is 1.68 and 4.42 respectively. The recordable accident rate is below the national average of 2.2 and the lost time rate is above the national average of 4.2.

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 installation 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. *The cost of this work was included in the recently received bids for the C5B package.* Negotiations regarding cost and schedule considerations with the C1 construction contractor continue. *No progress this*

Issue	Description
	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.*

Observation:

The process of utilizing the Configuration Control Board (CCB), the change control process, the Technical Advisory Committee (TAC) and issuing Technical Memorandums has proven to be an effective means of controlling scope and managing the transfer of scope between construction packages. However, the ability to identify corresponding cost and schedule elements associated with scope transfers is less developed. The WBS utilized on the project does not always include the level of detail necessary to support this type of analysis.

Concerns and Recommendations:

At the May 5, 2011 ELPEP Meeting, the concept of a scope transfer register to accompany periodic cost reports was discussed. This concept should be refined and applied to schedule as well as cost associated with scope transfers between packages.

1.1.5 Quality

Status:

During April 2011, the CCM's Quality Assurance oversight activity for each construction contractor forced 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

	FFGA	Forecast Completion	
		Grantee	PMOC
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 substantial completion of the Design Phase in November 2010 and West Bore contract and added TBM mining in February 2011 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.

Construction contract procurement and processing of Additional Work Orders (AWOs) are two areas where the timeliness of MTACC performance could be improved. These issues have been discussed with senior MTACC management and are fully understood. 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:

Total project cost 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

Standard Cost Category (SCC) #	Description	Year of Expenditure $000
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 April 30, *2011*.

Table 1-2 Appropriated and Obligated Funds

Grant Number	Amount ($)	Obligated ($)	Disbursement ($) thru *April 30, 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	*$66,843,269*
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	*$358,053,871.00*

* Denotes American Recovery and Reinvestment Act (ARRA) funds

A total of $1,217,817,932 has been expended on the project through April 30, 2011, of which $409,501,092 has been spent on design and $447,719,270 on construction (MTACC's monthly financial input).

Observation:

Local funds totaling $859,764,061 ($1,217,817,932 – 358,053,871) have been spent as of April 30, 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 February 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 January 2010.

Observation:

SAS Project Management is being proactive in its efforts to monitor and mitigate risk. From the initial Risk Mitigation and through all subsequent meetings held to date, the Project has been focusing on those risks that DHA indicated in its December 2009 Risk Analysis Report as the risks that contribute the most to the contingency requirements.

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 until March 30, 2011 is 1.68 and 4.42 respectively. The recordable accident rate is below the national average of 2.2 and the lost time rate is above the national average of 4.2.*

Observation:

Each construction contractor conducts 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 *April* 2011 included the following actions:

- Scheduled and conducted two internal progress meetings per week and prepared and issued meeting minutes for SAS 2B *and 5C* Contract reviews and 4B updates and general information on SAS *6* 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 *procurement* development *for the 5C and 6 packages*;
- Continued analyses and updated Contract 4B *Baselines and Executive Summary* report sections;
- Prepared additional updating, analyses and development of Contract *2B* report sections pertaining to Baseline Data, Demonstrated Management Capacity and Control in

Procurement and Package Level Verification. Extended review into real estate and safety/ security activities.

- Performing *additional* 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.
- *Followed up on requests to MTACC for* 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.

Observations:

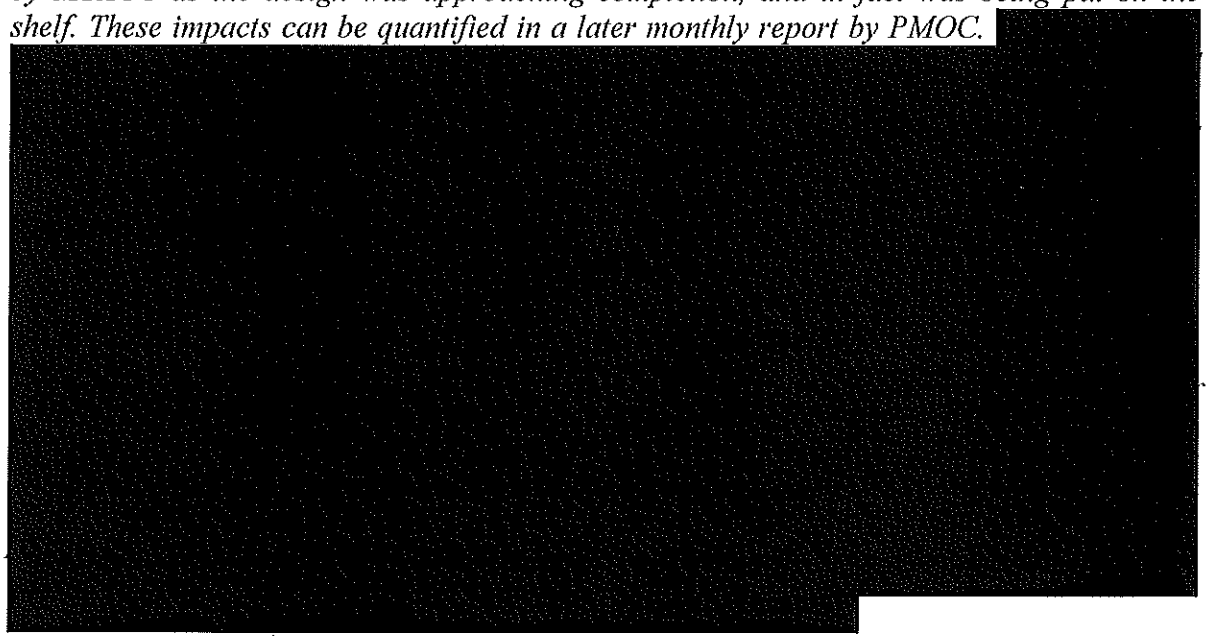
- *The PMOC's review of the schedule for C4B, which is informative for other contract evaluations, is based on a comparison of the data in the Integrated Project Schedule (IPS) Rev 3.0 UP29 January 2009 (a.k.a. Baseline schedule) and a more current IPS Rev 3.0 UP45 April 2010 which is considered the bid package schedule (IFB schedule). The PMOC noted that the latest CPP has been incorporated in the approved REV 3.0 UP45 schedule. The PMOC had assessed the key muck removal rate and judged that it was fairly conservative. It was determined that additional activities representing the changes of interfacing between Contract 1 and Contract C4B have been incorporated for monitoring of achieving contract handover milestones. In the Update 29 schedule, hand-off float was added in recognition of Contractor to Contractor activities, primarily C4B to C4C. Most of these activities have had their durations reduced to "0" and float reduced in consideration of the combining of C4A and C4B, and with confidence expressed in the November, 2010 4B Risk Assessment for the C4B hand-off.*
- *The PMOC's review of Contracts C5B and C5C revealed a total redesign and relocation of Ancillary 2 building for the 95% to the 100% Design. This was accomplished through DHA Contract Mod#53 and #57. A review of DHA's monthly reports indicates that MTACC continued to direct DHA to proceed with the building design on the basis of the cost to cure agreement with the owner at the Chase site (250 E. 87th Street) going forward. DHA noted that "Resolution of these issues and completion of owner agreements will continue to be critical for the timely availability of these properties for construction." The 1st quarter 2010 MTACC Quarterly Review Report indicates "MTACC modified the design consultant contract to extend the project's design completion date to September 30, 2010. The design changes include the final design for a revised Ancillary #2 at the 86th Street Station to reduce the scope and cost of work required at 250 East 87th Street."*
  "Contact Drawings to be revised due to modification of Ancillary 2 Building and relocated access shaft at north end."
  "Titles to properties required for contract C5B will be vested in June 2010, except for 250 E 87th Street (Ancillary #2). This ancillary is being redesigned. Title to this property will be vested on a later date." These changes impacted construction contracts C-26008 and C-26012 which were at 95% Final design, and C-26013(C5A) which was in construction and it was anticipated that amplifying drawings will be required for changes to this contract. This change was made as construction of the 86th Street Station was identified by MTACC to be on the critical path. MTACC's April 26, 2010 Notification of Contract Change – Initiating

Document was prepared in detail and identified these impacts as funded from cost to cure funds set aside for resolution of Third Party costs associated with this site. The alternative was to continue negotiations with the property owner which had been ongoing for nine months, and risk project schedule delays to address extensive building utility relocations. DHA's Contract Modification #53 cost impacts were identified as an additional $13M (w/o AFI) to $17M(w/AFI) in lieu of not making the change having a cost of $30M for the Owner Agreement cost to cure, plus the major cost of changing NYCDEP's water main to a 60" main. For Modification # 57 DHA costs were reported to be $4,551,503 and the designs were to be completed late in 2010.

Conclusions:

- As regards Contract C4B, and similar contracts, schedule activities, the PMOC recognizes that the "hand-off" activities between Contractors may not be expected to be of consequence, but notes that MTACC should certainly monitor and manage the interfaces of such items closely. MTACC did follow the SMP in the handling of the above items. In the opinion of the PMOC the process followed by MTACC in development and management of the schedule from baseline to IFB is sound.

[redacted]*The PMOC's review of Contract C5C revealed a total redesign and relocation of Ancillary 2 building for the 95% to the 100% Design. As discussed above, impacts were being assessed by MTACC as the design was approaching completion, and in fact was being put on the shelf. These impacts can be quantified in a later monthly report by PMOC.*



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.

Observation:

PMOC observations include the following:

- There are several elements of design work that are incomplete; however, they are not currently delaying the progress of 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.
- 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:

The PMOC is concerned that the SAS project team has not fully evaluated the effort required for the "dustoff" of the three station finish packages prior to advertisement.

2.1.2 Procurement

Status:

Several issues involving construction procurement continue to adversely affect the project:

- **C-26008 (C5B): 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. *Award of this package has been delayed pending resolution of "Buy America" issues.*

- **C-26009 (C6): 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. *Receipt of proposals has already been delayed from May 18, 2001 to June 3, 2011.*

Table 2-1: Construction Procurement

Activity #	Description	Date*	Comment
Contract C-26008 (C5B): 86th Street Station Cavern & Heavy Civil			
C5B 25d	*Procurement (IFB) Open Bids*	*02/04/11A*	
C5B PR40	*Award Contract 5B*	*TBD*	
Contract C-26009 (C6): Systems			
SYPR 25t	Issue RFP (Step 2)	03/07/11A	RFP Documents were made available to teams whose qualifications were deemed acceptable in Step 1.
SYPR30d	*Submit Proposals*	*06/03/11*	*Award date not changed despite delay in proposal submission*
SYPR40	*Award Contract*	*09/29/11*	
Contract C-26010 (C2B): 96th Street Station Concrete, MEP & Finishes			
This procurement has been postponed by approximately six months as a consequence of construction delays to C2A. Bid date is currently forecast for 01/11/12. Contract award is forecast for 04/23/12. *No change to these dates this period.*			

** Note: All dates reference IPS Update #57 (Data Date as of 04/01/11) U.N.O.*

Observations and Analysis:

- ***Contract C-26008 (C5B):*** *The current IPS assumes a contract award date of 04/19/11. Based on this assumption, this package award is on the project critical path and is controlling the completion of all construction, testing and commissioning activity. Further delays (which have already occurred) will erode project schedule contingency.*
- **Contract C-26009 (C6):** *Further, unspecified delays are forecast for the receipt of proposals for this package as a result of MTA's intention to "coordinate" systems procurement among the three "mega-projects" (No. 7 Line, SAS, ESA). It appears that the delays to NYCT Contract C-26505, where receipt of proposals has been delayed from 03/29/11 to 05/16/11 may be indirectly impacting C-26009. As has been previously documented, during the first four (4) months of 2011, the award of this package has been delayed over two months (07/18/11 (Update #54) to 09/29/11).*
- **Future Procurements:** A comparison of actual and forecast procurement durations, as well as NYCT "typical" durations based upon its Award Process Flow Charts is shown in the following table:

Table 2-2: Construction Procurement Durations

IPS #	Pkg.	Type	Advertise/ Issue RFP	Award	Duration (CD)	Duration (WD)	NYCT Est. (WD)	Variance
	Packages in Construction							
	C1	IFB	10/19/2006	3/20/2007	152	109	134	-25
	C3	IFB	6/24/2010	1/13/2011	203	145	134	11
	C4B	IFB	12/21/2009	10/1/2010	284	203	134	69
	C5A	IFB	3/2/2009	7/8/2009	128	91	134	-43
	C2A	RFP	3/10/2008	5/28/2009	444	317	194	123
	Packages in Procurement							
57	C5B(1)	IFB	10/25/2010	5/9/2011	197	141	134	7
57	C6 (2)	RFP	3/2/2011	9/29/2011	211	151	194	-43
	Pre-Procurement Packages							
57	C2B	IFB	10/10/2011	4/23/2012	196	140	134	6
57	C4C	IFB	7/12/2012	1/4/2013	176	126	134	-8
57	C5C	IFB	11/28/2012	5/24/2013	177	126	134	-8

(1) – Assumes award occurs on 05/09/11
(2) - Assumes Award occurs according to IPS #57

Based on this comparison:

- *Despite individual variances, the average IFB duration compares favorably with the NYCT standard duration of 134 WD.*
- *The scheduled duration of future procurements also compares reasonably with the NYCT average duration.*
- *The scheduled duration for the C6 RFP is significantly less than the NYCT average of 194 WD for this type of procurement. It appears the original procurement duration for this package was somewhat under estimated.*

Concerns and Recommendations:

As has been aptly demonstrated to date, the numerous risks inherent in public contract procurement frequently result in delays to the process. Station finish packages (C2A, C4C and C5C) will be procured relatively late in the SAS project and each will likely be near-critical on the project schedule. The PMOC recommends advancing the start of procurement of these packages approximately 30 WD as a means of mitigating the effects of the inevitable delays to the procurement process and ensuring a timely contract award.

2.1.3 Construction

Status:

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

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

- *Through May 4, 2011, approximately 1,281 ft. of the East Bore has been mined. The tunnel is currently between 86th and 87th Streets at station 1208+68.00*
- *Disassembly of the freeze plant and grouting of the freeze pipe holes has been completed*
- *Cellar tie work at 1814 is still pending. Sidewalk shed removed during the week of 4/25/11.*
- *Post-construction surveys remain in the shaft area*
- Sidewalk improvements/Good Neighborhood Program initiatives continue.

- **Contract C-26005 (C2A) 96th Street Station Heavy Civil, Structural and Utility Relocation**
  - *Erection of gantry crane on the Westside of 2nd Avenue and 99th Streets was completed.*
  - *Installation of 24" DIP sewer main (AWO-0067) by NYCHA properties on-going.*
  - *Excavation of 48" sewer main crossing on the Westside of 2nd Avenue and 97th Street on-going.*
  - *CFA pile installation at 97th Street sewer crossing on the Westside of 2nd Avenue and 97th Street.*
  - *Secant piles operation at Ancillary 2 on-going: 37 primary piles and 19 secondary piles installed.*
  - *Construction of wooden manhole (PCO-187) on the SWC of 97th Street and 2nd Avenue started.*
  - *Construction of sewer chamber 96-1 on the Westside of 2nd Avenue and 96th Street.*
  - *Completed pedestrian crosswalk striping along 2nd Avenue.*
  - *Major pothole repairs between 95th and 99th Streets and 2nd Avenue.*
  - *Installation of Carnegie East House ramp on the Eastside of 2nd Avenue between 95th and 96th Streets completed.*
  - *Excavation for installation of 60" sewer main on the NWC of 96th Street and 2nd Avenue on-going.*
  - *Ceiling exposure for wall tie-in installation – Phase 1 (AWO-0075) at 1802 2nd Avenue nearing completion.*

- **Contract C-26006 – (C3) 63rd Street Station Upgrade**
  - Notice to Proceed issued January 13, 2011.
  - CPM Baseline Schedule under development.
  - Mobilization is underway.

- **Contract C-26007 (C4B) 72nd Street Station Mining and Lining**
  - *Main Cavern South (69th Street Shaft –center line station 1161+88.19) Center drift excavation progress –South (CCS#10) to station 1161+96.38, North to (CCN#16) to station 1162+99.19. Break in of the West Tunnel occurred on 5/3/11*
  - *Main Cavern North (72nd Street Shaft –center line station 1169+93.04): Turnunder is complete. Center drift excavation progress –South (CCS#1) to station 1169.72.04. Total rock excavation to date (69th and 72nd St.) approximation 8211BCY.*

- *Steel erection of the Muck House at 72nd Street has started. Installation has been completed up to column 10A.*
- *Ancillary 2 support of excavation wall at NW corner at 72nd St. (rebar installation, form and pour) is on-going.*
- *72nd Street utility (electric) relocation is on-going.*
- *69th Street utility (gas) relocation is ongoing and now expected to be completed on 5/26/2011.*
- *Final hookup of the water treatment plant to the sewer has been delayed. Contractor is awaiting DEP indemnification agreement. Commissioning of the plant is now scheduled for completion on 5/13/2011.*

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

North Area:

- *Completed water utility work*
- *Completed all electrical work, including rebuilding service boxes 54742 and 54743*
- *Prepared for the traffic shift to the east side of Second Avenue.*

South Area:

- *Continued mechanical rock excavation in the South Shaft.*
- *Completed installing rock dowels in the South Shaft.*
- *Continued work to support the weathered rock zone.*
- *Supported Con Edison cable pulling and splicing work.*
- *Lowered gas service to 1615 2nd Avenue.*

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 April 30, 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

	Second Avenue Subway TBM Summary - PMOC Projection							
	Date	Station	Total Progress	Unit	Period Progress	Work Days/ Period	Progress/ Period	Unit
	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 Original limit, TBM-1	4996.0	LF				
					392.0	6	65.33	LF/WD
	12/14/10	Sta 1167+48.8	5388.0	LF				
					883.5	18	49.08	LF/WD
	1/9/11	Sta 1158+65.6	6271.5	LF				
					943.5	12	78.63	LF/WD
	2/4/11	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				
					833.0	18	46.28	LF/WD
	4/30/11	1210+33	1116.0	LF				
					6711.0	146	45.96	LF/WD
	10/26/11	Sta 1143+80	7827.0	LF				

- *TBM mining progress has generally progressed in accordance with, or exceeded estimated production rates, resulting in a slight improvement in the forecast completion date, which is now October 26, 2011.*
- *S3 and CCM are working to resolve issues relating to surface preparation procedures for the West tunnel. Surface prep and waterproofing are precedent activities to the concrete lining installation. Quality Work Plan (QWP) for Tunnel Waterproofing and QWP for the Preparation of Surfaces Prior to Waterproofing still have to be submitted.*
- *MTACC has rejected S3 proposal to discontinue probe drilling in the east tunnel. Alternatives have been suggested, S3 needs to reply.*
- *Remediation plan required to rectify deficient concrete (honeycombing) in ground freeze zone interliner still has not been finalized.*
- *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:

- *Completion of Critical ConEd work on West Side 2nd Ave between 95th & 96th Sts: ECS work south of 97th Street complete and north of 97th street to be completed by 5 - 6 - 11. CON ED to complete its work by 5 - 23 - 11 for primary feeders.*
- *Entrance 1 Utility Conflict: Gas, Sewer and ECS - DHA developing revised utility design.*
- *Entrance 2 Utility Conflict: Gas and Sewer - DHA developing revised utility design.*
- *Ancillary 1 Utility Conflict: High rock issue - decision on option, owner's approval for rock anchors at Waterford. Gas - DHA developing revised utility design.*
- *ECS MH interference with Slurry wall panel at 95th Street – Additional field investigation to be coordinated with ECS/Verizon after CFA piles installed. Nicholson want to start with this panel rebar fabrication, excavation and slurry wall installation.*
- *Redesign of 1802 2nd Ave Building Stabilization. Construction methodology for pile removal - DHA's recommendation versus CTJV's process*

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 successfully in all cases. Subsequent investigation by SSK and CCM suggest that the PPV limits set by DHA are not realistic. DHA is evaluating a possible change in the limits. Evaluation is ongoing.*
- *SSK indicated that during check-out of the mucking facility at the 72nd Street shaft, the building would not be fully enclosed. Check out could take as much as 6 weeks. During the Community Board Meeting it was indicated that the facility would be fully enclosed during operation. CCM investigation is ongoing*

For Contract C5A:

- *JDSI submitted its proposal for AWO-59 on 04/06/11 for delays that occurred between the June 1, 2010 cut-off date for AWO-27 and 12/31/10 (Letter No. MTACC-JD-0257). MTACC is preparing a response. MTACC sent Letter MTACC-JD-0304 on 04/22/11 stating that JDSI will not be assessed liquidated damages on Milestone #2 while the negotiation of AWO-59 is pending.*

Concerns and Recommendations:

MTACC continues to make progress in resolving problem issues and avoiding major construction delays.

The PMOC considers an improvement in the processing times for AWOs to be an area requiring improvement.

2.1.4 Force Account (FA) Contracts

Status:

During *April 2011* no MTA Force Account expenditures were made.

Observation:

Force account involvement in the project has been very low to date. A substantial portion of Contract 3 will be performed during "General Outages". This will be the first significant Force Account expenditure.

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. *No update this period.*

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:

None.

2.2 Third-Party Agreement

Status:

No change this period.

Observation:

None

Concerns and Recommendation:

None

2.3 Contract Packages and Delivery Methods

Status:

There was no change to the delivery method for any of the construction packages during April 2011. However, construction package C5B was not awarded this period due to an ongoing problem involving "Buy America" requirements.

[redacted]

Concerns and Recommendations:

The PMOC is concerned that this matter will not be resolved promptly and the actual consequences, primarily in terms of delay to the "near-critical" award of this package, will be substantially greater than currently forecast.

2.4 Vehicles

Status:

No change in status this period.

Observations:

None.

Concerns and Recommendations:

None.

2.5 Property Acquisition and Real Estate

Status:

During April 2011, MTA received approval from FTA for 3 appraisals:

63rd Street Station (Package C3):

- *Block 1417, Lot 45 – 200-201 East 63rd Street*
- *Block 1397, Lot 61 – 124-126 East 63rd Street*

86th Street Station (Packages C5A, C5B, C5C):

- *Block 1532, Lot 22 – 250 East 87th St.*

Offer letters were sent out for all remaining properties at 63rd Street Station and Block 1532, Lot 22 (86th Street Station).

Temporary relocations were completed at 1802 2nd Ave. This will allow renovation of this "Fragile Building",

Justice Shulman signed the vesting order for the easements at 260 E 72nd Street; the official vesting date will be the day on which the order is filed with the County Clerk's office.

Observation:

Next group of property acquisitions – court date June 7, 2011

63rd Street Station (Package C3):

- *128 E 63rd St – TE - Air space above building needed for crane maneuvering.*
- *124-126 E 63rd St – permanent and temporary easement needed in garage for rooftop mounted cooling tower*
- *186 E 64th St – permanent and temporary easement needed in garage for exhaust shaft*
  200-201 E 63rd St – permanent and temporary easement needed for entrance – commercial relocation required

86th Street Station (Packages C5A, C5B, C5C):

- *250 E 87th St – permanent and temporary easement needed for ancillary facility*

72nd Street Station (Packages C4B, C4C):

- *233 E 69th St – acquisition pending NEPA lawsuit*

Second Avenue Subway – Property Acquisition Summary

# of Parcels Identified	*# Parcels Closed*	*# Parcels Under Contract*	*# Parcels In Negotiation*	*# Parcels In Appraisal*	*# Parcels In Condemnation*	*# Parcels Right of Occupancy*

95	*92*	*0*	*3*	*0*	*94*	*88*

Concerns and Recommendations:

Based on information gathered during the PMOC Real Estate Consultant's site visit (April 6 and 7, 2011) an independent estimate at completion for real estate acquisition is being developed to verify conformance with the project budget. Other follow-up tasks recommended by the PMOC include:

- *Continue to monitor Real Estate acquisition to confirm execution in accordance with project schedule requirements.*
- *Perform an audit of select NYCT files during the 3rd Quarter 2011 to verify conformance with applicable requirements.*

2.6 Community Relations

Status:

In late October, MTACC announced its "Good Neighbor Initiative" throughout the SAS construction area. 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 April 2011, this initiative continued. Improvements are being implemented in all work zones to reflect the model block between 92nd and 93rd Streets.

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. *Excessive noise is the primary complaint.* 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:

Revision 8 of the SAS Project Management Plan was submitted to the PMP for review and comment on January 21, 2011. *The PMOC has completed its review of this submission.*

Observations:

The PMOC will present the results of its PMP review to the FTA. Upon their concurrence with the PMOC's findings and recommendations, the results will be transmitted to the grantee.

Concerns and Recommendations:

None at this time

3.1 PMP Sub Plan

Status:

As part of the PMP review, the referenced Sub-Plans have been reviewed to confirm their conformance and consistency with the PMP.

Observations:

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

Concerns and Recommendations:

None

3.2 Project Procedures

Status:

No change in status this period.

4.0 PROJECT SCHEDULE STATUS

4.1 Schedule Status

Status:

IPS Update #57 was received on May 4, 2011 and is based on a Data Date of March 01, 2011. Update #57 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 currently forecasts completion of all construction on 07/15/16, with 168 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*

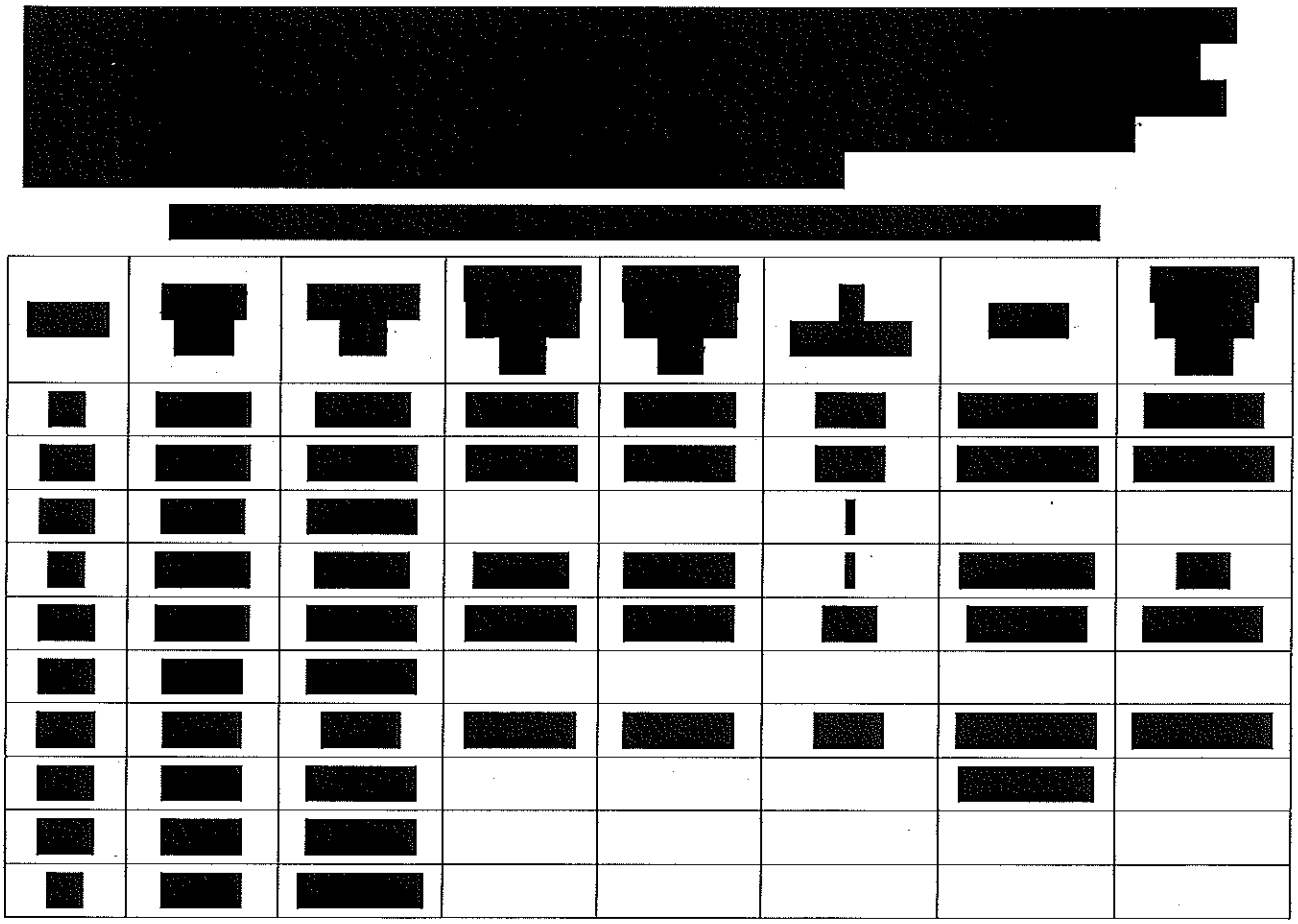
During the month of April 2011, progress continued on five (5) active construction packages:

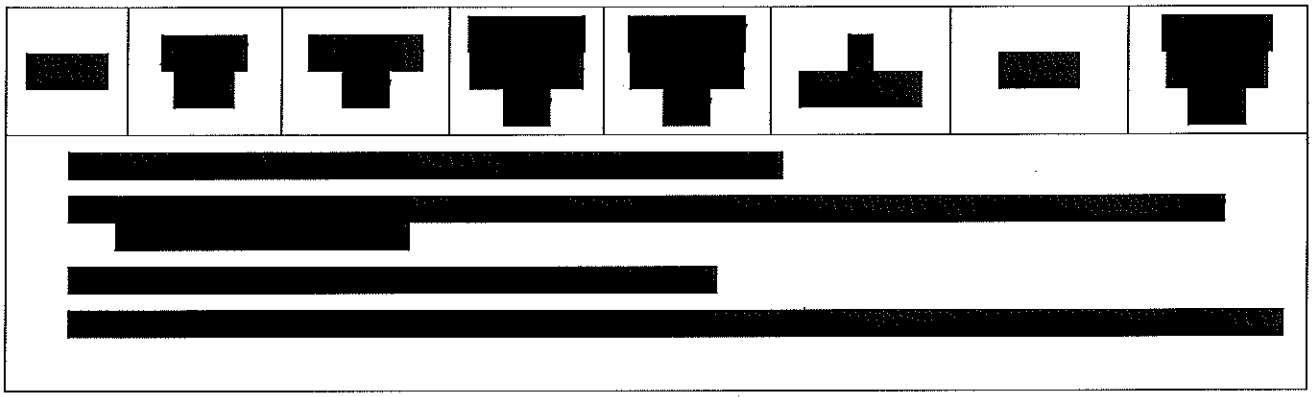
- C-26002 (C1) TBM Tunneling and 96th Street Box,
- C-26005 (C2A) 96th Site Work and Heavy Civil,
- C-20006 (C3) 63rd Street Station Rehabilitation
- C-26013 (C5A) Open Cuts and Utility Relocation, and
- C-26007 (C4B) 72nd Street station Cavern mining & Lining.

This period, C4B contractor's construction schedule was formally integrated into the IPS. Additional pre-construction detail was incorporated for Package C2B, representing the "dustoff" of the existing design with "as-built" and other relevant information immediately prior to the bid.

The following are some significant changes in this month's IPS compared to previous month:

1. *The Contract Award for Package C5B is forecast as 19-Apr-11. Based on this forecast, this Activity is on or very near the project critical path.*
2. *Hand-off from C2A to C2B for Station Concrete 95th to 97th Streets was delayed from 25-Apr-13 to 06-May-13.*
3. *The award of the C2B construction package has been delayed to 23-Apr-12 from 11-Oct-11.*
4. *The award of the C6 construction package has been delayed to 29-Sep-11 from 18-Jul-11.*





Observations and Analysis:

At the request of the FTA, the PMOC has initiated quarterly tracking of major schedule activities and/or "milestones" that are in progress during that quarter as a means of reviewing and evaluating the project's ability to achieve short-term schedule goals. Due to the one-month lag in reporting schedule update progress, the 1st Qtr. 2011 results are published in this report and shown in the following table.

Table 4-4: Quarterly Schedule Target Comparison

Second Avenue Subway Quarterly Schedule Milestone Progress Review						
Phase	**Act #**	**Description**	**IPS Upd. #54 DD=01/01/11**	**IPS Upd. #57 DD=04/01/11**	**Difference (CD)**	**Info Source**
Active Construction	**C-26002; TBM Mining**					Schedule based on Contractor's CPM Schedule
	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)	2-May-11	21-Mar-11A	-45	
	S6A40	Start Tunnel 1 "West" Concrete; Launch Box to North Side of 86th Street Stn	22-Apr-11	5-Jul-11	74	
	C-26005; 96th Street Station – Site Work/Heavy Civil					
	4S200	Commence Slurry Walls	23-May-11	18-Jun-11	24	
	A117	Commence Temp SOE @ Ancillary #1 (Note 4)	8-Jun-11	9-Apr-11	-64	
	C-26013; 86th Street Station – Utility & Site Work					

Second Avenue Subway Quarterly Schedule Milestone Progress Review						
Phase	**Act #**	**Description**	**IPS Upd. #54**	**IPS Upd. #57**	**Difference**	**Info**
	5N020	Start Drill/Blast/Exc. – North Shaft	7-Jun-11	28-Jun-11	17	
	HO2	C5A->C5B Handoff; Mech. Mining @ North Shaft	25-Jul-11	15-Aug-11	17	
	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	3/10/2011A	55	
	C-26006; 63rd Station Upgrade					Schedule based on Design Phase Preliminary Schedule
	35	Commence Demo	8-Apr-11	4/8/2011A	0	
Procurement	**C-26008; 86th Street Station - Cavern Exc./Heavy Civil**					
	25d	Bid Opening	4-Feb-11	4-Feb-11A	0	
	PR40	Award Contract	29-Mar-11	**TBD**	**TBD**	
	C-26009; Rail & Station Systems					
	SYPR 25t	Issue RFP	25-Jan-11	7-Mar-11A	41	
	SYPR30d	Submit Proposals	20-Apr-11	3-Jun-11	44	

1. "Baseline" schedule for this quarter is Update #54; DD=01/01/11
2. Elapsed time = 04/01/11 to 01/01/11 = 91 CD
3. Negative (-) value indicates current date is earlier date than baseline
4. Completion date remains the same despite earlier start date.

Concerns and Recommendations:

QTR #1, 2011, schedule progress features:

- *Better than forecast TBM progress*
- *Delays to both active construction package procurements.*
- *Delays consistent with previous experience on station construction packages.*

SAS has managed to maintain the overall project schedule during this quarter. In the PMOC's opinion, this is due to pro-active management of delays near the project critical path and avoidance of major, crippling delays involving multiple packages.

The current delay in award of the C5B package must be resolved promptly to avoid becoming a crippling delay of this nature. Similarly, the PMOC has concerns regarding the C6 procurement schedule. MTA's preference as to the sequence and timing of the multiple systems packages may have to be modified to avoid delays to all procurements.

4.2 90-Day Look-Ahead

Status:

Based on the Integrated Project *Schedule (IPS) Update#57 (DD=04/01/11),* 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)			
Completion of TBM-2 to the 86th St. shaft	*03/21/11A*	*05/27/11A*	
Completion of TBM-2 to the 83rd St. shaft	*05/31/11*	*06/15/11*	
West Bore Concrete – 72nd St X-Over to 86th St. Station	*05/20/11*	*08/15/11*	
C2A – 96th Street Station Sitework & Heavy Civil			
Complete Stage 2 Utility Work (95th – 99th Sts)		*07/05/11*	
Begin Slurry Wall Const. (Stage 4; 95th to 97th St, West Side)	*06/16/11*		
C2B – 96th Street Station Concrete, Finishes & Utilities			
Dust-Off-MPT to Current Conditions	*05/03/11*	*06/28/11*	*1*
Dust-Off-Permits to Current Conditions	*05/03/11*	*06/28/11*	*1*
C4B – 72nd Street Station Mining & Lining			
72nd Street Muck Handling Superstructure/Muck Handling System.	*04/19/11*	*05/19/11*	*2*
Ancillary 2 – Asbestos Abatement	*01/31/11*	*04/27/11*	
Ancillary 1 – Asbestos Abatement	*04/25/11*	*07/19/11*	
North Cavern – Exc. Top Heading	*04/04/11*	*06/04/11*	
G3/S1 Cavern 2 – Construct Access	*06/06/11*	*06/29/11*	
C5A-86th St. Station Sitework			
Complete Stage 3S (incl. SW Pit)		*04/26/11*	
Drill/Blast/Exc. SE Pit	*06/30/11*	*09/19/11*	
North Shaft available for Mechanical Mining (C5B)		*08/15/11*	
C5B – 86th St. Station Mining & Lining (IFB)			
Contract Award		*TBD*	*3*
C6 – Systems (RFP)			
Submit Proposals	*06/03/11*		
Proposer Presentation	*06/24/11*		
Negotiate with Selected Proposers	*07/08/11*	*07/18/11*	*4*

Observations and Analysis:

90-Day Look-Ahead Notes:

1. *New activities added to the IPS this update. As the work required is refined for Package C2B, similar activities will be incorporated into the IPS for Packages C4C and C5C.*
2. *Dates for this work are based upon the Contractor's six week look-ahead schedule. Work for erecting the muck handling facilities has not been incorporated into the Contractor's CPM schedule.*
3. *Contract award is delayed. Refer to Section 2.3 of this report for a complete discussion.*
4. *This duration appears inadequate in which to negotiate a large, technically complex contract. Additional delays to contract award appear likely.*

Concerns and Recommendations:

The 90-day look-ahead is a reliable forecast of activities that will occur on the project in the near future. This is a further demonstration of the effectiveness and usefulness of the IPS as a management tool.

No further concerns or recommendations for this section.

4.3 Critical Path Activities

Status:

The project critical path is essentially unchanged this period. Table 4-6 summarizes the critical path contained in IPS Update #57.

Table 4-6: Critical Path Activities

Activity ID		Update #55 Duration	Start	Finish
C5	***86th Street Station***	***1232***	***01-Feb-11***	***27-Sep-15***
C5A	*86th Station - Excavation & Utility Work*	*246*	*01-Feb-11*	*05-Oct-11*
C5B	86th Station - Mining & Lining	551	10-Oct-11	19-Nov-13
C5C	86th Station - Architectural & MEP Finishes	435	19-Nov-13	24-Jul-15
C6	System Installation (86th Street Station)	170	12-Jan-15	4-Sep-15
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**	**18-Jul-16**	**30-Dec-16**
	Completion w-Schedule Contingency	120	18-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. *C5A Substantial Completion remains forecast for 05-Oct-11. The only C5A intermediate milestone on the critical path, the Completion of Stage 3S, improved from 06-May-11 to 26-Apr-11. Several other duration changes for this package along the critical path combined to precisely offset the previously noted improvement.*

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:

A separate, independent critical path results from the current delay in awarding Contract C5B. This path originates with Act # C5B-30h; Sign-Off P.S.S. followed by the Award C5B Milestone. This path is critical due to the 213 WD lag relationship representing the "No Blasting" Constraint". In fact, The award of C5B is followed by 3 lag relationships with significant durations:

Act #	*Description*	*Relationship*	*Lag*	*Float*	*Notes*
C5BC1-AR#1	*Receive South Area*	*NOA + 6 MO*	*127*	*4*	*Real Estate Acquisition*
C5BC-AR#2	*Receive North Area*	*NOA + 4 MO*	*86*	*58*	*Real Estate Acquisition*
C5BC-ARD	*No-Blast Constraint*	*NOA + 10 MO*	*213*	*0*	*No Blasting Period*

The use of these lags results in a very pessimistic model of this package. The C5B No-Blast Constraint currently restricts blasting in the IPS until February 20, 2012. This constraint is based upon maintaining appropriate safety measures when the TBM is south of the blast area. This relationship appears to be adequately modeled via Activities C1 S9130, and C5BC1 S9135, both of which are logically tied to the TBM mining chain of activities. Update #57 forecasts the removal of the TBM will be complete on December 30, 2011.

It is noted that the current C5B procurement documents contain the NOA + 10 MO "no blast" constraint. In the PMOC's opinion, the award of this package will logically result in the relaxation of the milestone, based upon actual TBM progress. As such, the schedule will be adjusted at that time to be in line with the discussion contained in the previous paragraph.

Similarly, the PMOC recommends access to specific areas of the project be logically tied to the Real Estate Acquisition items directly involved.

The PMOC has identified the several independent "near-critical" paths within the IPS. There has been substantial change to the "near-critical" paths over this update period:

- *The second most critical independent path, with Total Float=1is initiated by utility relocation work on Package C2A. MTACC reported one additional day of delay on this*

path over this update period. C2A continues to encounter problems and delays resulting from utility interferences, which continue to pose a risk to the contract completion and this near-critical paths, which extends through C2B via three handoffs, followed by C6 and project startup and turnover. This near-critical includes a secondary path with a float value of 28, which includes dependent elements of Stage 2 and 4 utility work, slurry wall and decking installation.

- *The second most independent critical path is initiated Package C1 TBM mining activities for the East Bore. Recent TBM production has exceeded previous forecasts, and the improvement in float from 10 to 34 reflects this progress. This path extends through completion of the East Bore and removal of the TBM and all trailing gear. From there, the path is "handed-off" toC4B and C5B to permit unrestricted cavern mining.*
- *The third most critical path originates with the procurement and award of Package C6 – Systems. This period, the forecast award date for this package remained 29-Sep-11; however the total float for the path increased from 37 to 77 WD. The changes made to the IPS which resulted in this change in float are detailed in the Revision History section of the Update #57 Narrative.*

Concerns and Recommendations:

Changes in activity durations and schedule logic are a natural product of the schedule update process. However this process can be intentionally or unintentionally misused, resulting in an erroneous schedule forecast. The can be particularly important when changes to activity duration and schedule logic are near the critical path.

The PMOC will develop and submit a Candidate Revision to the SAS PMP that proposes additional documentation and justification of IPS changes made on or near the critical path.

The PMOC also recommends that wherever possible, lag relationships be replaced with actual activities. Lags reduce the clarity of a schedule. Activities support a logical modeling and understanding of the tasks to be performed.

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 19 of 24 performance measures.*
- *MTACC "Does Not Conform" to 4 of 24 performance measures.*
- *Information was incomplete on 1 of 24 performance measures. This evaluation category was used to identify a marginal area that, while essentially conformant, needs improvement.*

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.

Specific concerns and recommendations include:

- *As previously committed, the C4B approved schedule was cut into the IPS this update period.*
- *As previously committed, "dust-off" activities have been incorporated as part of preconstruction for C2B.*
- *Excessive float remains a concern. This exists primarily for the station finish packages. This suggests incomplete integration of package schedule logic and represents a potential compromise to the reliability and accuracy of the IPS forecast.*
- *The IPS does not necessarily support demonstrating the effect of scope transfer between packages its level of detail does not necessarily extend to the task level. Task level detail may be necessary to demonstrate the effects of scope transfer among packages. MTACC has discussed "functional equivalent" methodology for demonstrating the effect of scope transfer on project cost. This discussion needs to be extended to schedule also.*
- *This period saw a reduction in the number of secondary float paths within the 25 CD ELPEP threshold. However schedule changes resulting in this improvement are not always validated. PMOC will develop Candidate Revision to the SAS PMP for enhanced analysis, explanation and validation of IPS revisions on or near the project critical path.*
- *Package C6 preconstruction activities, generally consisting of contractor detail design and system verification and integration, are a key element in the success of this package. Most of the C6 preconstruction period is held open by a lag of XXX days. The PMOC recommends development of additional schedule detail in this period as part of the overall risk assessment of this package.*

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.

MTACC's CWB includes the updated Phase 1 Cost Estimate (Revision 8) and subsequent validation effort. The $63.1 net reduction in project cost resulting from this effort has been temporarily categorized as "unallocated contingency" pending further construction package awards and evaluation of actual contingency requirements.

Observation and Analysis:

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

Table 5-2: AWO Summary

Contract	%	Award	Exposure	

	Complete		$	% of Award	Notes
C26002 (1)	85.40%	$337,025,000	*$51,292,876*	*15.22%*	AWO#92 is included in this evaluation
C26005 (2A)	34.00%	$325,000,000	*$22,412,384*	*6.90%*	Options 1 & 2 included in award value
C26013 (5A)	64.60%	$34,070,039	*$8,219,321*	*24.12%*	
C26007 (4B)	8.10%	$447,180,260	*($73,887)*	*-0.02%*	
C26006 (3)	0.0%	$176,450,000			
TOTAL		$1,319,725,000	*$81,850,694*	*6.20%*	
TOTAL		$696,095,000	*$81,924,581*	*11.77%*	w/o C26007
TOTAL		$696,095,000	*$63,239,581*	*9.09%*	w/o C26007 and C26002, AWO#92

Conclusions and Recommendations:

Construction cost increases will be the primary driver of cost variances. AWO exposure increases have slowed over recent months. For the active construction packages, the AWO exposure of approximately 11.77% has remained relatively constant. Based on available information and experience, the PMOC estimates cost growth resulting from AWOs should not exceed 10% of construction package award value.

5.2 Cost Variance Analysis

Status:

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

- The results of MTACC's draft cost estimate (Revision 8) for the project and the subsequent validation study.
- 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 Estimate-At-Completion for the SAS (Phase 1) project is summarized as follows:

EAC w/High Mitigation: *$4,075,902,142*

EAC w/Medium Mitigation: *$4,332,400,000*

EAC w/Low Mitigation: *$4,604,444,978*

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 should 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 *April 30, 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	*$66,843,269*
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	*$358,053,871.00*

* Denotes American Recovery and Reinvestment Act (ARRA) funds

Local funds totaling *$859,764,061 ($1,217,817,932 – 358,053,871)* have been spent as of *April 30, 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. SAS has available funds to award scheduled*

procurements through mid-2012 (C2B). There have been no updates concerning the status of project funding during April 2011.

Concerns and Recommendations:

The availability of funds 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

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. To date, 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. As discussed, this meeting never occurred. However, on April 28, 2011, the PMOC received notification of the progress made by MTACC in this area.

- *NYCT Procurement is in the process of posting and hiring an Assistant Chief Procurement Officer assigned solely to MTACC managed projects. This official will have direct control over all existing NYCT procurement staff assigned to the projects.*
- *Additionally, NYCT Procurement is now in the process of hiring 2 additional staff that will be dedicated to the Second Avenue project and report through the new ACPO for MTACC projects.*
- *With regard to the procurement of additional work orders (AWO's), NYCT and MTACC have jointly implemented a more streamlined approach to approving Procurement Staff Summaries. This adjustment has reduced the number of signatures necessary for approval and should save time during the approval phase of the AWO process. Specifically, NYCT has removed the following 4 executive level signatures: NYCT President, NYCT Executive Vice President, NYCT General Counsel, and NYCT Chief Officer -Civil Rights. Additionally, the NYCT VP Capital Programs and the NYCT VP Subways have been replaced with lower level designees which should cut down further the amount of time necessary for approval.*
- *The MTACC has added The MTACC Executive Vice President and the MTACC VP Project Controls to the signatory process, resulting in a net decrease of two signatories.*
- *Bi-weekly meetings including NYCT Procurement (VP Materiel and Chief Procurement Officer), MTACC (Executive Vice President and Chief Financial Officer) and Second Avenue Program Staff (Program Executive and Deputy Program Executive) have been established to handle any outstanding issues involving the procurement process.*

The PMOC will continue to monitor the AWO processing in an effort to determine if process improvements implemented by MTACC and NYCT are having a positive effect. Using data supplied by NYCT as part of its AWO Tracking Logs the following table summarizes AWO processing through the periods ending March 31, 2011 and April 29, 2011 respectively:

Table 5-4: AWO Processing Comparison

	April 29, 2011					March 31, 2011				
	C1	**C2A**	**C3**	**C4B**	**C5A**	**C1**	**C2A**	**C3**	**C4B**	**C5A**
Scope Phase	115	79	1	7	56	115	75	No data for this period	5	56
Estimate Phase	112	63	0	3	49	110	61		2	47
Negotiation Phase	103	58	0	1	45	103	55		1	43
Approval Phase	99	51	0	1	42	99	47		0	35
Canceled	11	5	0	0	4	11	4		0	3
Approved AWOs	88	46	0	1	38	88	43		0	32
In-Process AWOs	27	33	1	6	18	27	32		5	24
Avg Processing (CD)	153	107	36	74	124	153	112		110	135

To better understand this information, the difference between these two months, denoting the progress made during April 2011 is calculated by subtracting the March values from the April values:

Table 5-5: AWO Processing Differences

	April 29, 2011 - March 31, 2011				
	C1	C2A	C3	C4B	C5A
Scope Phase	0	4		2	0
Estimate Phase	2	2		1	2
Negotiation Phase	0	3		0	2
Approval Phase	0	4		1	7
Canceled	0	1		0	1
Approved AWOs	0	3		1	6
In-Process AWOs	0	1		1	-6
Avg. Processing	0	-5		-36	-11

In summary:

- *Essentially no progress was made in AWO processing for C1 during April 2011.*
- *Four AWOs were approved for contract C2A resulting in an average processing duration decrease of 5 CD.*
- *The first AWO was approved for Contract C4B.*
- *Seven AWOs were approved for Contract C5a resulting in an average processing duration decrease of 11 CD.*

Concerns and Recommendations:

The preceding evaluation suggests a marginal improvement in AWO processing during April 2011. The PMOC will continue to monitor this activity to verify tangible improvements in the process.

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 construction contingency analysis for the project. Through April 2011, construction cost contingency status is summarized as follows:

Planned Balance: *$ 429,945,828*

Actual Balance (using executed AWOs): $ *512,934,610*

Actual Balance (using AWO Exposure): $ *482,201,204*

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. *This issue is currently under consideration as part of the development and review of the ELPEP-based Cost and Cost Contingency Management Plan.*

Contingency balance using both "AWO Exposure" and "Executed AWOs" is presented in the graphic above. As demonstrated, using either method, the current contingency balance exceeds both the planned balance and the ELPEP Threshold.

This evaluation assumes award of the C5B construction package based upon the low bid received on February 4, 2011.

Concerns and Recommendations:

MTACC is using a rigorous and disciplined methodology for tracking and reporting on construction contract cost growth. The PMOC notes the following:

1. *Contingency usage is based upon an evaluation of the construction phase only. The current methodology should be extended to include all design phase and other project soft costs, to provide a total picture of contingency usage.*
2. *Construction contingency usage should be based upon "AWO Exposure" as discussed above.*
3. *Available contingency (based on either executed AWOs or exposure) exceeds the "planned" drawdown. This is primarily due to the inclusion of the favorable C5B bid results.*

6.5.1 Schedule Contingency

Status:

Schedule contingency reported by MTACC, based upon Update #57 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 165 CD. When measured against the FTA/PMOC RSD estimate of 02/28/18, the contingency is currently 589 CD.

Observations:

There has been no net change in schedule contingency during this period.

Table 6-1: Schedule Contingency

IPS Update #	**51**	**52**	**53**	**54**	**55**	**56**	***57***
Data Date	10/01/10	11/01/10	12/01/10	01/01/11	02/01/11	03/01/11	*04/01/11*
Contingency (CD)							
RSD=12/31/2016	185	172	165	165	165	168	*165*
RSD=02/28/2018	617	604	589	589	589	592	*589*

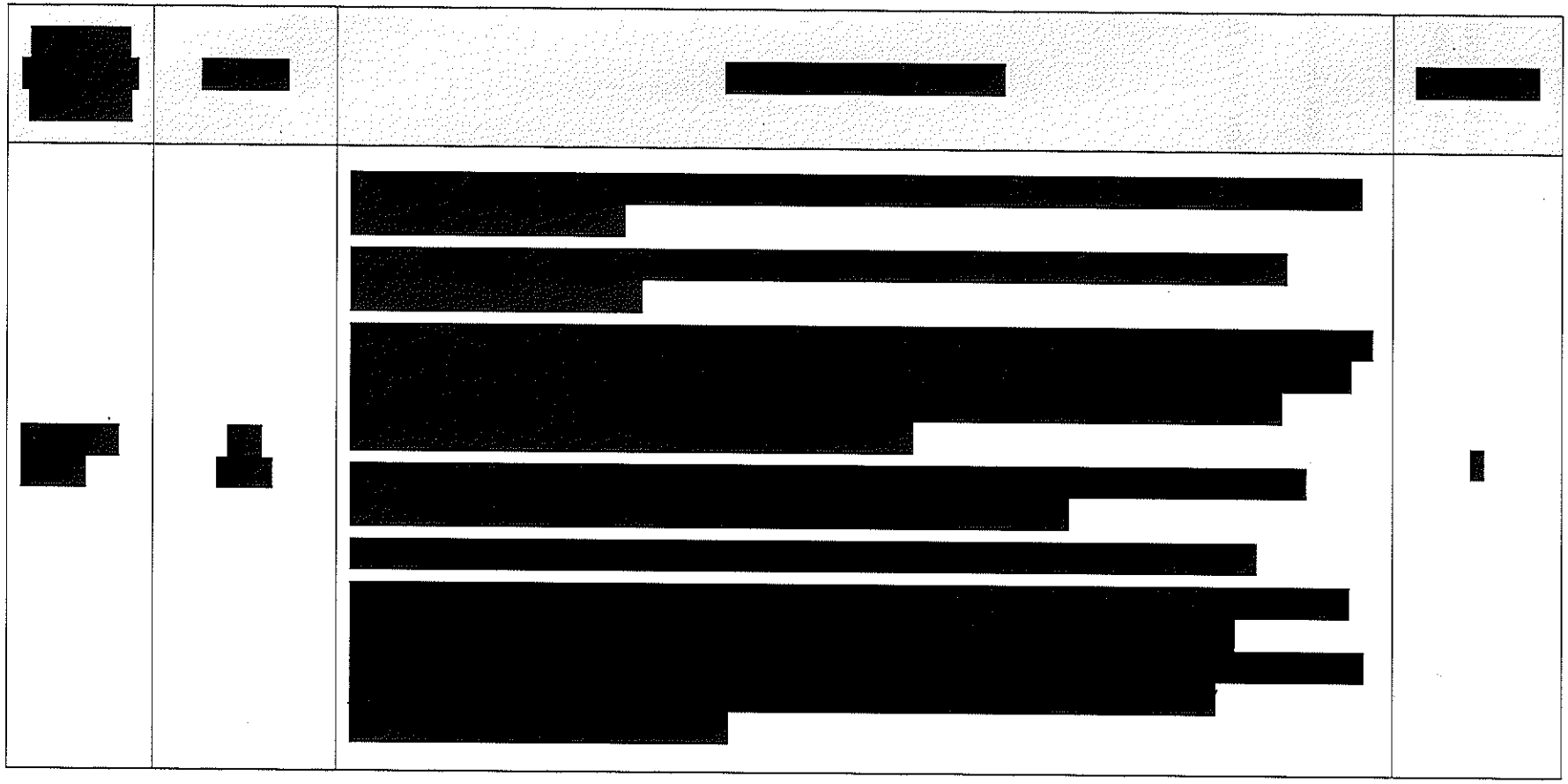
It is the PMOC's opinion that the current IPS is a reasonable model of the SAS construction phase and that the contingencies shown above are reasonable indicators of the current schedule status of the project.

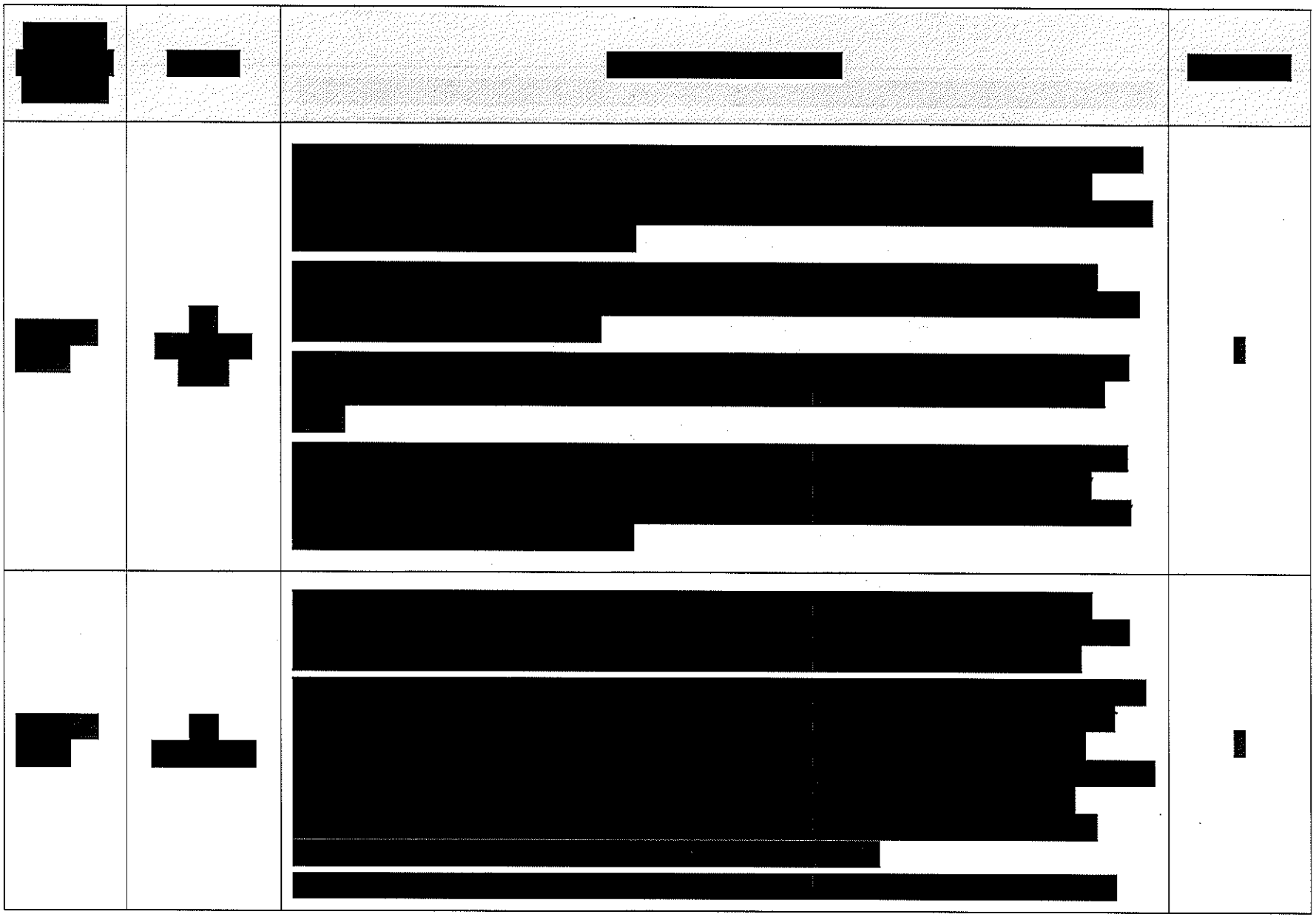
Concerns and Recommendations:

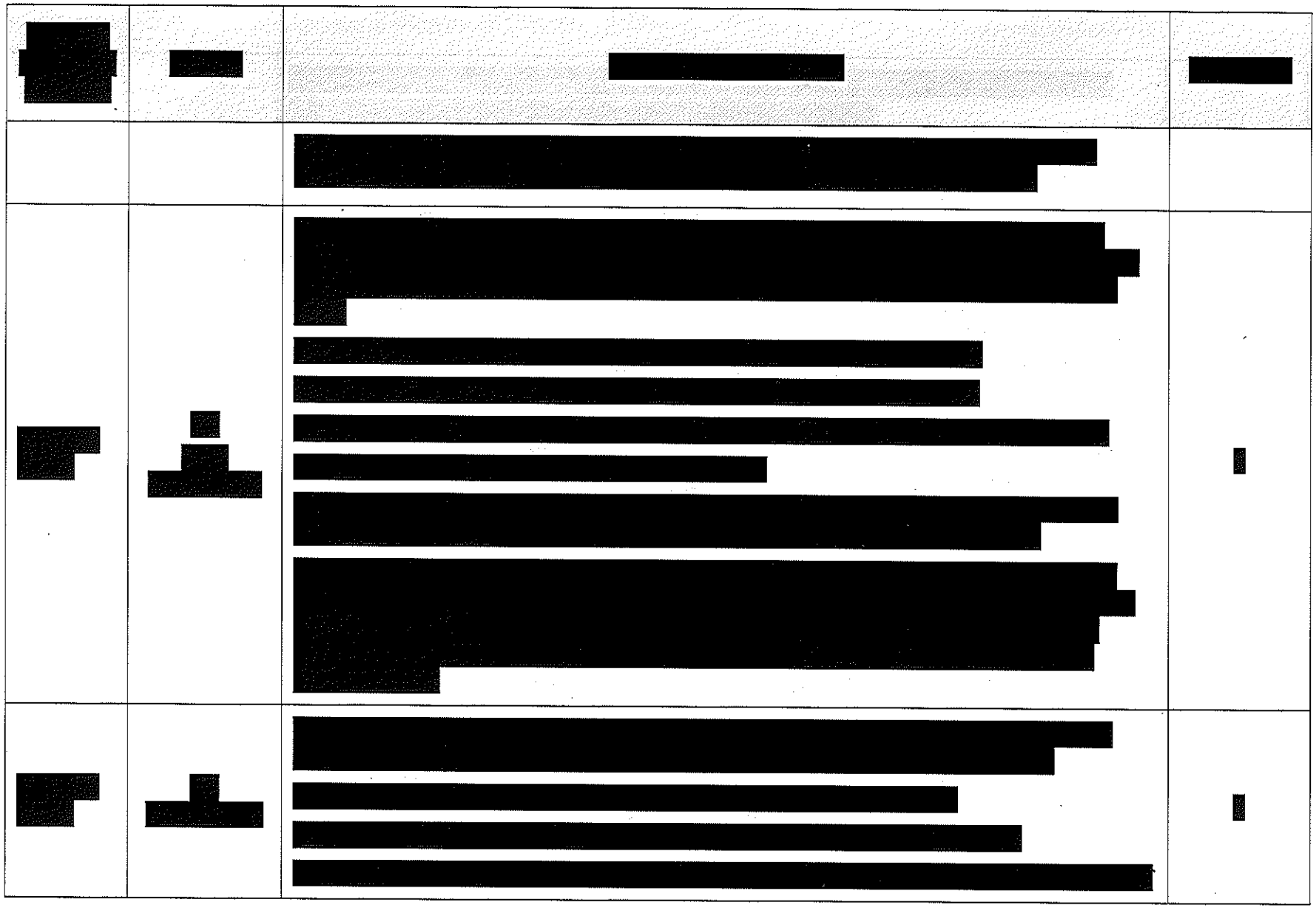
The PMOC will continue to evaluate the IPS for reasonableness and suggest improvements to enhance its reliability as a schedule forecasting tool.

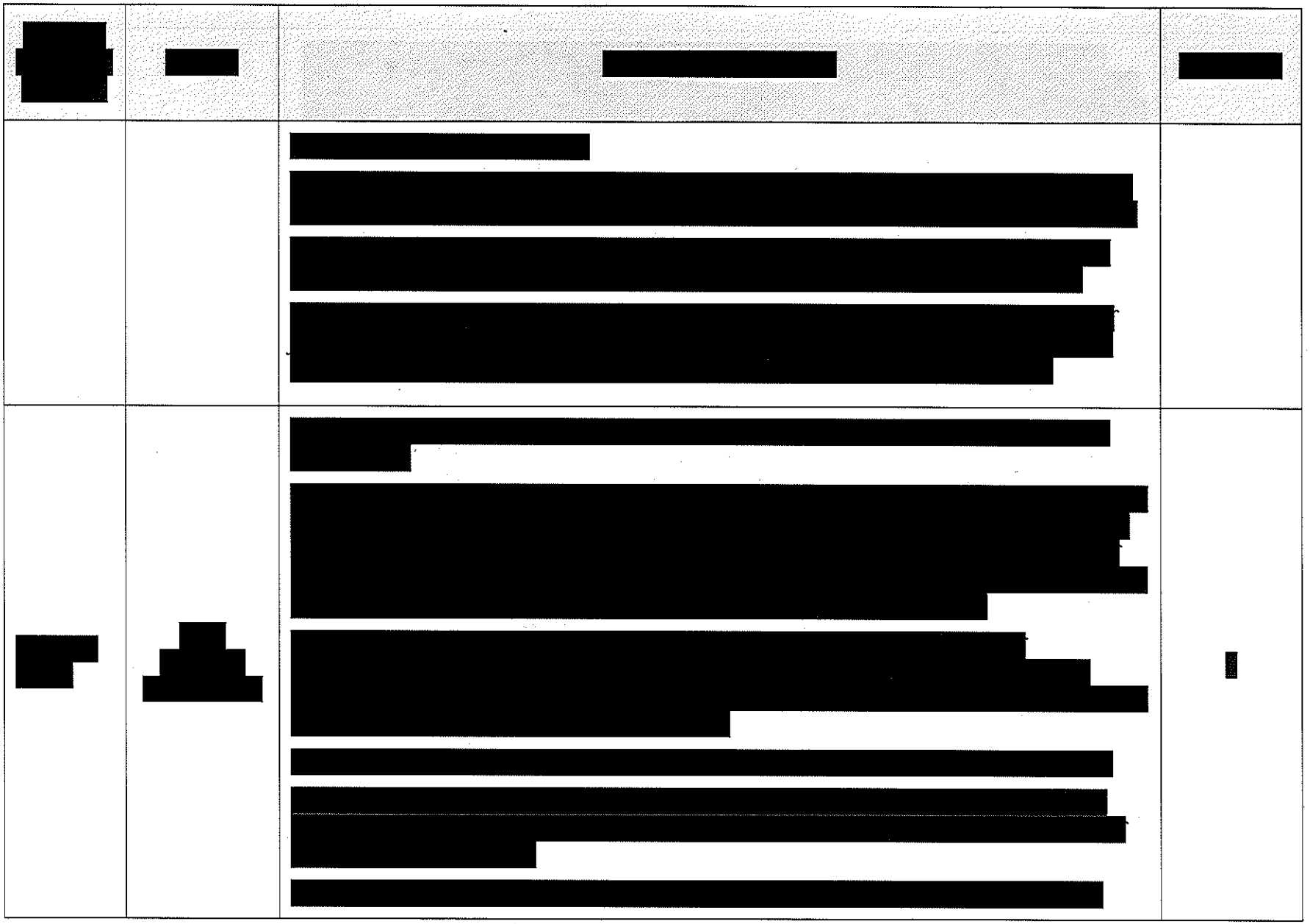
PMOC comments and concerns regarding the IPS are contained in Section 4.4 of this report.

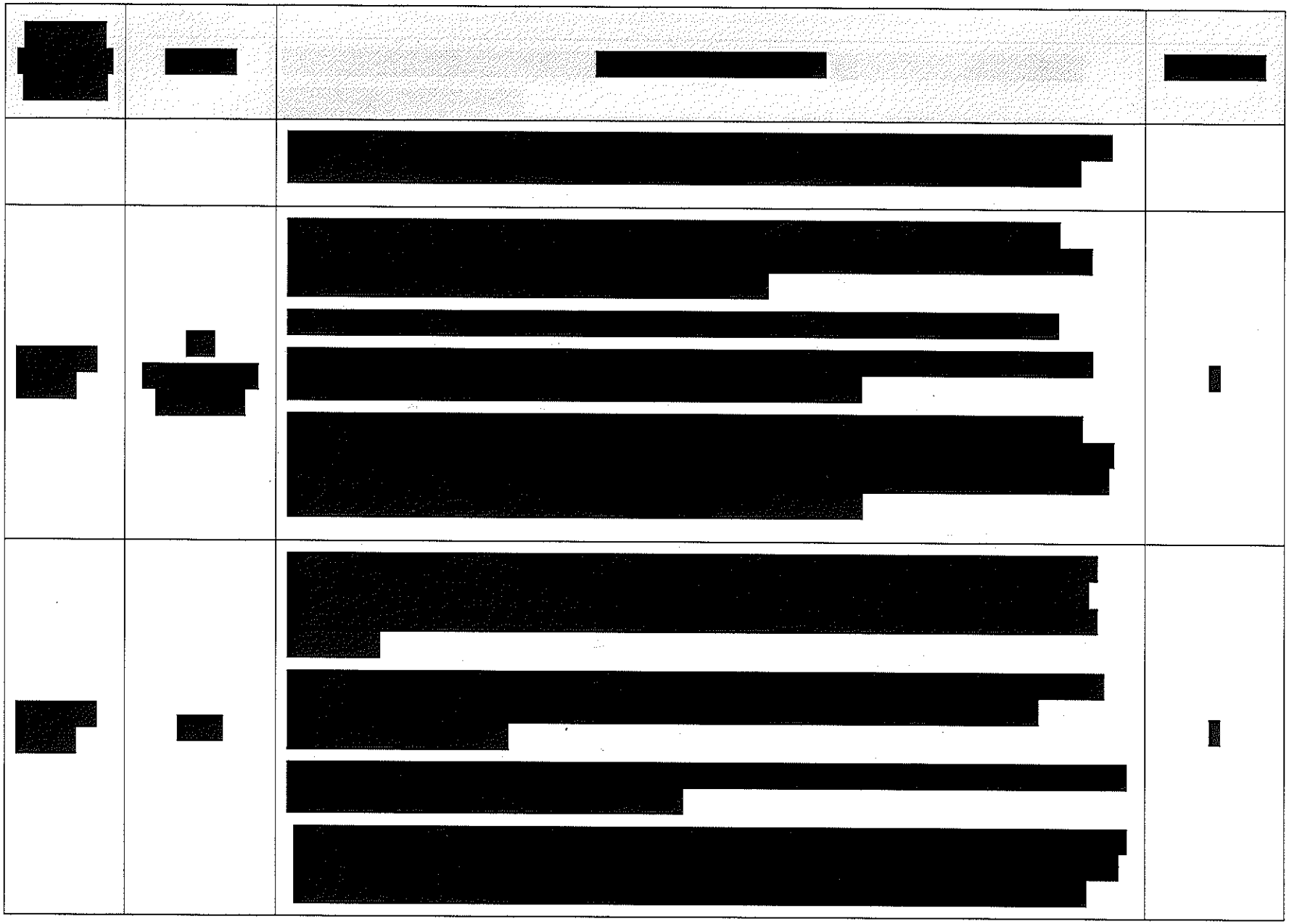
[redacted]

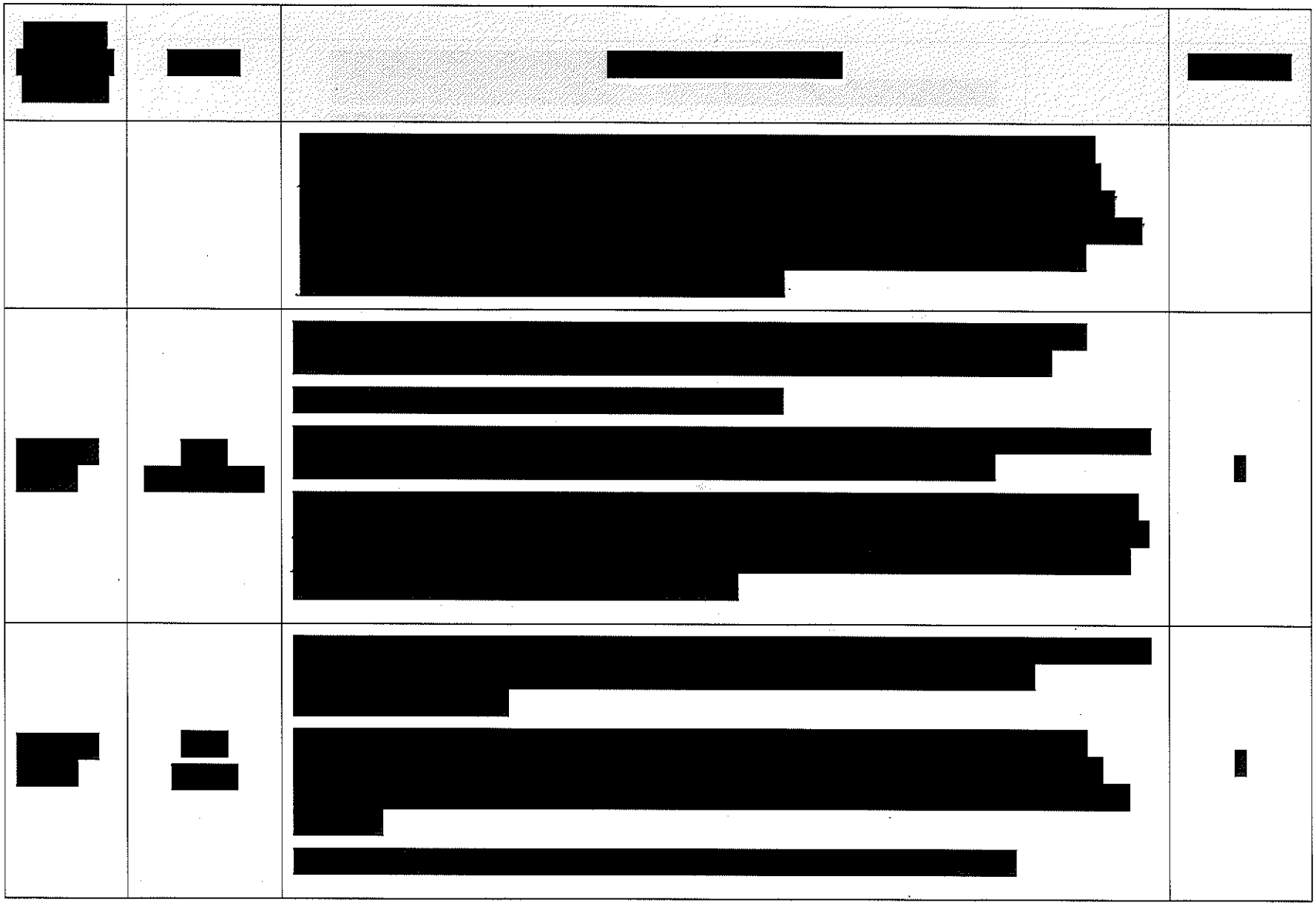




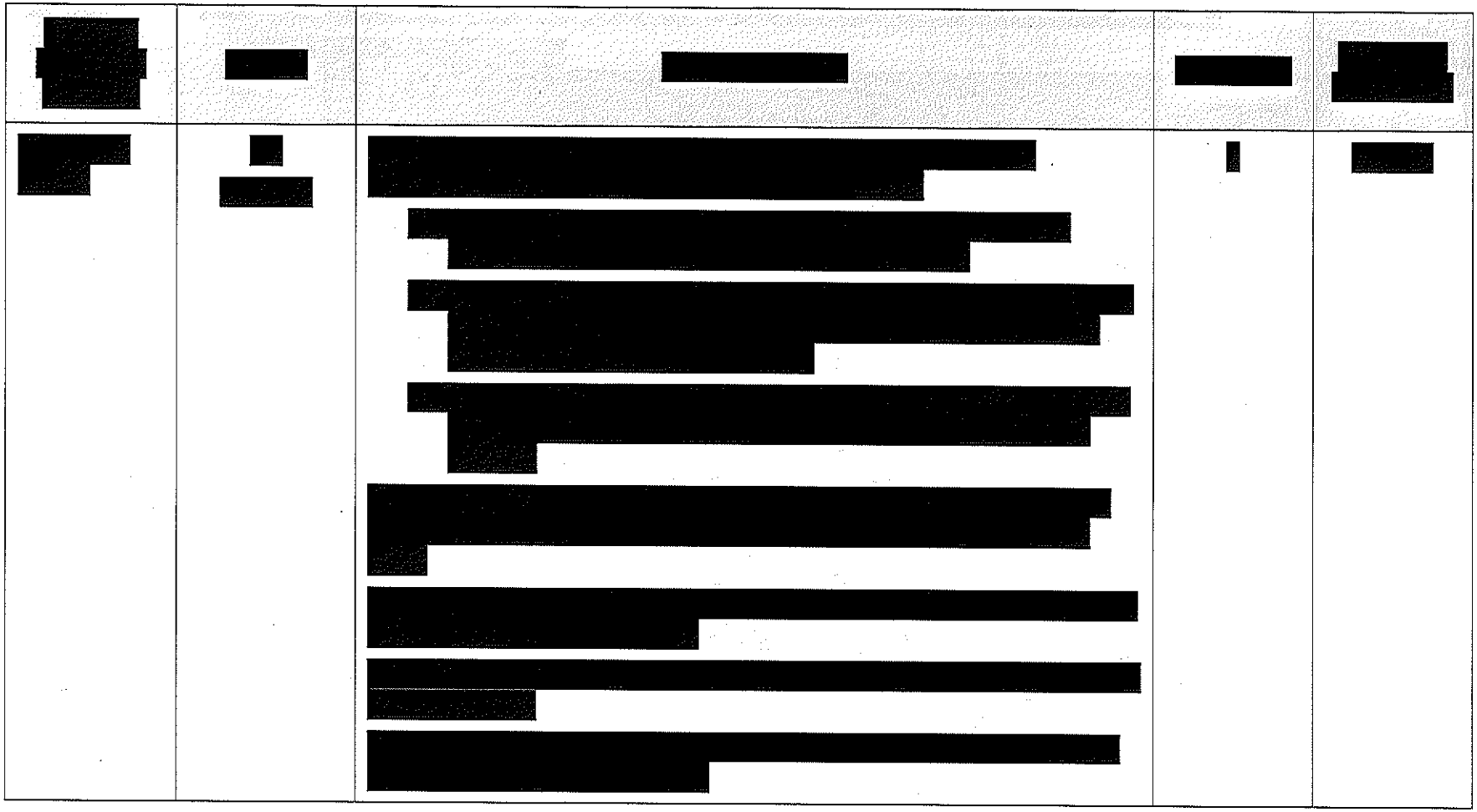


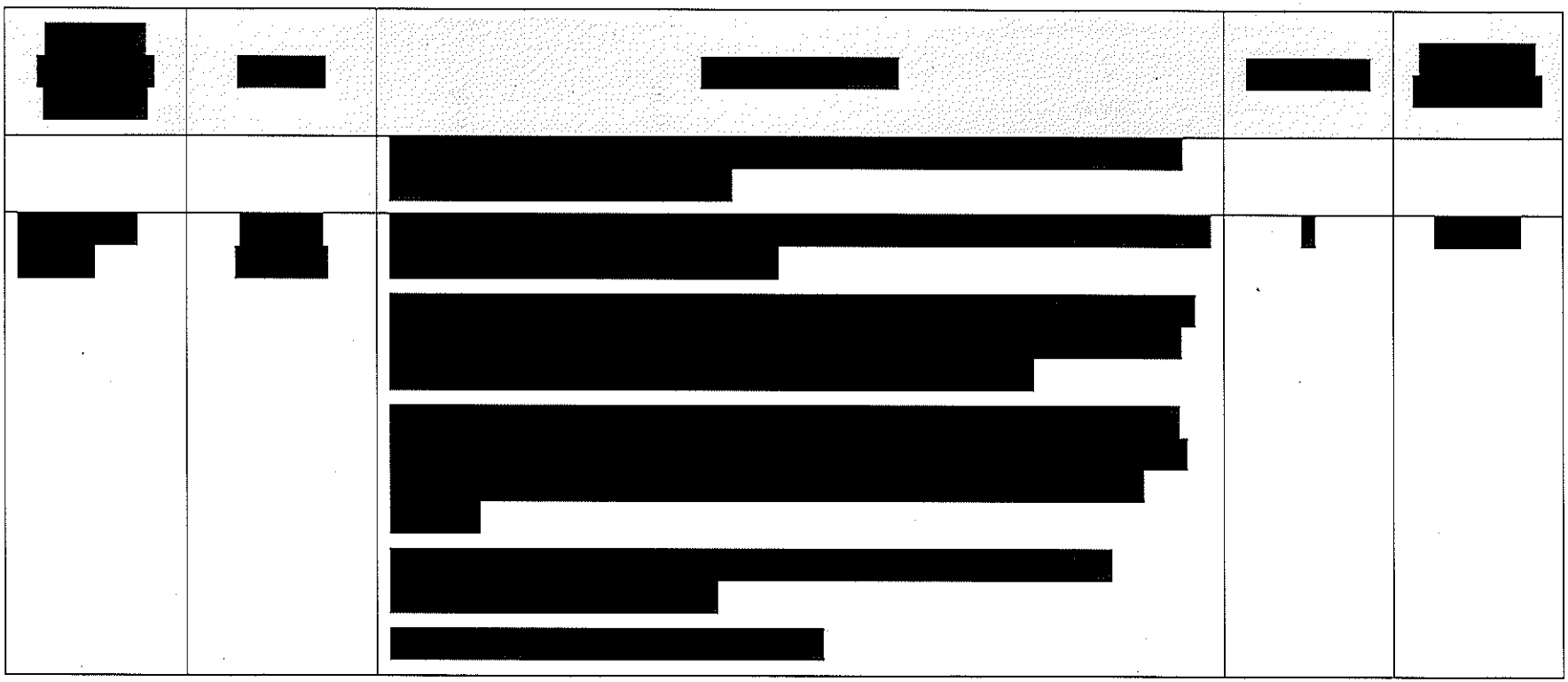






[redacted]





APPENDIX A -- LIST OF ACRONYMS

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

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