PMOC MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project

Metropolitan Transportation Authority

New York, New York

Report Period January 1 to January 31, 2014

PMOC Contract No. DTFT60-09-D-00007

Task Order No. 7, Project No. DC-27-5235, Work Order No. 3

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

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THIRD PARTY DISCLAIMER

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

REPORT FORMAT AND FOCUS

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

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

MONITORING REPORT

1.0 PROJECT STATUS

During January 2015, MTACC continued advancing SAS, Phase 1 to meet a Revenue Service Date (RSD) of December 30, 2016 within its Current Working Budget (CWB) of $4.451B (exclusive of financing). The overall project is approximately 73.3% complete. Substantial completion has been achieved on three of the eight active construction contracts. Progress this reporting period featured the following accomplishments:

- C-26005 (C2A) "96th Street Site Work and Heavy Civil" Substantial Completion was achieved on November 5, 2013. Mitigation of water leaks is impacting the final closeout of the contract.
- C-26010 (C2B) "96th Street Station Civil, Architectural, and MEP". Completion of Milestones 6, 7 and 8 has slipped to February 13, 2015. Shared access to the C6 contractor is being provided.
- C-26006 (C3) "63rd Street Station Rehabilitation". The focus of the work effort continues to be Area 5 and the progress at Entrance #1. The C6 contractor is mobilized at the site. At Entrance #1 excavation to the station is ongoing.

- C-26007 (C4B) “72nd Street Station Cavern Mining and Lining” Substantial Completion was achieved on January 14, 2014. Contract closeout is underway.
- C-26011 (C4C) “72nd Street Station Architectural and MEP Systems”. Construction of the Platform was completed. Ancillary Building #2 construction has reached street level. Interior chiller equipment is installed in both north and south mezzanine rooms.
- C-26008 (C5B) “86th Street Station Cavern Mining and Lining”. Substantial Completion of all contract work was achieved on December 16, 2014.
- C-26012 (C5C) “86th Street Station Architectural and MEP”. Placement of Mezzanine deck was completed. Construction of the North and South Upper Mezzanines and Back of House Rooms is ongoing.
- C-26009 (C6) “Track, Power, Signals and Communication Systems”. Installation of signals, traction power, communication equipment and cables is ongoing throughout the various work zones. Installation of equipment in the communication rooms in the 63rd and 96th Street Stations is ongoing. The objective is to get the Local Area Network (LAN) and Wide Area Network (WAN) operational.

a. Procurement

Procurement of construction contractors for SAS – Phase 1 is complete. Three construction contracts are currently in the closeout process.

b. Construction

As of January 31, 2014, there are eight (8) active construction contracts on the SAS Phase 1 Project. Construction progress on the active contracts during this period includes:

Contract C-26005 (C2A) 96th Street Site Work and Heavy Civil

- Substantial Completion was achieved on November 5, 2013.
- Submittal of contract closeout documentation is ongoing.
- Mitigation of water leaks is impacting the final closeout of the contract.

Contract C-26010 (C2B) 96th Street Station Civil, Architectural, and MEP

Near term Milestones

- Milestone 6: Completion of all work in the nine Communication Rooms and the installation of conduits between the rooms to allow full access to the C-26009 (C6) Contractor. One room has been completed and turned over to the C6 contractor. Completion of the other eight rooms has slipped to February 13, 2015
- Milestone 7: Completion of all work in the six Signal Rooms and the installation of conduits between the rooms to allow full access to the C-26009 (C6) Contractor. Completion of five of the rooms and the installation of the room to room conduits slipped from December 31, 2014 until February 13, 2015. One room is delayed because of a change in space requirements (AWO) and is expected to be completed by July 15, 2015.

- Milestone 8: Completion of all work in the four Traction Power Sub-Station rooms and the installation of conduits between the rooms to allow full access to the C-26009 (C6) contractor.
- Ancillary #1
  - Ongoing work at the invert, mezzanine and street levels includes: framing, rebar installation and concrete placement for floor and wall slabs (2nd and 3rd floors) and placement of stairs.
- Ancillary #2
  - Ongoing work at the street level includes: framing, rebar installation and concrete placement for the slab and walls for the 2nd and 3rd floors
- Entrance #1
  - Ongoing work includes: framing, rebar installation and concrete placement for upper walls, staircase and roof slab.
- Entrance #2
  - Ongoing work includes: framing rebar installation and concrete placement for upper walls; framing rebar installation and concrete placement for CIP walls, and relocation of water and gas utilities.
- Entrance #3
  - Ongoing work includes: removal of bracing beneath girder for equipment; delivery of electrical equipment.
- Roof Level
  - Ongoing work includes: removal of deck beams on the Eastside of 2nd Ave; installation of new utilities; and backfilling

Contract C-26006 (C3) 63rd Street Station Rehabilitation

- Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project. There continues to be no issues with the instrumentation monitoring results during excavation at Entrance #1.
- The focus of the work effort remains Area 5 and the progress at Entrance #1.
- **Area 5 (Reconstruction consists of mezzanines and the deck plaza roof)**
  - Continued painting, doors & hardware and other architectural finishes throughout.
  - Continued setting traction elevator equipment in the Elevator Machine Rooms and the Elevator Shafts and completed installation of the elevators moving platforms.
  - Continued installation of power & communication conduits throughout.
  - Completing erection of CMU at the 6th Mezzanine.
- **Ancillary #1**
  - Completed MEP & Architectural finishes (ladders, doors & hardware).
- **Entrance #1**

- Excavation for the escalator ramp began at Entrance #1 down to the breakout wall at the station.

- **Entrance #3**
  - Completed demolition and began rebuilding of the top steps.
- **Platforms**
  - Continued installation of platform pavers and room bases at the G4 (lower platform).
  - Continued installation of porcelain platform wall tiles on the inactive side of the G3 & G4 platforms and continued installation of track wall tiles on the inactive G3 & G4 platform levels.
  - Continued installation of ceiling panels and column cladding at the G3 platform.

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

- Substantial Completion was achieved on January 14, 2014
- Submittal of contract closeout documentation is ongoing.

Contract C-26011 (C4C) 72nd Street Station – Station Finishes, MEP, Ancillary Buildings & Entrances

- **Ancillary #2 and Entrance #2**
  - Completed erection basement walls and began rebar installation for placement of the street level slab at Ancillary #2. Permanent concrete stair placement continues from the mezzanine up to basement level.
  - Completed removal of the temporary stair tower and continued waterproofing in Entrance #2
- **Ancillary #1**
  - Continued forming and rebar placement for the Sub-Basement walls.
- **Main Cavern**
  - Conduit installation continues throughout the North, South & Public Mezzanines.
  - CMU wall erection and HVAC ductwork continued in the Public Mezzanine.
  - Completed construction of permanent concrete stairs from the mezzanine to the platform.
  - Interior chiller equipment has been installed (north and south mezzanines) pumps and piping is forecast to be completed by February 15, 2015.
  - Continuing installation of electric equipment & conduit in the North & South EDR rooms.
- **Platform**
  - Construction of the platform deck is complete. Continued installation of acoustical material under the outer platform deck and MEP in the remaining platform rooms.
- **Escalators**

- Continued installation of Escalators #1, #2 & #3 drive machine supports for the mezzanine to platform equipment.

- **Entrance #1:**
  - Rock excavation and mining continues in the garage. This work is forecast to be complete the end of February 2015. Continued placing Support of Excavation (SOE) walls. Began excavation and support of utilities at 2nd Ave.

- **Entrance #3 (Elevator Bank)**
  - Continued with erection of walls to the street level.

Contract C-26008 (C5B) 86th Street Station Cavern Mining and Lining

- Substantial Completion of all contract work was achieved on December 16, 2014.

Contract C-26012 (C5C) 86th Street Station Finishes, MEP Systems, Ancillary Buildings & Entrances

- **Main Cavern**
  - Continuing with the North Mezzanine Upper and 1st Upper Mezzanines.
  - Continued erection of South Mezzanine CMU walls.
  - Continued placement of mezzanine curbs.
- **Ancillary #1**
  - Completed erection of the 1st Upper Mezzanine level.
- **Ancillary #2**
  - Continued with waterproofing to the street level and slab placement.
- **South Tunnels**
  - Punchlist work is ongoing. The contractor continues with station markings along both tunnels.
- **Platform**
  - Substantially completed the architectural precast panel installation at the Platform Level.
  - Continued placing platform walls and forming for platform deck. The goal is to complete the platform by the end of February 2015.

Contract C-26009 (C6) Track, Power, Signals and Communication Systems

- Track:
  - Completed concrete pour on the northbound Track S2 between 86th and 96th Street Station
  - Concrete placement for southbound Track S1 between 86th and 96th Street is ongoing
  - Rail required for special track work at 96th Street was delivered
- Communication:

- Fiber optic cable testing for 63rd Street Milestone 5A/5B Wide Area Network (WAN) and Local Area Network (LAN) is ongoing
- Cables required for inter-station communication room connectivity between 63rd and 72nd Streets have been installed
- Emergency Alarm (EA) and sound power phones end devices with associated conduit between 63rd and 72nd Street station tunnels have been installed

- Signal (63rd Street Station):
  - Installation of wayside signal conduits and wayside signal equipment in the 63rd Street Station and north of 96th Street Station is ongoing
  - Cable tray installation und the platform at 63rd Street Station is ongoing
  - Installation of line and local cables, conduits and wayside signal equipment is ongoing
  - Installation of racks and wall equipment in 147 Central Instrument Room at 63rd Street Station ongoing
  - Continued installation of rack steel in the relay room at the 96th Street Station

- Submittal Progress
  - Total projected submittals: 5,908
  - Total submitted to date: 4,059
  - Total projected to complete: 1,849
  - Percent completed: 69.0%
  - Pending MTA response: 293

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

Status:

During January 2015, the Second Avenue Subway Quality Management team continued holding Quality Meetings and Quarterly Quality Oversights of the Contractor with CCM, MTACC, and PMOC participation. They participated in the job progress meetings, monitored quality matters in the field for each construction contract, reviewed and provided comments for Quality Work Plans, and participated in Preparatory Phase Sessions for numerous construction processes.

Observations:

Project Quality Manual: Revision 3 of the SAS Project Quality Manual (PQM) was issued in April 2009. The SAS Quality Manager prepared a draft of Revision 4 to reflect the new MTACC QQO checklist requirements and other changes that have occurred since Revision 3 was issued. The PMOC received a draft of Revision 4 to review. Comments were returned to the SAS Project Quality Manager in October 2014. The SAS Quality Manager indicated that Revision 4 will be issued in March 2015.

Inspection Daily Reports: At the end of January 2015, the C2B contractor was five weeks behind and the C4C contractor 2-3 weeks behind entering their Daily Inspection Reports into the Contractor Management System (CMS). Last month the C4C contractor was three weeks behind and is now current.

Nonconformance Reports (NCRs): The C2B, C5C, and C6 contractors are not following their approved nonconformance reporting systems. Details are provided in the table below.

C2B Contractor: In the area of nonconformance reporting and in process inspection, the C2B Quality Manager is not following the approved Contractor's Quality Plan. Details are provided in the table below. MTACC's Chief of Quality and System Certification informed the PMOC that he will follow-up and resolve the issues identified in the table.

C4C Contractor: The C4C contractor hired a new Quality Manager in November 2014. C4C Contractor Management stated that entry of Daily Inspection Reports and generation of NCRs in the required time frame would improve. As reported in the December 2014 report, this did not happen. However, by the end of January 2015, entry of Daily Inspection Reports and generation of NCRs were current.

C5C Contractor: No NCRs have been written since mid-December. The SAS C5C Quality Manager stated that eight NCRs were written but they are sitting on the contractor's Project Manager's desk and have not been entered into CMS. In addition to this concern, the PMOC is concerned that of the 16 non-concrete NCRs that are still open, 12 of them are four months or older. The PMOC recommends that the eight NCRs be entered into CMS immediately and that the contractor establish a schedule to close the 12 non-concrete NCRs. The contractor's Quality Manager has stated that he cannot keep up with the workload.

C6 Contractor: The contractor submitted Waiver #23 to extend the placement time from 90 minutes to 120 minutes. The Designer of Record will not approve this waiver. The Designer of Record has approved an extension of placement time from 90 minutes to 120 minutes on other SAS contracts and the PMOC recommends that SAS Management resolve this issue. Meanwhile, the C6 contractor has inappropriately closed the eleven concrete NCRs with a Use-As Is disposition even though the Designer of Record has not concurred. The PMOC recommends that the contractor not close the out-of-spec concrete NCRs until they are approved by the Designer of Record.

Contract Package C2B	
Status:	Through January 31, 2015, a total of 72 NCRs have been issued. 35 have been closed and 37 NCRs are still open. In January 2015, no new NCRs were written and none were closed.
Observation:	Of the 37 open NCRs, 25 are for concrete that was out of specification. A concrete analysis is expected to be prepared by the end of the first quarter of 2015. Entry of Inspection Daily Reports into CMS is five weeks behind.
Concerns and Recommendations:	The PMOC is concerned that in the area of nonconformance reporting and in process inspection, the C2B Quality Manager is not following the approved Contractor's Quality Plan. The contractor's Quality Manager does not have enough help or is unable to do the required job. Nonconformance Reports (NCRs) are not being generated in a timely manner. Most nonconforming conditions are identified by the SAS C2B Construction Management Office rather than by the subcontractor or the contractor's inspectors. NCRs that are dispositioned "repair" are not coordinated with the Designer of Record prior to the repair being made.

	Entry of Daily Reports into CMS is five weeks behind. Follow up on action items identified during the Quarterly Quality Oversight (QQO) are not discussed at the Monthly Quality Management Meeting. The PMOC recommended that upper management resolve these issues and MTACC's Chief of Quality and System Certification informed the PMOC that he will follow-up and resolve these issues.
Contract Package C3	
Status:	Through January 31, 2015, a total of 94 NCRs have been issued. 80 have been closed and 14 NCRs are still open. In January 2015, no new NCRs were written and two were closed.
Observation:	Four of the open NCRs were written by the contractor on one of their subcontractors. All of these NCRs have been open 4 to 13 months. One NCR against this subcontractor was closed in January and another is expected to be closed in early February 2015, Entry of Inspection Daily Reports into CMS is current.
Concerns and Recommendations:	The PMOC is still concerned that three of the NCRs against that one subcontractor have been opened for more than four months. The PMOC recommends that a meeting be convened with the subcontractor and a schedule be developed to close these NCRs.
Contract Package C4C	
Status:	Through January 31, 2015, a total of 100 NCRs have been issued. Eight have been closed and 92 NCRs are still open. In January 2015, 21 NCRs were written and none were closed.
Observation:	87 of the 92 open NCRs are for concrete that was out of specification. All 21 of the NCRs generated in January were for concrete that failed. The contractor has performed two concrete analyses, one for each of its suppliers. The concrete analyses are awaiting approval from the Designer of Record. Submittal of Inspection Daily Reports is current.
Concerns and Recommendations:	The contractor's new Quality Manager has made a concerted effort to generate NCR's as the nonconformance occurs and to submit Inspection Daily Reports on time. NCR generation and submittal of Inspection Daily Reports are current and the PMOC has no concerns.
Contract Package C5B	
Status:	Through January 31, 2015, a total of 93 NCRs have been issued. Of the 93 that have been issued, 88 have been closed and 5 NCRs are still open. In January 2015, two new NCRs were written and six were closed.
Observation:	Entry of Inspection Daily Reports into CMS is current. The five open NCRs are awaiting approval from the designer of record. Only punch list work is now being done.
Concerns and	The PMOC has no concerns.

Recommendations:	
Contract Package C5C	
Status:	Through January 31, 2015, 48 NCRs have been issued. Of the 48 that have been issued, 3 have been closed and 45 NCRs are still open. In January 2015, no new NCRs were written and none were closed.
Observation:	Submittal of Inspection Daily is 2-3 weeks behind. No NCRs have been written since mid-December.
Concerns and Recommendations:	The SAS C5C Quality Manager stated that eight NCRs were written but they are sitting on the contractor's Project Manager's desk and have not been entered into CMS. In addition to that concern, the PMOC is concerned that of the 16 non-concrete NCRs that are still open, 12 of them are four months or older. The PMOC recommends that the eight NCRs be entered into CMS immediately and that the contractor establish a schedule to close the 12 non-concrete NCRs. The contractor's Quality Manager has stated that he cannot keep up with the workload. The PMOC recommended that MTACC Quality Management try to resolve this issue.
Contract Package C6	
Status:	Through January 31, 2015, a total of 28 NCRs have been issued. Ten have been closed and 18 NCRs are still open. In January 2015, 5 new NCRs were written and one was closed. Entry of Inspection Daily Reports into CMS is current.
Observation:	Eleven of the open NCRs are for concrete placement that is out of specification. The contractor submitted Waiver #23 to extend the time of concrete placement from 90 minutes to 120 minutes. The Designer of Record will not approve this waiver. The contractor is preparing an analysis of concrete strength and has indicated that these NCRs are closed.
Concerns and Recommendations:	The PMOC is concerned that the contractor has closed the eleven concrete placement NCRs without the concrete analysis being completed and the Designer of Record concurring with a Use-As-Is disposition. The PMOC is also concerned that three of the seven non-concrete NCRs that are open have been open for three to ten months. The PMOC recommends that the contractor not close the out-of-spec concrete NCRs until they are approved by the Designer of Record and establish a schedule to close the old NCRs.

Concerns and Recommendations:

Refer to previous section.

2.0 SCHEDULE DATA

Status

The Integrated Project Schedule (IPS) is a management level schedule that integrates all ten construction packages along with design, procurement, startup and other support activities. IPS Update #102 was received on January 23, 2015 and is based on a Data Date of January 1, 2015. This update contains the ".XER" schedule files for the IPS and narrative report. The IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities on October 24, 2016, with approximately 69 calendar days (CD) or 49 work days (WD) of contingency, resulting in a forecast Revenue Service Date (RSD) of December 30, 2016.

Schedule contingency is summarized as follows:

	Dates	**Contingency (CD)**	
MTACC Completion	10/24/2016		
		69	MTACC Contingency
MTACC RSD	12/31/2016		
		184	Additional Contingency
ELPEP Threshold	7/3/2017		
		240	Minimum ELPEP Contingency
"Risk Informed" RSD	2/28/2018		
		492	TOTAL

Observations

Project Critical Path:

MTACC's schedule narrative identifies four independent float paths as "critical". Each of these paths has no more than 12 WD of schedule float. The PMOC concurs with MTACC's evaluation of the relative importance of these paths and for consistency, will follow the same reporting format.

1st Critical Path (TF=0): The longest continuous path begins with Zone 3 trackwork, followed by Zone 4 trackwork, forecast to complete on April 1, 2015. The path continues through the 3rd rail installation in Zones 4, 5, 6, 7, 8, 10 and 11 and is scheduled for completion on July 12, 2016 and is followed by traction power cable termination and testing at the 86th Street Station in August 17, 2016. This path then follows through 86th Street Substation FIST, In-Service and Operational Testing through September 14, 2016. NYCT Proof of Route Familiarization then proceeds until October 24, 2016, which is the scheduled completion of all construction and testing activities. The Critical Path then completes with 49 WD (69 CD) of Schedule Contingency resulting in an RSD of December 30, 2016.

2nd Critical Path (TF=1): This path also begins Zone 3 trackwork, and then follows trackwork in Zones 5, 6 and 7, special trackwork installation in Zone 8 and Zones 10 and 11, all of which should be completed by May 13, 2016. The path then shifts to the wayside installation of riser boxes, ladders, hand rails and finishes followed by MTACC inspection and resolution of Punch lists on September 19, 2016. The path then follows performance of System Wide Operational

and Train Tests through October 17, 2016 and completes with 49 WD (69 CD) of Schedule Contingency leading to a RSD date of December 30, 2016.

3rd Critical Path (TF=11/14): The 3rd critical path extends through construction of Ancillary #2 at the 96th Street Station. The path is initiated by structural construction of the street level slab and through 4th level parapet walls, forecast to complete on September 30, 2015. From that date, the path follows mechanical installation of fans and ducts for tunnel ventilation, electrical power and lighting installation through October 4, 2016, which is the date of C2B Substantial Completion. C2B Substantial Completion ties directly to SAS Phase 1 Completion on October 24, 2016.

Several aspects of the work at 96th Street Station are significant:

- This path is unique in that it is solely controlled by the C2B Contractor, with no component of this work performed by the Systems (C6) Contractor.
- There are approximately nine independent paths with a float value less than 30 WD that are solely within the scope and responsibility of the C2B project.
- The risk that completion of work at the 96th Street Station may ultimately delay the overall project RSD appears to be increasing.

4th Critical Path (TF=12): The "critical "portion of this path is initiated by the start of traction power substation work by the Systems Contractor (C6) at the 86th Street Station on April 24, 2015. The start of this work is controlled completion of traction power substation rooms by the C5C Contractor (MS#9). The path follows the installation of Epoxy Floors, Switchgear and Transformers, through June 22, 2015 and then continues through the grounding, installation of supports, Bus Duct and Installation and Termination of HT cables. Installation work is forecast for completion on July 1, 2016 and is followed by FIAT, FIST, and IST for the traction power system and should complete by August 1, 2016. Facility Integrated Testing at 86th St station followed by Proof of Route Familiarization Training extends the path through October 24, 2016.

Secondary Paths: **Other** secondary float paths of significance to the overall status of the project include:

+18 WD: This path represents procurement, installation and testing of permanent power equipment at the 86th Street Station. Following the forecast "Permanent Power Available" date of December 16, 2015, the path follows component and system testing of mechanical and electrical equipment throughout the station.

+26 WD: This path represents the construction of Entrance #1 at the 72nd St. Station. Structural excavation and underpinning is forecast to complete on April 7, 2016. The path then follows finish construction, which is concurrent with escalator installation through testing and commissioning. All work at Entrance #1 is forecast to be complete by September 16, 2016.

+27 WD: This path involves structural concrete masonry block wall and other architectural finish work in the 86th Street Station mezzanine area. This work is currently underway and forecast for completion on May 11, 2015. This significance of this work is that it controls the achievement of C5C Milestones # 7, 8, 9 and 11. Until this work is complete, the installation of signal and traction power systems will be constrained from fully starting. Currently, the signal and traction power work in

these rooms is connected to their respective milestones via negative lags, allowing the systems installation work to start before the rooms are completed. To a certain extent this overlapping of work may be achievable, but it is unlikely the 1.5 to 2 month overlap currently modelled in the IPS can be fully achieved.

+44/45 WD: This path represents structural, architectural and electrical construction of Ancillary #1 specifically required for permanent power at the 72nd Street Station. Following the "Permanent Power Available" date of November 23, 2015, this path merges with numerous other paths involving the testing and acceptance of equipment throughout the station.

+107 WD: This path represents procurement, installation and testing of permanent power equipment at the 96th Street Station. Following the forecast "Permanent Power Available" date of November 5, 2015, the path follows component and system testing of mechanical and electrical equipment throughout the station.

Milestone Summary: For contracts actively under construction, periodic progress of construction and schedule-related issues based on changes to contractual milestones includes the following.

1. Status of Milestones forecast to complete this update period (12/1/14 to 12/31/14):

Pkg.	MS	Description	UD #101 Forecast	Status	UD #102 Forecast
C2B	MS #2	Shared site access @ 93rd Street shaft	12/01/14		01/01/15
C4C	MS#3	Shared access thru 72nd Street Station 1172+40 ->1163+00	12/01/14	Completed	
C4C	MS #13	Full access @ Lubrication Room(s)	12/05/14	Completed	
C4C	MS #8	Turnover of Signal Rooms South of station to C6	12/05/14		01/16/15
C4C	MS #11	Complete south power rooms	12/05/14		01/16/15
C4C	MS #9	Complete all Signal Roms except M8	12/12/14		01/16/15
C4C	MS #14	Complete all remaining Comm, Signal & Traction Power Rooms	12/12/14		01/16/15
C5B	*SS*	*Substantial Compl/All Work incl. Ent. #2*	*12/16/14*	Completed	
C2B	MS #7B	Full access to Signals Rooms	12/16/14		02/04/15
C2B	MS #7C	Full access to Signals Rooms	12/16/14		02/04/15
C2B	MS #8B	Full access to Traction Power Rooms:	12/16/14		02/04/15
C2B	MS #8C	Full access to Traction Power Rooms:	12/16/14		02/04/15
C4C	MS #7	Turnover of Communications Rooms to Systems Contractor	12/19/14		01/16/15

2. Milestones schedule for completion during the next update period (01/01/15 to 01/31/15).

Pkg.	MS	Description	UD #102 Forecast	Float
C2B	MS #2	Shared site access @ 93rd Street shaft	01/01/15	461
C4C	MS #7	Turnover of Communications Rooms to Systems Contractor	01/16/15	167
C4C	MS #8	Turnover of Signal Rooms South of station to C6	01/16/15	26
C4C	MS #9	Complete all Signal Roms except M8	01/16/15	63
C4C	MS #11	Complete south power rooms	01/16/15	148
C4C	MS #14	Complete all remaining Comm, Signal & Traction Power Rooms	01/16/15	63
C2B	MS #6A	Full access to Comms Rooms & Closets	01/23/15	34
C2B	MS #6B	Full access to Comms Rooms & Closets	01/23/15	36
C2B	MS #6C	Full access to Comms Rooms & Closets	01/23/15	36
C5C	MS #5	Turnover of Comm. Rooms	01/27/15	55
C4C	MS #10	Complete north power rooms	01/30/15	138

3. Milestones with unusual schedule variances, generally defined as a forecast date change approximately equal to or exceeding the duration of the reporting period are listed in the following table.

Pkg	MS	Description	UD #101	UD #102	Variance
C2B	MS #7B	Full access to Signals Rooms	12/16/14	02/04/15	50
C2B	MS #7C	Full access to Signals Rooms	12/16/14	02/04/15	50
C2B	MS #8B	Full access to Traction Power Rooms:	12/16/14	02/04/15	50
C2B	MS #8C	Full access to Traction Power Rooms:	12/16/14	02/04/15	50
C4C	MS #8	Turnover of Signal Rooms South of station to C6	12/05/14	01/16/15	42
C4C	MS #11	Complete south power rooms	12/05/14	01/16/15	42

Pkg	MS	Description	UD #101	UD #102	Variance
C4C	MS #9	Complete all Signal Roms except M8	12/12/14	01/16/15	35
C4C	MS #14	Complete all remaining Comm, Signal & Traction Power Rooms	12/12/14	01/16/15	35
C2B	MS #9	Full access to Station Service Centers	08/06/15	09/08/15	33
C2B	MS #2	Shared site access @ 93rd Street shaft	12/01/14	01/01/15	31
C6	#5A	Complete LAN - 63rd St. Station	02/17/15	03/20/15	31
C6	#5B	Complete WAN - 63rd St. Station	02/17/15	03/20/15	31
C5C	MS #10	Turnover Traction Power Rooms	05/05/15	06/03/15	29
C6	#5C	Complete all 63rd St. Station work	12/10/15	01/08/16	29
C5C		Substantial Completion	07/27/16	08/25/16	29
C4C	MS #7	Turnover of Communications Rooms to Systems Contractor	12/19/14	01/16/15	28
C6	SS	Substantial Completion	08/22/16	09/19/16	28
C5C	MS #10A	Room-to-Room Conduit Ready	06/04/15	07/01/15	27
C4C	MS #13	Full access @ Lubrication Room(s)	12/05/14	12/31/14	26
C5C	MS #6	Turmnover of Comm. Rooms	06/26/15	07/21/15	25
C5C	MS #4	Shared Access; Sta. 1198+00->1172+00	01/13/15	02/06/15	24
C5C	MS#14b	Limited Access all locations	06/02/15	05/08/15	-25

4. Milestones with unusual float variances, generally defined as a forecast date change approximately equal to or exceeding the duration of the reporting period are listed in the following table.

Pkg	MS	Description	UD #101	UD #102	Variance
C5C	MS#14b	Limited Access all locations	342	371	29
C5C	MS #3	Shared Access; Sta. 1209+00->1198+00	125	151	26
C5C		Substantial Completion	49	18	-31
C6	#5C	Complete all 63rd St. Station work	214	100	-114

5. Milestones with excessive float values are listed in the following table.

			UD# 102	
Pkg	**MS**	**Description**	**Date**	**Float**
C2B	MS #2	Shared site access @ 93rd Street shaft	01/01/15	461
C2B	MS #7B	Full access to Signals Rooms	02/04/15	448
C2B	MS #7C	Full access to Signals Rooms	02/04/15	448
C2B	MS #8B	Full access to Traction Power Rooms:	02/04/15	448
C2B	MS #8C	Full access to Traction Power Rooms:	02/04/15	448
C5C	MS #7a	Room-to-Room Conduit Ready	04/17/15	396
C5C	MS #8A	Room-to-Room Conduit Ready	04/17/15	396
C5C	MS#14b	Limited Access all locations	05/08/15	371
C5C	MS #9A	Room-to-Room Conduit Ready	05/27/15	368
C5C	MS #11	Full access @ Station Service Center(s)	04/03/15	362
C5C	MS #10A	Room-to-Room Conduit Ready	07/01/15	343
C5C	MS #6A	Room-to-Room Conduit Ready	08/20/15	307
C2B	MS #4	Shared access in East & West track-ways thru Sta (1238+50 ->1225+25); 97th -> 99th St Tunnel in 99th to 105th St Tunnels	02/06/15	302
C3	#4c	Compl Lwr/Uppr Platforms & Signal Rms	04/17/15	280
Example: Based on this information, C2B, MS#7B can be achieved as late as 10/23/16 (448 WD later than the currently scheduled date of 02/04/15) with no adverse impact to the schedule. Or 1 day before the forecast completion of all construction and testing activities on the project.				

Schedule Contingency: As of IPS Update #102 there are 69 CD (49 WD) contingency between the calculated completion of all work on October 24, 2016 and MTACC target RSD of December 30, 2016. The project schedule lost 18 CD of contingency over this latest reporting period.

ELPEP/SMP Compliance: MTACC considers the IPS and the associated schedule management procedures to be in compliance with the ELPEP and Schedule Management Plan. Elsewhere in this report, the PMOC has identified those areas where it believes current SAS schedule practices compromise the accuracy and usefulness of the IPS.

- Forecast Revenue Service Date (RSD) and minimum schedule contingency:
  - ELPEP Requirement: February 28, 2018 (RSD)

- ELPEP Requirement: 240 CD (measured against February 28, 2018)

- Minimum Allowable Float; Real Estate Acquisition
  - ELPEP Requirement: 60 CD
    - Current Forecast: All Real Estate takings are complete as of November 1, 2011 with the last "Title Vesting" occurring on October 25, 2011.

- Minimum Allowable Secondary Float Path
  - ELPEP Requirement: Minimum 25 Calendar Days (approximately 18 WD) of schedule float for all secondary "near-critical" paths.
  - Secondary float paths with Total Float (TF) =1, 11, 12, and 18 WD of schedule float.
  - Compliance with this requirement is not consistent with maintaining the project budget.

- Secondary Schedule Mitigation (critical path compression)
  - ELPEP Requirement: 125 CD
  - Mitigation opportunities will be pursued as they are identified.

Concerns and Recommendations:

Based on the PMOC's review of IPS Update #102:

- Three of thirteen (23%) of milestones scheduled for completion this reporting period were actually completed.
- Of the 22 active schedule milestones experiencing significant schedule variance. 21 of these variances delayed the milestone completion. This is to say that virtually no construction activities affecting these milestones were executed in less time than forecast by the previous IPS.
- Based on this information, MTACC's stated objective of accelerating completion and turnover of spaces required for systems installation has not been successful.
- Eleven of the 55 active milestones are forecast for completion during the next update period (January 2015).
- In its November 2014, the PMOC expressed concern over the extremely high float values associated with several milestones. This concern was discussed with MTACC at length at the January 21, 2015 SAS Cost and Schedule Meeting. The effect of the excessive float and underlying faulty logic is illustrated above by example. This issue is significant in that it results in an erroneous forecast and may mask significant critical or near-critical paths.

3.0 COST DATA

Based upon financial expenditures reported by the MTACC through January 31, 2015 SAS Phase 1 is approximately 73.3% complete. The completion status of the individual construction contracts through January 31, 2015, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100.0%

- C26005 (96th Street Station) – 99.8%
- C26010 (96th Street Station) – 56.4%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 99.1%
- C26012 (86th Street Station) – 27.6%
- C26006 (63rd Street Station) – 86.0%
- C26007 (72nd Street Station) – 99.9%
- C26011 (72nd Street Station) – 40.4%
- C26009 (Systems) – 45.1%

Aggregate Construction % Completion:

- 100% of all construction has been bid.
- 100% of all construction is under contract
- 76.6% of base contract construction (excluding AWOs) is complete
- 74.1% of all construction is complete

Based upon cost data received from MTACC for the period through November 30, 2014:

- Value of construction in place this period = $17,279,088
- Estimated value of construction remaining = $490,274,798 (base contract only)
- Target construction completion = October 24, 2016
- Number of months remaining = 20.8

The estimated average rate of construction required to achieve target completion date is $25,389,996 per month. The average progress (payments) achieved over the most recent six month period is $34,178,738 per month. It is noted that progress payments were only made to three active construction contracts (C3, C4C and C5C) during January 2015. This partially explains the reduced rate of overall progress achieved. This gross evaluation of construction progress continues to indicate that adequate progress is being made on the project to achieve the RSD of December 30, 2016. It is noted that the forecast volume of work going forward is based on base contract (excluding AWOs) work only. Significant additional work may alter this forecast.

Soft Cost expenditures (not including real estate, OCIP, etc.) reported this period by MTACC totaled $4.2M. This expenditure is somewhat higher than anticipated by the CWB. At the current rate of expenditure, the current soft cost budget will be sufficient through October 2016.

Cost Growth: The value of AWOs reported by MTACC/NYCT in January 2015 is summarized as follows:

	Executed AWOs	AWO Exposure
January-15	$154,131,441	$215,612,332
December-14	$152,636,363	$212,858,003
Δ	$1,495,078	$2,754,329
Δ	0.98%	1.29%

The changes in AWO Exposure for each construction contract are summarized as follows:

Const. Pkg.		AWO Exposure		
	Jan-15	Dec-14	Period Δ	Changes this Period
Completed Packages	$47,612,118	$47,612,118	$0	Final values for Packages C1 and C5A as reported by MTACC.
C2A	$47,615,409	$47,581,409	$34,000	Increase is based on the addition of AWO # 183 and the initial estimate for the work.
C2B	$42,781,884	$41,198,489	$1,583,395	Net increase is based on revised estimates for AWO # 63, 92, 98, 117, 120 and initial estimates for AWO # 106, 121, 123, 138 and 139.
C3	$16,554,513	$15,732,753	$821,760	Net increase is based on revised estimates for AWO # 86, 118, 123, 135, 137, 139, 141, 143, 155, 158, 173, 189 and initial estimates for AWO # 181, 190, 191, 192 and 193.
C4B	$1,325,639	$1,325,639	$0	No change reported this period.
C4C	$24,778,862	$24,113,183	$665,679	Net increase is based on initial estimates for AWO # 58, 104, 121, 122, 125, 126 and revised estimates for AWO # 40, 95 and 96.
C5B	$21,971,055	$22,770,441	-$799,386	Net decrease is based on initial estimates for AWO # 49, 62, 94, 99 and revised estimates for AWO # 92, 104.
C5C	$5,856,758	$5,526,639	$330,119	Net increase is based on a revised estimate for AWO # 18 and initial estimates for AWO # 37, 64, 66, 67 and 69.
C6	$7,116,094	$6,997,332	$118,762	Net increase is based on initial estimates for AWO # 29, 56, 68, 69, 70 and 71.
	$215,612,332	$212,858,003	$2,754,329	

The changes in Executed AWO Value are summarized as follows:

Const. Pkg.	Executed AWOs			
	Jan-15	Dec-14	Period Δ	Changes this Period
Completed Packages	$47,612,118	$47,612,118	$0	Final values for Packages C1 and C5A as reported by MTACC.
C2A	$47,065,746	$46,945,746	$120,000	Net increase is based on incorporation of AWO # 165 and 181.
C2B	$16,631,850	$16,273,372	$358,478	Increase is based on incorporation of AWO # 98, 115, 117 and 125
C3	$11,259,485	$10,614,985	$644,500	Increase is based on incorporation of AWO # 54, 125, 145, 146, 176 and 179.
C4B	$1,325,639	$1,325,639	$0	No change reported this period.
C4C	$6,075,752	$5,900,252	$175,500	Increase is based on incorporation of AWO # 83 and 106.
C5B	$17,453,722	$17,453,722	$0	No change reported this period.
C5C	$812,500	$679,500	$133,000	Increase is based on the incorporation of AWO # 10.
C6	$5,894,629	$5,831,029	$63,600	Net increase is based on incorporation of AWO # 57 through 63 and 69 through 71.
	$154,131,441	$152,636,363	$1,495,078	

As of January 31, 2015, the status of Additional Work Orders (AWOs) for each construction contract on Phase 1 of the Second Avenue Subway Project is summarized as follows:

Contract / (Package)	% Complete	Award	Exposure		Executed	
			$	% of Award	$	% of Award
C26002 (1)	**100.00%**	**$337,025,000**	**$41,086,647**	**12.19%**	**$41,086,647**	**12.19%**
C26005 (2A)	*99.84%*	$325,000,000	*$47,615,409*	*14.65%*	$47,065,746	14.48%
C26010 (2B)	*56.39%*	$324,600,000	*$42,781,884*	*13.18%*	$16,631,850	5.12%
C26006 (3)	*85.99%*	$176,450,000	*$16,554,513*	*9.38%*	*$11,259,485*	*6.38%*
C26007 (4B)	*99.94%*	$447,180,260	*$1,325,639*	*0.30%*	*$1,325,639*	*0.30%*
C26011 (4C)	*40.40%*	$258,353,000	*$24,778,862*	*9.59%*	*$6,075,752*	*2.35%*
C26013 (5A)	***100.00%***	**$34,070,039**	***$6,525,471***	**19.15%**	**$6,525,471**	**19.15%**
C26008 (5B)	*99.16%*	$301,860,000	*$21,971,055*	7.28%	*$17,453,722*	*5.78%*
C26012 (5C)	*27.63%*	$208,376,000	*$5,856,758*	2.81%	*$812,500*	*0.39%*
C26009(6)	*45.13%*	$261,900,000	$7,116,094	*2.72%*	$5,894,629	2.25%
TOTAL TO DATE		$2,674,814,299	*$215,612,332*	*8.06%*	*$154,131,441*	*5.76%*

To date, approximately $2,048,599,242 (76.5%) worth of all base contract construction work has been completed. As a % of work completed, the AWO exposure for these contracts = 8.06% and the executed AWO % = 7.52%.

The PMOC notes an extremely high correlation between AWO exposure estimates and the final negotiated AWO value. Consequently, forecasting total AWO expenditures at completion based on the current AWO exposure values appear justified and reasonable. This forecast suggests the final AWO value will be approximately $282M, which is significantly above the $229M AWO contingency contained in the MTACC CWB.

MTACC maintains an AWO forecast which includes input from its Risk Registers. The MTACC AWO EAC Forecast through December 2014 is $301,550,389. This value is somewhat greater than the PMOCs AWO forecast and will be used as part of the overall contingency/EAC analysis.

Cost Contingency: Based upon the MTACC Current Working Budget, expenditures as of January 31, 2015 reported by MTACC and the current AWO Exposure analyses; the PMOC has developed the following contingency analysis:

Contingency Analysis

	Current	@ Completion	
Phase 1 Budget	$ 4,451,000,000	$ 4,451,000,000	
Construction Awards	$ 2,674,814,299	$ 2,674,814,299	
Soft Cost Expended	$ 1,078,301,259	$ 1,078,301,259	
Soft Cost Forecast to Complete	$ 229,806,826	$ 300,831,943	(1)
AWO Exposure	$ 215,612,332	$ 301,550,389	(2)
Total Contingency	$ 252,465,284	$ 95,502,110	(3)
Reserved Contingency	$ 160,000,000	$ 95,502,110	(4)
Available Contingency	$ 92,465,284	$ -	
Transfer from Reserved Contingency =		$ 64,497,890	

Notes:

(1) Forecast to complete includes increases in OCIP, A/E & CM Services, Engineering Testing and FOC installation.

(2) AWO Exposure incorporates MTACC "risk-informed" forecast through December 2014.

(3) Total Contingency = budget balance after forecast expenditures.

(4) Reflects current forecast transfer of $42,078,225 from "Reserved Contingency". Increase in contingency usage based upon forecast increases to OCIP and CM expenses. Both are the result of delay from the forecast completion date of December 2014.

Conclusions based upon this analysis include:

- The project can be completed within the current MTACC CWB of $4.451B.

- Current forecast indicates it will be necessary to transfer funds from the "Executive" or "Reserved" Contingency in order to cover forecast project costs.

ELPEP/CMP Compliance: The SAS Project Team maintains an EAC for all construction cost, which is updated monthly. Revision #10 of the Project Cost Estimate, which includes a complete forecast of remaining soft cost has been prepared and incorporated into the project CWB. It is the opinion of the PMOC that SAS Phase 1 is in substantial compliance with the metrics, deliverables and intangible goals enumerated for Cost Management in the Enterprise Level Project Execution Plan (ELPEP), dated January 15, 2010 (Section IV. b, page 8) and as further described by the Cost Management Plan (CMP).

4.0 RISK MANAGEMENT

Status

Risk Registers for active construction contracts were updated during the 4th Quarter 2014.

Observation and Analysis:

The process through which risks are elevated from the Risk Register to more active management and evaluation at the monthly risk mitigation meetings is not completely defined.

The most significant risks are identified in the following table. Also included are descriptions of the current mitigation strategy and an update of the status of the mitigation actions taken to date.

Risk Description	**Mitigation Summary**	
Risk CNS 4 (C6): Delay resulting from management of contractual interfaces during construction.	**Risk Type**	
	Cost	**Schedule**
Mitigation Strategy: 1. The mitigation strategy has been implemented and is being continuously monitored and enhanced as needed.	**Current Status:** 1. The initiative to pro-actively manage the interfaces between prime contracts has had a positive effect on contractors' achievement of milestone goals and turnover to a subsequent contractor. Recent efforts to execute critical turnovers to the systems contractor have encountered problems. 2. Ongoing monitoring of this effort is needed to assist in resolving specific issues and implementing process improvements.	
Risk C3, C2B, C4C, C5C and C6 Schedules: Construction contract delays that will extend Project Completion beyond the current RSD.	**Risk Type**	
	Cost	**Schedule**
Mitigation Strategy: 1. Ongoing schedule improvement and delay mitigation will focus on "targets of opportunity" where specific action	**Current Status:** 1. Acceleration of specific "targets of opportunity" will be detailed as they are identified.	

<table>
<tr><th>Risk Description</th><th>Mitigation Summary</th></tr>
<tr><td>directed to critical or near-critical work tasks will result in measurable schedule improvement.</td><td></td></tr>
<tr><td colspan="2">Permanent (Station) Power:
Permanent facility power to 72nd, 86th, and 96th Street Stations may be delayed and result in subsequent delays to equipment testing and commissioning.
Risk Type | Cost | Schedule</td></tr>
<tr><td>Mitigation Strategy:
1. The mitigation strategy has been implemented.</td><td>Current Status:
1. Based on current schedule forecasts, equipment will be delivered and installation advanced sufficiently to support permanent power requirements.
2. Refinement of fabrication, installation schedules and ConEd coordination is ongoing.</td></tr>
<tr><td colspan="2">Risk C4C Entrance 1 (301 E 69th Street):
Work on Entrance 1 will be delayed due to delays in obtaining design approval from Owner for utility relocation in the building.
Risk Type | Cost | Schedule</td></tr>
<tr><td>Mitigation Strategy:
1. The mitigation strategy has been implemented.</td><td>Current Status:
1. MTACC and the Contractor have jointly developed a construction schedule for Entrance #1 that will support the current RSD.
2. There is significant risk in this schedule and continuous monitoring and prompt action regarding unanticipated conditions is required.</td></tr>
</table>

Risk Description	Mitigation Summary	
Risk COM 2 (C6): Frequent late changes to the design of station and rail systems could delay C6 and the RSD.	**Risk Type**	
	Cost	**Schedule**
Mitigation Strategy: 1. The current CCG/ CCB approval process has been helpful in limiting discretionary design changes. 2. MTACC has indicated significant concern regarding this issue over the remaining duration of the project.	**Current Status:** 1. Monitoring of the effectiveness of the risk mitigation strategy is ongoing. 2. This risk is applicable to all major operating systems.	

Conclusions

The MTACC has used the risk management process to assist in identifying potential cost/schedule risks to the project and develop mitigation strategies in a timely and effective manner.

At this time in the project lifecycle, the PMOC believes it necessary to refine the manner by which risks are identified based upon specific experiences from other MTACC projects.

5.0 ELPEP

The most recent ELPEP Quarterly Review Meeting was held on December 11, 2014. The next ELPEP Quarterly Review Meeting with MTACC, FTA-RII, SAS and ESA projects and the PMOC is scheduled for March 12, 2015. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** Resolution of FTA/PMOC comments to MTACC's PMP Rev. 10 submittal are ongoing.
- **Schedule Management Plan (SMP)**: Based on its 4th Quarter 2014 checklists, it is MTACC's position that SAS is ELPEP compliant.
- **Cost Management Plan (CMP)**: Based on its 4th Quarter 2014 checklists, it is MTACC's position that SAS is ELPEP compliant. MTACC has started revising the ESA/SAS Cost Management Plan (CMP) and that the proposed draft is nearing completion. MTACC is targeting a Q1-2015 release for review.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP)**: Based on its 4th Quarter 2014 checklists, it is MTACC's position that SAS is ELPEP compliant.

The SAS Project Team has implemented the principles and requirements embodied in the ELPEP. The procedural changes triggered by the ELPEP have become an integral part of the management of the project and gives the FTA/PMOC greater insight into the risk, cost and schedule elements of the project.

6.0 SAFETY AND SECURITY

Implementation of the Safety Requirements as specified in Section 01 11 50 of the General Requirements for each construction contract is ongoing. The contractors' safety management held tool box meetings, trained new employees, monitored the work areas individually and with the CCM Safety and OCIP representatives, and promptly investigated safety incidents. Safety Oversight by the CCM continued with Quarterly Assessments of selected contractors and sharing of Lessons Learned during the project wide monthly Safety Meeting. Site visits by MTA's office of Risk Management, MTA's IEC and FTA's PMOC is ongoing.

As of December 31, 2014, a total of 9,933,432 construction hours have been logged on the project with89 lost time and 248 recordable incidents documented. The total hours and incidents equates to a Lost Time Rate (LTR) of 1.79 and a Recordable Rate (REC) of 4.99. The rates are a slight improvement from the previous month of 1.83 (LTR) and 5.07 (REC). The US Bureau of Labor Statistics (BLS) national rate (Heavy & Civil construction) for Lost Time and Recordable incidents are 1.7 and 3.2 respectively.

Safety and Security Certification: Implementation of the Safety and Security Certification Requirements as specified in Section 01 77 12 of the General Requirements for each Station Contract and the System Contract is ongoing. The checklists of the certifiable items associated with each certifiable element have been finalized. A total of 1,234 certifiable elements have been identified. An electronic data management system is being utilized as a depository for the objective evidence documenting the inspection/testing of a certifiable item.

7.0 ISSUES AND RECOMMENDATIONS

Total Project Cost/Available Contingency: During this reporting period, using cost data supplied by MTACC, forecasts of total available contingency/reserved contingency have been reduced below $100M. The PMOC believes the underlying cost forecasts to be realistic however, with approximately two years remaining until forecast RSD; there is a significantly reduced level of confidence that MTACC can deliver this project within budget.

Schedule Erosion: As noted in Section 2 of this report and in previous PMOC Monthly Reports, milestones experiencing delay over recent periods significantly outnumber milestones where schedule forecasts are holding constant or improving. MTACC has managed to maintain its schedule to date by selective acceleration of delayed work and creative resequencing of downstream work activities. This approach will become increasingly difficult to implement. Without improvements in actual construction schedule execution to offset some of the delay, there is a significant risk of delay to the project RSD.

96th Street Station – Water Leakage: Water leakage at this station has been an issue for several years. The C2B Contractor's "Water Intrusion Report", dated January 16, 2015 identifies several issues and details which may contribute to the current water leakage problem. The Contractor's report was a necessary first step to a comprehensive investigation and identification of leakage vulnerabilities and a subsequent remediation effort. The PMOC recommends this process be expedited to allow remediation to occur during the existing construction phase.

Testing and Commissioning Planning: MTACC previously committed to start detail planning efforts with NYCT regarding testing, commissioning and turnover of SAS facilities in early 2015. This time period was established based upon availability of NYCT staff, which were dedicated to similar efforts on other MTACC projects. As of the writing of this report, this effort

has not started. Anecdotal information from other MTACC “mega-projects” suggests that pre-planning and coordination of these efforts is necessary. Extended turnover periods on other MTACC projects suggest significant improvement in this process is needed.

APPENDIX A - ACRONYMS

A/A	AECOM/Arup
AFI	Allowance for Indeterminates
ARRA	American Recovery and Reinvestment Act
AWO	Additional Work Orders
BA	Budget Adjustment
CCM	Consultant Construction Manager
CD	Calendar Days
CMP	Cost Management Plan
CSSR	Contact Status Summary Report
CIL	Central Instrument Location
CPRB	Capital Program Review Board
CPP	Contract Packaging Plan
CWB	Current Working Budget
CY	Cubic Yards
DCB	Detailed Cost Breakdown
DMP	Deformation Monitoring Points
EAC	Estimate at Completion
ELPEP	Enterprise Level Project Execution Plan
EPC	Engineering-Procurement-Construction
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GO	General Outage
IPS	Integrated Project Schedule
MO	Month
MPT	Maintenance Protection of Traffic
MTA	Metropolitan Transportation Authority
MTACC	Metropolitan Transportation Authority – Capital Construction
N/A	Not Applicable
NOA	Notice of Award
NTP	Notice to Proceed
NYCT	New York City Transit

NYSPTSB	New York State Public Transportation Safety Board
OSS	NYCT Office of System Safety
PE	Preliminary Engineering
PEP	Project Execution Plan
PMOC	Project Management Oversight Contractor (Urban Engineers)
PMP	Project Management Plan
PQM	Project Quality Manual
QA	Quality Assurance
RAMP	Real Estate Acquisition Management Plan
RMCP	Risk Mitigation Capacity Plan
RMP	Risk Management Plan
ROD	Revenue Operations Date
ROW	Right of Way
RSD	Revenue Service Date
SAS	Second Avenue Subway
SCC	Standard Cost Category
SMP	Schedule Management Plan
SOE	Support of Excavation
SSCC	Safety and Security Certification Committee
SSOA	State Safety Oversight Agency
SSPP	System Safety Program Plan
TBD	To Be Determined
TBM	Tunnel Boring Machine
TF	Total Float (Schedule)
TCC	Technical Capacity and Capability
VE	Value Engineering
WBS	Work Breakdown Structure
WD	Work Days

APPENDIX B – TABLES

Table 1 - Summary of Schedule Dates

	FFGA	Forecast Completion	
		Grantee	PMOC
Begin Construction	January 1, 2007	03/20/2007A	03/20/2007A
Construction Complete	December 31, 2013	October 24, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

A = Actual

Table 2 - Schedule Contingency

IPS Update #	95	98	99	100	101	102
Data Date	6/1/14	9/1/14	10/1/14	11/1/14	12/1/14	1/1/15
	Contingency (CD)					
RSD=12/31/2016						
Risk Mitigated	102	85	81	84	87	69
Risk Realized	52	85	81	84	87	69
RSD=02/28/2018						
Risk Mitigated	526	509	505	508	511	492
Risk Realized	478	509	505	508	511	492

Table 3 – Schedule Milestone Comparison

			Dates			Variance		Sch. Float 102
Pkg	MS	Description	Adjusted	**UD #101**	**UD #102**	Contract	Month	
C2B	2	Shared site access @ 93rd Street shaft	03/22/14	**12/01/14**	**01/01/15**	-285	31	461
C2B	4	Shared access in East & West track-ways thru Sta (1238+50 ->1225+25); 97th -> 99th St Tunnel in 99th to 105th St Tunnels	09/21/14	**02/06/15**	**02/06/15**	-138	0	302
C2B	6A	Full access to Comms Rooms & Closets	08/21/14	**01/27/15**	**01/23/15**	-155	-4	34
C2B	6B	Full access to Comms Rooms & Closets	08/21/14	**01/27/15**	**01/23/15**	-155	-4	36
C2B	6C	Full access to Comms Rooms & Closets	08/21/14	**01/27/15**	**01/23/15**	-155	-4	36
C2B	7A	Full access to Signals Rooms	08/21/14	**01/27/15**	**02/04/15**	-167	8	26
C2B	7B	Full access to Signals Rooms	08/21/14	**12/16/14**	**02/04/15**	-167	50	448
C2B	7C	Full access to Signals Rooms	08/21/14	**12/16/14**	**02/04/15**	-167	50	448
C2B	8A	Full access to Traction Power Rooms:	08/21/14	**02/04/15**	**02/04/15**	-167	0	26
C2B	8B	Full access to Traction Power Rooms:	08/21/14	**12/16/14**	**02/04/15**	-167	50	448
C2B	8C	Full access to Traction Power Rooms:	08/21/14	**12/16/14**	**02/04/15**	-167	50	448
C2B	9	Full access to Station Service Centers	11/21/14	**08/06/15**	**09/08/15**	-291	33	150
C2B	10	Complete all remaining Comms, Signal , & Traction Power work	09/21/14	**04/21/15**	**04/21/15**	-212	0	196
C2B	SS	Substantial Completion	12/21/15	**10/04/16**	**10/04/16**	-288	0	14
C3	3d	Mezz 6 & Platform Level Conduit & Station Fare Array	*04/15/13*	**02/20/15**	**02/20/15**	-676	0	257
C3	4c	Compl Lwr/Uppr Platforms & Signal Rms	*10/14/13*	**04/17/15**	**04/17/15**	-550	0	280
C3	SS	Substantial Completion	05/13/14	**12/21/15**	**01/08/16**	-605	18	206
C4C	3	Shared access thru 72nd Street Station 1172+40 ->1163+00	11/27/14	**01/05/15**	**12/1/2014A**			-
C4C	7	Turnover of Communications Rooms to Systems Contractor	8/28/14	**12/19/14**	**01/16/15**	-141	28	167
C4C	7A	Complete Work in all Comm Rooms		**04/01/16**	**03/31/16**		-1	143
C4C	8	Turnover of Signal Rooms South of station to C6	7/15/14	**12/05/14**	**01/16/15**	-185	42	26

			Dates			Variance		Sch. Float 102
Pkg	MS	Description	Adjusted	**UD #101**	**UD #102**	Contract	Month	
C4C	9	Complete all Signal Roms except M8	9/29/14	**12/12/14**	**01/16/15**	-109	35	63
C4C	10	Complete north power rooms	2/25/15	**01/30/15**	**01/30/15**	26	0	138
C4C	11	Complete south power rooms	03/24/15	**12/05/14**	**01/16/15**	67	42	148
C4C	12	Full access @ Station Service Center(s)	08/28/14	**02/23/15**	**02/23/15**	-179	0	259
C4C	13	Full access @ Lubrication Room(s)	08/28/14	**12/05/14**	**12/31/2014A**	-125	26	-
C4C	14	Complete all remaining Comm, Signal & Traction Power Rooms	08/28/14	**12/12/14**	**01/16/15**	-141	35	63
C4C	*SS*	*Substantial Completion w/o Ent. #1*	*11/13/15*	***09/16/16***	***09/16/16***	-308	0	39
C4C	*SS*	*Substantial Completion - Ent. #1*	*10/07/16*	***09/16/16***	***09/16/16***	21	0	26
C5B	*SS*	*Substantial Compl/All Work incl. Ent. #2*	*12/26/14*	***12/16/14***	***12/16/2014A***	10	0	-
C5C	2	Limited Access; Sta. 1209+00->1198+00	01/22/15	**03/11/15**	**03/02/15**	-39	-9	187
C5C	3	Shared Access; Sta. 1209+00->1198+00	05/22/15	**05/13/15**	**04/21/15**	31	-22	151
C5C	4	Shared Access; Sta. 1198+00->1172+00	10/23/14	**01/13/15**	**02/06/15**	-106	24	53
C5C	5	Turnover of Comm. Rooms	09/23/14	**01/06/15**	**01/27/15**	-126	21	55
C5C	6	Turmnover of Comm. Rooms	03/24/15	**06/26/15**	**07/21/15**	-119	25	88
C5C	6A	Room-to-Room Conduit Ready	03/24/15	**07/29/15**	**08/20/15**	-149	22	307
C5C	7	Turnover of Signal Rooms	02/25/15	**03/27/15**	**03/19/15**	-22	-8	27
C5C	7A	Room-to-Room Conduit Ready		**04/27/15**	**04/17/15**		-10	396
C5C	8	Turnover of Signal Rooms	02/25/15	**03/27/15**	**03/19/15**	-22	-8	27
C5C	8A	Room-to-Room Conduit Ready	02/25/15	**04/27/15**	**04/17/15**	-51	-10	396
C5C	9	Turnover Traction Power Rooms	02/26/15	**04/06/15**	**04/24/15**	-57	18	24
C5C	9A	Room-to-Room Conduit Ready	02/26/15	**05/06/15**	**05/27/15**	-90	21	368
C5C	10	Turnover Traction Power Rooms	02/25/15	**05/05/15**	**06/03/15**	-98	29	181
C5C	10A	Room-to-Room Conduit Ready	02/25/15	**06/04/15**	**07/01/15**	-126	27	343
C5C	11	Full access @ Station Service Center(s)	03/24/15	**04/22/15**	**04/03/15**	-10	-19	362
C5C	14b	Limited Access all locations	09/23/14	**06/02/15**	**05/08/15**	-227	-25	371
C5C	15	Comp. Permanent Power		**12/16/15**	**12/18/15**		2	18

			Dates			Variance		Sch. Float 102
Pkg	MS	Description	Adjusted	**UD #101**	**UD #102**	Contract	Month	
C5C	SS	Substantial Completion	05/31/16	**07/27/16**	**08/25/16**	-86	29	18
C6	2A	Complete LAN - 96th St. Station	05/18/15	**01/11/16**	**01/08/16**	-235	-3	118
C6	2B	Complete WAN - 96th St. Station	05/18/15	**01/11/16**	**01/08/16**	-235	-3	118
C6	3A	Complete LAN - 86th St. Station	07/18/15	**02/18/16**	**02/22/16**	-219	4	95
C6	3B	Complete WAN - 86th St. Station	07/18/15	**02/18/16**	**02/22/16**	-219	4	95
C6	4A	Complete LAN - 72nd St. Station	02/18/15	**01/28/16**	**01/28/16**	-344	0	100
C6	4B	Complete WAN - 72nd St. Station	02/18/15	**01/28/16**	**01/28/16**	-344	0	100
C6	5A	Complete LAN - 63rd St. Station	04/18/14	**02/17/15**	**03/20/15**	-336	31	271
C6	5B	Complete WAN - 63rd St. Station	04/18/14	**02/17/15**	**03/20/15**	-336	31	271
C6	5C	Complete all 63rd St. Station work	04/18/14	**12/10/15**	**01/08/16**	-630	29	100
C6	SS	Substantial Completion	08/18/16	**08/22/16**	**09/19/16**	-32	28	***25***

Table 4 - Project Budget/Cost

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of January 31, 2015	
	$ Millions	% of Total	Obligated ($ Millions)	TBD	$ Millions	% of Total	$ Millions	% of Total
Grand Total Cost:	4,866.614	100	4,572.942		5,267.614	100	**3,262.823**	**61.94**
Financing Cost	816.614	16.78			816.614	15.50		
Total Project Cost:	4,050.000	83.22	4,572.942		4,451.00	84.50	3,262.823	61.94
Total Federal:	1,350.693	27.75	1,250.508		1,350.693	24.60	**$939.566**	**17.84**
Total FTA share:	1,300.000	96.25	1,176.615		1,300.000	23.68	865.673	16.43
5309 New Starts share	1,300.000	100	1,176.615		1,300.000	23.68	865.673	16.43
Total FHWA share:	50.693	3.75	73.893		50.693	0.96	73.893	1.40
CMAQ	48.233	95.15	71.433		48.233	0.88	71.433	1.35
Special Highway Appropriation	2.460	4.85	2.460		2.460	0.04	2.460	0.05
Total Local share:	2,699.307	55.47	3,509.000**		3,509.000 **	63.92	**2,323.257**	**44.10**
State share	450.000	16.67	100.000		450.000	8.20		
Agency share	2,249.307	83.33	1,145.782		3,059.000	55.72		
City share	0	0			0	0		

* Obligated amounts obtained from the Transportation Electronic Award Management (TEAM) system and MTACC's Grant Management Department.

** Current MTA Board approved budget.

Table 5 - Estimate at Completion

Category	Current Working Budget	EAC Forecast
Total Construction	$2,674,814,299	$2,980,739,486.00
Engineering Services Subtotal	$622,862,000	$684,157,000.00
Third Party Expenses	$554,086,273	$562,086,000.00
TA Expenses	$131,160,085	$132,890,202.00
Contingency	$308,077,343	
Executive Reserve	$160,000,000	
Subtotal	$4,451,000,000	$4,359,872,688

Table 6 - Allocation of Current Working Budget to Standard Cost Categories

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (Dec. 31,, 2014)
10	Guideway & Track Elements	$612,404,000	$622,478,000
20	Stations, Stops, Terminals, Intermodal	$1,092,836,000	$1,277,642,000
30	Support Facilities	0	$0
40	Site Work & Special Conditions	$276,229,000	$524,561,000
50	Systems	$322,707,000	$250,134,000
60	ROW, Land, Existing Improvements	$240,960,000	$281,500,000*
70	Vehicles	$152,999,000	0**
80	Professional Services	$796,311,000	$1,185,742,929
90	Unallocated Contingency	$555,554,000	$308,942,010
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**

Table 7 -- Core Accountability Items				
Project Status:		**Original at FFGA**	**Current***	**ELPEP****
Cost	Cost Estimate	$4,050M	$4,451M	$4,980M
Contingency	Unallocated Contingency	$555.554M	$252.5M	$155.3M
	Total Contingency (Allocated plus Unallocated)	$555.554M	$252.5M (January 2015)	$155.3M
Schedule	Revenue Service Date	June 30, 2014	December 30, 2016	February 28, 2018

Total Project Percent Complete	Based on Expenditures	73.3%
	Based on Earned Value	N/A

Major Issue	Status	Comments
Design Changes Requested by NYCT Operations	Open	A significant number of changes to the design have been "requested" by NYCT Operations long after the formal completion of the project design. To date, the SAS Project Team's ability to resist the incorporation of these requests appears limited. Procedures have been established requiring Operating Departments to justify design changes. This issue is currently being managed adequately but continued monitoring is required.
Construction Contract Management and Coordination	Open	Coordination of turnovers between independent prime construction contractors has deteriorated somewhat over recent periods. Numerous turnovers remain. Successful management

		of inter-contractual interfaces remains a critical issue for timely completion of this project.
Project Schedule Reliability	Open	The PMOC is concerned about the major changes made to select construction schedules and the overall Integrated Project Schedule (IPS). These changes cast doubt upon both previous and current accuracy and credibility of the project scheduling process.
Date of Next Quarterly Meeting:		TBD

* MTACC's Current Working Budget

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

Schedule data based upon IPS Update #102; Data Date = 01/1/2015

Financial data based upon MTACC reporting through 01/31/2015