

PMOC MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project

Metropolitan Transportation Authority

New York, New York

Report Period October 1 to October 31, 2014



PMOC Contract No. DTFT60-09-D-00007

Task Order No. 7, Project No. DC-27-5235, Work Order No. 2

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

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THIRD PARTY DISCLAIMER

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

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

REPORT FORMAT AND FOCUS

This monthly report is submitted in compliance with the terms of the Federal Transit Administration (FTA) Contract No. DTFT60-09-D-00007. 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 July 2014, 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 70.6% complete. Progress continued on the eight (8) active construction contracts and featured the following accomplishments:

- C-26005 (C2A) "96th Street Site Work and Heavy Civil" Substantial Completion was achieved on November 5, 2013. The contract closeout process is ongoing.
- C-26010 (C2B) "96th Street Station Civil, Architectural, and MEP". Efforts are ongoing to accelerate Milestones 6, 7 and 8. These milestones provide access for the C6 Systems contractor to start installation of equipment in the communication, signal, and traction power rooms.
- C-26006 (C3) "63rd Street Station Rehabilitation". The focus of the work effort continues to be Area 5, the progress at Entrance #1 and meeting the milestones for turnover of rooms to the C6 contractor.

- C-26007 (C4B) “72nd Street Station Cavern Mining and Lining” Substantial Completion was achieved on January 14, 2014. Contract closeout.
- C-26011 (C4C) “72nd Street Station Architectural and MEP Systems”. Completed the construction of the Platform deck. Continued construction of permanent stairs from the Mezzanine to Platform. Continued advancing Ancillary Buildings #1 & #2 walls & floors to street level.
- C-26008 (C5B) “86th Street Station Cavern Mining and Lining”. Achieved substantial completion of “base contract” work on September 12, 2014. All work areas, except Entrance #2 turned over to the C5C Contractor. Completion of Entrance #2 work on track for forecast December 2014 completion.
- C-26012 (C5C) “86th Street Station Architectural and MEP”. Work continues in the south tunnels at the South Cross Passage. Continued erection of formwork and placement of Mezzanine deck slabs. Continued construction of the South Upper Mezzanine.
- 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.

a. Procurement

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

b. Construction

As of October 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.

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

The contractor’s focus is on the completion of near term Milestones 6, 7, and 8.

- 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. Ongoing work includes: CMU wall installation; door frame installation; duct work; conduit installation; ceiling installation; floor topping; and priming/painting of walls.
- 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. Ongoing work includes: CMU wall installation; door frame installation; duct work; conduit installation; ceiling installation; floor topping; and priming/painting of walls.
- 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. Ongoing work includes: CMU wall installation; door frame installation; duct

work; conduit installation; ceiling installation; floor topping; and priming/painting of walls.

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 micro-pile installation at Entrance #1.
- The focus of the work effort remains Area 5 and the progress at Entrance #1.
- **Area 5 (Reconstruction consists of 6 mezzanines and the deck plaza roof)**
 - Continued setting traction elevator equipment in the Elevator Machine Rooms and the Elevator Shafts, running power connections to the elevators and began installation of the elevators moving platforms.
 - Continued installation of power & communication conduits throughout.
 - Continued erecting CMU walls on the 4th & 6th Mezzanines.
- **Ancillary #2**
 - Erection of the above-grade concrete structure is complete. Mechanical connections and architectural finishes remain.
- **Entrance #1**
 - Continued with the installation of permanent micro-piles.
- **Platforms**
 - Continued installation of platform pavers and room bases on the G4 platform and installation of wall tiles on the inactive side of the G4 platform.
 - Began installation of track wall tiles on the inactive side of the G3 platform level and continued installation of ceiling panels.
- **Fan Rooms**
 - Installation of Fan Room equipment is complete. Beginning the Field Installation Acceptance Testing (FIAT) beginning with the pump system.
 - Completing installation of Building Management System (BMS) in both East & West Fan Rooms.

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

- **Main Cavern (North and South)**
 - Milestone #2 (full turnover to C5C except Entrance #2) is complete. Completion of punch list items is ongoing.
- **Entrance #2**
 - Lining of the Elevator Shaft to the street level is complete.

- Completing construction of slabs & walls at the entrance levels.
- **Site**
 - Continuing with sidewalk and curb restoration along E. 86th St.
 - Began removing trailers from the site.

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

- **Ancillary #1 and Ancillary #2**
 - The erection of the concrete walls and slabs is ongoing.
- **Main Cavern**
 - Conduit installation continues in the South & Public Mezzanines.
 - The escalators between the mezzanine and the platform are being prepared for the Factory Acceptance Testing (FAT).
 - Architectural “Coffer Tiles” for the Public Mezzanine ceiling will be delivered January 15, 2015.
 - Continued construction of permanent concrete stairs to the platform.
 - The Chiller(s) FAT was completed and work continued with Chiller Room preparation for equipment delivery. This work, including equipment is forecast to be completed by February 15, 2015.
- **G3/G4 Tunnels**
 - Handrail installation is underway.
- **Platform**
 - Construction of the platform deck is 90% complete.
- **Entrance #1:**
 - The bulkhead separating the incline work from the garage excavation work was completed. This keeps the excavation material from contaminating the “cleaner” work area at the lower incline where waterproofing operations are ongoing.
- **Entrance #3**
 - Removal of shotcrete installed to protect the existing building foundation was completed and shaft lining to the street resumed.
- **Schedule**
 - Milestone #10, Completion of all Traction Power Rooms at the North Mezzanine for full C6 Access was previously scheduled for October 29, 2014. This is now delayed to December 12, 2014 due to lighting changes, redesign to equipment & power feeders and changes to the Egress Passageway.

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

- Substantial Completion of “base contract” was achieved on September 12, 2014.
- Completion of Entrance #2, previously delayed through the active interference from the adjacent Yorkshire Towers tenant organization, is on schedule for a late December 2014 completion.

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

- The C5B/C5C Project Office has relocated to 327 E. 94th St., between 1st & 2nd Aves.
- **Main Cavern**
 - Continued with erection of formwork and placement of Mezzanine slab moving south to north.
 - Completed placement of the first deck slab for the South Upper Mezzanine deck.
- **Ancillary #1**
 - The erection of concrete walls continued on the east & west sides.
- **South Tunnels**
 - Work in South Cross Passageway was approximately 80% complete through October 31, 2014.
 - Construction of high & low benches and embedded conduit neared completion.
- **Platform**
 - Continued the architectural precast panel installation at the Platform Level where space is available.

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

- Electrical 63rd Street Communication and Signal Rooms: Testing of the WAN/LAN (Milestone 5A/5B) is ongoing.
- Electrical 96th Street Tunnel Work (Zone 1): Installation of all cables (fiber optic, communication, power and signal) completed.
- Electrical 96th Street Tunnel Work (Zone 2): Installation of all cables (fiber optic, communication, power and signal) completed.
- Electrical 72nd Street Tunnel Work (Zone 3): Installation of all cables (fiber optic, communication, power and signal) completed.
- Civil (North of 63rd Street Station (Zone 3 and 4): The chopping operation in Zone 3 is still delayed because of the Station Contractor. MTACC issued the contractor an AWO to compensate for double handling of the welded rail.
- Civil 96th Street South Tubes (Zone 2): Contractor completed the last concrete pour in Zone 2 on October 15, 2014.
- Civil 96th Street (Zone 1): Tracks S1 and S2 are now complete. Cover board installation ongoing.
- Procurement
 - Antenna cable (delivered).
 - Signal cable (delivered).
 - Communication cable (delivered).
 - Power cable 2000MCM & 500MCM (delivered).

- Fiber optic cable (delivered).
- Wayside Tray 63rd (delivered).
- Stops & Layouts (delivered).
- Wayside Signal Equipment (delivered).
- Running rail (delivered).
- LVT Blocks (delivered).
- 3rd Rail (delivered).
- SWP's (delivered).
- Guard Rail (delivered).
- ALU: Network, CCTV and IAC for 63rd, 72nd, and 96th Street Stations are due by December 24, 2014. NYCT personnel required to support the revised factory acceptance tests schedule.
- Simplex: All Fire Alarm equipment for 63rd Street (delivered).
- MKJ: PACIS Cabinets and speakers for 63rd, 72nd, and 96th Street Stations are due by December 24, 2014. NYCT personnel required to support the revised factory acceptance tests schedule.
- PRI (HVAC SCADA) is still awaiting design information from 63rd Streets contractor.
- Belfour Circuit Breakers & Rectifiers (delivered).
- Belfour Transformers (in storage in VA).
- Meridian: EA Alarm Boxes (delivered).
- Keltran: EA recorder (delivered).
- Transdyne: Power SCADA (delivered).
- Submittal Progress
 - Total projected submittals: 5,880
 - Total submitted to date: 3,868
 - Total projected to complete: 2,012
 - Percent completed: 66%
 - Pending MTA response: 431

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

Status:

During October 2014, the Second Avenue Subway Quality Management team continued holding Quality Meetings and Quarterly Quality Oversight of the Contractor with CCM, MTACC, and PMOC participation. They participated in the job progress meetings, monitored quality matters in the field for each construction contract, reviewed and provided comments for Quality Work Plans, and participated in Preparatory Phase Sessions for numerous construction processes.

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 QO 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.

Inspection Daily Reports: At the end of October 2014, the C2B contractor is two weeks behind and the C4C contractor is four weeks behind in entering their Daily Inspection Reports into the Contractor Management System (CMS).

Nonconformance Reports (NCRs): Most of the SAS contractors are not adhering to the established Nonconformance Reporting System. NCRs for concrete that is out of specification must be written every week per direction of the SAS Program Executive. A review of the SAS project's electronic data base revealed that the C2B Contractor waited up to 5 months, the C4C contractor waited 2-3 months, and the C5B contractor waited up to 7 months before preparing nonconformance reports. When they were prepared, most of the NCRs covered multiple weeks or months instead of only one week each. NCRs status for each active construction contract is as indicated below:

Contract Package C2B	
Status:	Through October 31, 2014, a total of 56 NCRs have been issued. 34 have been closed and 22 NCRs are still open. In October 2014, eight new NCRs were written and none were closed.
Observation:	Of the 22 open NCRs, 18 are for concrete that was out of specification. A concrete analysis is expected to be prepared by the end of 2014. Entry of Inspection Daily Reports into CMS is two weeks behind.
Concerns and Recommendations:	Six of the eight NCRs that were written in October were for concrete that was out of specification from May 26, 2014 through August 22, 2014. The PMOC is concerned that the contractor waited up to five months to prepare an NCR rather than write one NCR per week when the nonconformance occurred, as directed by the SAS Program Executive.
Contract Package C3	
Status:	Through October 31, 2014, a total of 90 NCRs have been issued. 68 have been closed and 22 NCRs are still open. In October 2014, three new NCRs were written and none were closed.
Observation:	Of the 22 open NCR's, 8 were written by the contractor on one of their subcontractors. Five of these NCRs have been open 5 to 14 months. Entry of Inspection Daily Reports into CMS is current.
Concerns and Recommendations:	No NCRs have been closed in the past 4 ½ months. The PMOC is concerned that 12 of the 22 open NCRs have been open for 5 to 14 months. The SAS C3 Quality Manager had stated that he and the C3 Contractor's Quality Manager would try to close 5 of the 8 subcontractor NCRs in October 2014. This did not occur.
Contract Package C4C	
Status:	Through October 31, 2014, a total of 68 NCRs have been issued. Six

	have been closed and 62 NCRs are still open. In October 2014, six NCRs were written and three were closed.
Observation:	60 of the 62 open NCRs are for concrete that was out of specification. 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 four weeks behind.
Concerns and Recommendations:	The PMOC is concerned that the contractor did not generate the out of spec concrete NCRs that occurred in August until October. Out of spec concrete NCRs have not been generated for September. The PMOC recommends that the NCRs be generated each week as directed by the SAS Program Executive. The PMOC is also concerned that submittal of Daily Reports is four weeks behind.
Contract Package C5B	
Status:	Through October 31, 2014, a total of 87 NCRs have been issued. Of the 87 that have been issued, 69 have been closed and 18 NCRs are still open. In October 2014, no new NCRs were written and one was closed.
Observation:	Of the 18 open NCRs, 12 are for concrete that was out of specification. The contractor's corrective action statement on the NCRs that "No corrective actions required. All concrete cylinder test results met the compressive strength requirement" is unacceptable. Entry of Inspection Daily Reports into CMS is current.
Concerns and Recommendations:	The PMOC is concerned that the contractor is not documenting concrete failures each week as directed by the SAS Program Executive and that corrective action is inadequate. No NCRs for out of specification concrete have been written for concrete placed after August 20, 2014. Two NCRs were written in September 2014 for concrete that was out of specification from February 20 to August 20, 2014. There should have been one NCR issued each week, not two NCRs for a six-month period. The corrective action statement on the NCRs is justification for an Accept As Is disposition and is not corrective action to preclude the nonconforming condition from occurring again. The PMOC recommends that MTACC Quality management resolve this issue.
Contract Package C5C	
Status:	Through October 31, 2014, 37 NCRs have been issued. . Of the 37 that have been issued, 3 have been closed and 34 NCRs are still open. In October 2014, 16 new NCRs were written and none were closed.
Observation:	Four of the sixteen NCRs that were written in October were for concrete that was out of specification the previous week. This complies with the direction of the SAS Program Executive. Submittal of Inspection Daily Reports is current.
Concerns and	The PMOC was concerned that nonconformance reports for concrete

Recommendations:	that was out of specification in May, June, and July 2014 were not written until August 2014. The PMOC recommended that the contractor generate NCRs for out of specification concrete each week as directed by the SAS Program Executive. This recommendation has been followed and preparation of NCRs for out of specification concrete is now up to date. The PMOC was concerned that ten NCRs entered in the September NCR log were listed “have not been issued”. The PMOC recommended that when a nonconformance occurs, the NCR be documented and issued immediately. The contractor has now issued these NCRs. The PMOC was also concerned that at the end of September, submittal of Daily Reports was four weeks behind. Entry of Daily Reports is now current. Based on the corrective actions that the contractor has taken, the PMOC has no concerns at this time.
Contract Package C6	
Status:	Through October 31, 2014, a total of 23 NCRs have been issued. Six have been closed and 17 NCRs are still open. In October 2014, 14 new NCRs were written and none were closed. Eleven of the fourteen total NCRs were for concrete placement that exceeded the specified placement time of 90 minutes during the period from April 3 to October 15, 2014. Entry of Inspection Daily Reports into CMS is current.
Observation:	The contractor should have generated one NCR per week when the nonconformance occurred, as directed by the SAS Program Executive. The contractor submitted Waiver #23 to extend the placement time from 90 minutes to 120 minutes. When approved, these eleven NCRs will be closed.
Concerns and Recommendations:	None.

Concerns and Recommendations:

Refer to previous section.

2.0 SCHEDULE DATA

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 #99 (preliminary) was received on October 30, 2014 and is based on a Data Date of October 1, 2014. This update contained “.XER” schedule files for the IPS and several current contract schedule updates. The IPS forecasts the completion of all construction and NYCT Pre-Revenue Training & Testing activities on October 10, 2016, with approximately 90 calendar days (CD) or 64 work days (WD) of contingency, resulting in a forecast Revenue Service Date (RSD) of January 5, 2017.

Project Critical Path: There are two independent critical paths indicated in Update #99 of the SAS IPS.

Critical Path #1 involves the construction of Entrance #1 at the 72nd Street Station. The path is initiated by Activity C4C-EN1-Str-1001-01, “Entrance 1 Structural SOE” (Support of Excavation). The path then follows excavation, underpinning, finish construction, escalator installation and local MEP test and commissioning activities. The forecast completion of all installation and testing activities is October 10, 2016. The IPS contingency is then added, resulting in a forecast RSD of January 5, 2017, 4 WD later than the MTA’s RSD target date of December 30, 2016.

Critical Path #2 involves the construction of Ancillary #2 at the 96th Street Station. The path is initiated by Activity # C2B-A2-181, “Build Columns & Walls up to Street Level – Ancillary 2”. The path then follows the construction of Ancillary #2 through the fourth level, at which time, the path switches to mechanical equipment installation, electrical installation and architectural finishes concluding with the substantial completion of C2B on October 7, 2016, followed by the Phase 1 Construction Complete milestone, IPS contingency and forecast RSD. The lack of any punchlist or closeout activities on this path strongly suggests this completion date will not be achieved.

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

0/+1 WD: This path involves signal equipment installation and testing at the 86th Street Station. The path is initiated by C5C Milestones #7 and #8, both of which involve completion and turnover of signal equipment rooms to the systems contractor. The systems work is initiated by Activity # C6C5-370, “Signal Rooms @ 86th – Install Kindorf system, rack steel, service equipment, conduit, grounding, trough bus and wiring”. The path signal system installation and testing, testing in the rooms and proof of operations testing followed by the Operational Revenue Service Date of October 3, 2016.

The PMOC notes that in IPS updates prior to #98, this work had substantial float. Its elevation to “near critical” status has been the result of the significant changes made to the schedule via a recent “upgrade” of the C6 construction schedule.

+3 WD: This path involves sitework, utility construction, and site restoration in the area above the 96th Street Station. Included in this work is removal of the temporary precast decking system, installation of the 60” water main, and installation of ConEd electric ductbanks and gas lines. This work is forecast for completion on September 26, 2016 and is followed by C2B Substantial Completion on October 3, 2016.

+9 WD: This path involves third rail installation starting in Zone 4 on February 26, 2015 and extending continuously through Zone 11, which is forecast to complete on June 8, 2016. Third rail installation is followed by negative return cable installation at 86th Street and the in-service testing of the 86th Street Traction Power Substation, forecast to complete on August 4, 2016. Traction power work is followed by the Traction Power Operational Test, Systemwide Operational Testing and the Operational Revenue Service Date (completion of all work) on October 3, 2016.

- +10 WD:** This path involves signal system testing at both 86th and 96th Street Stations. The path is initiated by FSIT testing in the Signal Rooms at 86th Street and followed by FSIT testing in the Relay Room at 96th Street Station. The PMOC has expressed concern over this type of linkage between stations and has been assured by MTACC that the systems installation and testing work at each station would proceed independently. The PMOC questions this logic and would like an explanation of the physical or system requirement which necessitates this linkage of the work between stations.
- +9/10WD:** This path involves track installation and follow-up wayside signal installation. The path is initiated by Activity C6TW-022 “Zone 2 Track S1 @ 86th – Install Drainage Bulkheads, Exp. Jts., Pour Concrete, 3rd Rail Pads, Strip & Clean” and continues through the installation of the Trackwork in Zones 4, 5, 6, 7, 8, 10 and 11 which is forecast to complete on April 11, 2016. This path then shifts to the installation of the wayside equipment at 86th Street which starts with Activity #C6C2-1565 “Wayside @86th – Install Boards, Signs, Ladders, Handrails, Finishes” and completes with Activity # C6C2-1565 “Wayside @86th – MTA inspect and provide punch list, perform punchlist work” on August 18, 2016. The completion of the wayside equipment punchlist at 86th Street then ties to Activity # C6C5-SIGCOMPL – “86th Street Station Signals Complete-Ready Operational & Train Tests” followed by Activity # SASSIGREADY and Activity # SASSIGPROOF “SAS, Perform Systemwide Operational & Train” Tests which is forecast for completion on September 21, 2016.
- +14 WD:** This path involves the fabrication, installation and testing of escalators at Entrance 2 of the 96th Street Station. Fabrication of these escalators is forecast for completion on June 17, 2015. The PMOC is not clear how FAT can be forecast to complete on May 27, 2015, before the completion of fabrication. Installation and commissioning are scheduled for completion on September 8, 2016, followed by testing and commissioning throughout the 96th Street Station and C2B Substantial Completion on October 7, 2016.
- +25 WD** This path involves the completion of wayside signal equipment in the vicinity of 96th Street Station. The path is initiated by Activity # C6C2-1435 “Wayside @86th – Install Boards, Signs, Ladders, Handrails, and Finishes”. The start of this activity is governed by the completion of 3rd Rail installation in Zone 6, an activity on the +9 WD float path. Following the completion of wayside equipment installation, the breakdown testing of wayside relays and the testing of the entire signal system controlled from 96th Street Station are scheduled with a forecast completion date of July 18, 2016. This work is followed by in-service testing and operational testing and the Signal System Ready for Train Tests milestone forecast for August 22, 2016.
- +27 WD:** This path involves installation and testing of wayside signal equipment in the vicinity of the 96th Street Station. This path is initiated by C2B, Milestone #6 “Provide full access to Communications (Comms.), Rooms & Closets”. Based on description, the PMOC is unclear how this milestone governs the start of wayside signal installation.

Installation is forecast to be complete on June 17, 2015, followed cable termination, testing and installation of finishes and appurtenances on October 9, 2015. This path then joins the +25 WD float path for FIAT testing of Wayside Relays.

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. Milestones completed this period:

Pkg.	MS	Description	Date
C5B	SS	Substantial Completion	09/12/14
C5C	14a	Complete all remaining Comms., Signal & Traction Power Rooms	9/22/14
C4C	13	Full access @ Lubrication Room(s)	8/29/14

Based on the activity description and the status of C5C Milestone # 5, 6, 7, 8, 9 and 10, the PMOC considers the completed status of Milestone 14a to be an error.

2. Milestones forecast for completion during the period 11/1/14 through 12/1/14:

Pkg.	MS	Description	UD #99 Forecast	Float
C4C	3	Shared access thru 72nd Street Station 1172+40 ->1163+00	11/26/14	119
C4C	11	Complete south power rooms	11/26/14	179

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 #98	Ud #99	Variance
C2B	MS #2	Shared site access @ 93rd Street shaft	10/27/14	12/30/14	-64
C2B	MS #6	Full access to Comms. Rooms & Closets	12/26/14	01/29/15	-25
C2B	MS#9	Full access to Station Service Centers	07/28/15	09/11/15	-45
C2B	MS#10	Complete all remaining Comms, Signal , & Traction Power work	06/01/15	03/17/15	76
C2B	SS	Substantial Completion	08/23/16	10/07/16	-45

Pkg	MS	Description	Ud #98	Ud #99	Variance
C3	#3d	Mezz 6 & Platform Level Conduit & Station Fare Array	12/30/14	01/21/15	-21
C3	SS	Substantial Completion	10/01/15	11/03/15	-33
C4C	MS #7	Turnover of Comms. Rooms to Systems Contractor	01/15/15	03/06/15	-50
C4C	MS #8	Turnover of Signal Rooms South of station to C6	01/15/15	12/01/14	45
C4C	MS #11	Complete south power rooms	02/18/15	11/26/14	84
C4C	SS	Substantial Completion w/o Ent. #1	06/17/16	08/15/16	-59
C4C	SS	Substantial Completion w/Ent. #1	09/16/16	10/07/16	-21
C5C	5	Turnover of Comms. Rooms	11/07/14	12/02/14	-25
C5C	6	Turnover of Comms. Rooms	03/19/15	04/30/15	-42
C5C	10	Turnover Traction Power Rooms	03/13/15	04/16/15	-34
C5C	14b	Limited Access all locations	02/27/15	04/02/15	-34
C5C	15	Complete Permanent Power	09/09/15	12/17/15	-99
C6	#3A/3B	Complete LAN/WAN - 86th St. Station	12/08/15	02/19/16	-73
C6	#4A/4B	Complete LAN/WAN - 72nd St. Station	11/17/15	03/31/16	-135
C6	#5A/5B	Complete LAN/WAN - 63rd St. Station	12/08/14	01/01/15	-24
C6	#5C	Complete all 63rd St. Station work	07/09/15	07/31/15	-22
C6	SS	Substantial Completion	08/22/16	10/10/16	-49

4. Based on the PMOC's review of IPS Update #99:

- Significant delays to milestone achievement are being experienced by all active contracts.
- Significant milestone delays incurred this period appear limited to the C3 and C4C contracts and dependent activities and milestones within the C6 contract.
- Float variations appear reasonable based upon schedule changes to the respective milestones.

Schedule Contingency: The critical and near-critical paths have been dramatically impacted by the latest revisions to the IPS. Nonetheless, IPS Update #99, when corrected for mathematical error, indicates there are 81 CD (58 WD) contingency between the calculated completion of all work on October 10, 2016 and MTACC target RSD of December 30, 2016. This result is not significantly different from recent IPS updates.

Schedule Comments: There were 45 active milestones on the project this period: 16 milestones maintained schedule or exhibited an improvement in forecast completion, 29 milestones exhibited a significant schedule slippage. This tabulation is consistent with recent updates and indicates a general shifting of the work to later time periods. This generally increases the project's risk of incurring future delay.

MTACC has committed to completing the current "IPS Enhancement" by the end of December 2014. As noted previously, this "enhancement" has been of significantly greater scope than that normally expected at this stage of a project. These changes have resulted in the PMOC's questioning the fundamental accuracy and reliability of the IPS. At this time, the only way to judge the reliability of the IPS is to monitor its forecasts with actual construction progress.

ELPEP/SMP Compliance: Based on its periodic audits, MTACC considers the IPS and the associated schedule management procedures to be in compliance with the ELPEP and Schedule Management Plan. 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: 25 Calendar Days (approximately 18 WD).
 - Secondary float paths with Total Float (TF) = 1 WD (approximately 2 CD), 3 WD (approximately 4 CD), 9 WD (approximately 13 WD), 10 WD (approximately 14 WD) and 14 WD (approximately 20 CD).
 - The increase in "near-critical" paths is common as project completion nears. Satisfaction of this requirement may not be 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.
 - Evaluation of the C6 Contractor's comprehensive schedule acceleration/proposal is currently on hold.

Concerns and Recommendations:

Refer to specific issues discussed elsewhere in this section.

3.0 COST DATA

Based upon financial expenditures reported by the MTACC through October 31, 2014 SAS Phase 1 is approximately 70.6% complete. The completion status of the individual construction contracts through October 31, 2014, 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) – 51.0%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 98.4%
- C26012 (86th Street Station) – 17.0%
- C26006 (63rd Street Station) – 82.6%
- C26007 (72nd Street Station) – 99.9%
- C26011 (72nd Street Station) – 30.4%
- C26009 (Systems) – 37.8%

Aggregate Construction % Completion:

- 100% of all construction has been bid.
- 100% of all construction is under contract
- 71.2% of all construction is complete

Based upon cost data received from MTACC for the period through July 31, 2014:

- Value of construction in place this period = \$42,856,626
- Estimated value of construction remaining = \$592,161,591
- Target construction completion = September 20, 2016
- Number of months remaining = 22.7

The estimated average rate of construction required to achieve target completion date is \$26,089,438 per month. The average progress (payments) achieved over the most recent six month period is \$36,924,493 per month. Based on a review of cost data for October 2014, it appears that adequate overall progress was 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 original contract work only. Significant additional work may alter this forecast.

Soft Cost expenditures (not including real estate, OCIP, etc.) reported this period by MTACC totaled \$2.97M. This expenditure is somewhat lower than anticipated by the CWB. At the current rate of expenditure, the current soft cost budget will be sufficient through December 2016.

Cost Growth: The value of AWOs reported by MTACC/NYCT in October 2014 is summarized as follows:

	<u>Executed AWOs</u>	<u>AWO Exposure</u>
October-14	\$ 137,487,650	\$ 199,293,034
September-14	\$ 136,852,856	\$ 194,573,501
Δ	\$ 634,794	\$ 4,719,533
Δ	0.46%	2.43%

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

Const. Pkg.	AWO Exposure			
	14-Oct	14-Sept	Period Δ	Changes this Period
Completed Packages	\$ 47,612,118	\$ 47,612,118	\$ -	Final values for Packages C1 and C5A as reported by MTACC.
C2A	\$ 47,728,321	\$ 47,356,321	\$ 372,000	Increase is based on initial cost estimates for AWO # 165 and 182.
C2B	\$ 37,062,800	\$ 34,463,481	\$ 2,599,319	Net increase is based on revised estimates for AWO # 77, 91, 92, 97, 99, 100, 102, 106, 110, 113 and 114.
C3	\$ 14,358,773	\$ 13,188,233	\$ 1,170,540	Net increase is based on revised estimates for AWO # 54, 86, 101, 129, 142, 145, 146, 147, 154, 155, 157, 162 and 167 through 176.
C4B	\$ 1,325,639	\$ 1,325,639	\$ -	No change this period.
C4C	\$ 21,942,667	\$ 21,682,780	\$ 259,887	Net increase is based on revised estimates for AWO # 16, 17, 27, 70, 74, 76, 79, 83, 88, 90 and 99.
C5B	\$ 21,215,478	\$ 21,215,478	\$ -	No change this period.
C5C	\$ 1,677,689	\$ 1,677,689	\$ -	No change this period.
C6	\$ 6,369,549	\$ 6,051,762	\$ 317,787	Increase is based on revised estimates for AWO # 24, 48, 49 and 52.
	\$ 199,293,034	\$ 194,573,501	\$ 4,719,533	

The changes in Executed AWO Value are summarized as follows:

Const. Pkg.	Executed AWOs			
	14-Oct	14-Sep	Period Δ	Changes this Period
Completed Packages	\$ 47,612,118	\$ 47,612,118	\$ -	Final values for Packages C1 and C5A as reported by MTACC.
C2A	\$ 43,130,746	\$ 42,867,392	\$ 263,354	Increase is based on the execution of AWO # 163 and 182.
C2B	\$ 13,640,668	\$ 13,639,646	\$ 1,022	Net increase is based on execution of AWO # 91, 97 and 100.
C3	\$ 10,541,985	\$ 10,498,485	\$ 43,500	Increase is based on execution of AWO # 144.
C4B	\$ 1,289,639	\$ 1,375,444	\$ (85,805)	Decrease is based on execution of AWO # 98.
C4C	\$ 1,418,868	\$ 1,313,368	\$ 105,500	Increase is based on the execution of AWO # 66 and 67.
C5B	\$ 15,662,522	\$ 15,590,272	\$ 72,250	Increase is based on execution of AWO # 50 and 100.
C5C	\$ 235,000	\$ 235,000	\$ -	No change this period.
C6	\$ 3,956,104	\$ 3,721,131	\$ 234,973	Increase is based on execution of AWO # 16, 24, 49, 52 and 60.
	\$ 137,487,650	\$ 136,852,856	\$ (634,794)	

As of October 31, 2014, 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	\$47,356,321	14.57%	\$42,867,392	13.19%
C26010 (2B)	50.96%	\$324,600,000	\$34,463,481	10.62%	\$13,639,646	4.20%
C26006 (3)	82.56%	\$176,450,000	\$13,188,233	7.47%	\$10,498,485	5.95%
C26007 (4B)	99.94%	\$447,180,260	\$1,325,639	0.30%	\$1,375,444	0.31%
C26011 (4C)	30.39%	\$258,353,000	\$21,682,780	8.39%	\$1,313,368	0.51%
C26013 (5A)	100.00%	\$34,070,039	\$6,525,471	19.15%	\$6,525,471	19.15%
C26008 (5B)	98.43%	\$301,860,000	\$21,215,478	7.03%	\$15,590,272	5.16%
C26012 (5C)	17.04%	\$208,376,000	\$1,677,689	0.81%	\$235,000	0.11%
C26009(6)	37.75%	\$261,900,000	\$6,051,762	2.31%	\$3,721,131	1.42%
TOTAL TO DATE		\$2,674,814,299	\$194,573,501	7.27%	\$136,852,856	5.12%

To date, approximately \$1,957,661,456 (73.2%) worth of all base contract construction work has been completed. As a % of work completed, the AWO exposure for these contracts = 9.94% and the executed AWO % = 6.99%.

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 \$265M, which is significantly above the \$229M AWO contingency contained in the MTACC CWB. The PMOC considers this forecast to be conservative for the following reasons:

- This forecast assumes the RSD remains December 30, 2016.
- AWO exposure for C5C remains inexplicably low. Based on experience at the other stations, significant outstanding cost exposures exist for this contract.
- There remain a significant number of active AWOs for which there is no exposure estimate. As such, the value of these AWOs is not included in the PMOC forecast @ completion.
- The current soft cost budget appears insufficient for extended project operation beyond December 2016.

Cost Contingency: Based upon the MTACC Current Working Budget, expenditures as of October 31, 2014 reported by MTACC and the current AWO Exposure analyses; the PMOC has developed the following contingency analysis:

Contingency Analysis

	<u>Current</u>	<u>@ Completion</u>	
Phase 1 Budget	\$ 4,451,000,000	\$ 4,451,000,000	
Construction Awards	\$ 2,674,814,299	\$ 2,674,814,299	
Soft Cost Expended	\$ 1,058,888,629	\$ 1,058,888,629	
Soft Cost Forecast to Complete	\$ 249,219,456	\$ 286,219,456	
AWO Exposure	\$ 194,573,501	\$ 265,851,882	
Total Contingency	\$ 273,504,115	\$ 165,225,734	(1)
Reserved Contingency	\$ 160,000,000	\$ 165,225,734	(2)
Available Contingency	\$ 113,504,115	\$ -	

Notes:

- (1) Total Contingency = budget balance after forecast expenditures.
 (2) Reflects \$5,617,598 transfer from "Reserved Contingency".

Conclusions based upon this analysis include:

- The project can be completed within the current MTACC CWB of \$4.451B.
- Current forecast indicates it will not 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

Risk Mitigation Meeting #42 was held in October 28, 2014. The top risks identified during October 2014 include the following:

<u>Risk Description</u>		<u>Mitigation Summary</u>	
Risk CNS 4 (C6):		Risk Type	
Delay resulting from management of contractual interfaces during construction.		Cost	Schedule
Mitigation Strategy: 1. The mitigation strategy has been implemented and is being continuously monitored and enhanced as needed.		Current Status: 1. Recent MTACC initiative to expedite turnover of equipment rooms to Systems Contractor has not been completely successful. 2. Interface management process has encountered problems with major issues involving MTACC staffing and contractor cooperation. 3. The basic mitigation strategy appears to remain valid. Senior management intervention appears needed to resolve overarching performance and staffing problems.	
Risk C3, C2B, C4C, C5C and C6 Schedules:		Risk Type	
Construction contract delays that will extend Project Completion beyond the current RSD.		Cost	Schedule
Mitigation Strategy: 1. Ongoing schedule improvement and delay mitigation will focus on “targets of opportunity” where specific action directed to critical or near-critical work tasks will result in measurable schedule improvement.		Current Status: 1. Acceleration of specific “targets of opportunity” have and will continue to be identified and addressed. 2. Recommend MTACC document specific schedule improvements associated with each accelerated task.	
Permanent (Station) Power:		Risk Type	
Permanent facility power to 72 nd , 86 th , and 96 th Street Stations may be delayed and result in subsequent delays to equipment testing and commissioning.		Cost	Schedule

<u>Risk Description</u>		<u>Mitigation Summary</u>	
Mitigation Strategy: 1. The mitigation strategy has been implemented.		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.	
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
Mitigation Strategy: 1. The mitigation strategy has been implemented.		Current Status: 1. For IPS Update #99, MTACC cut-in the full construction schedule for Entrance #1. It is currently on the overall project critical path. 2. Incremental delay this period demonstrates the criticality and sensitivity of the schedule for this task. 3. Frequent monitoring and active management of this work by senior management appears necessary to identify and mitigate delays.	
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.	

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 stage in the project lifecycle, it is necessary to refine the risk management process to include specific issues that may threaten project objectives, rather than exclusively the focus on general, high-level risks.

5.0 ELPEP

The most recent ELPEP Quarterly Review Meeting was held on October 2, 2014. The next ELPEP Quarterly Review Meeting with MTACC, FTA-RII, SAS and ESA projects and the PMOC is scheduled for December 11, 2014. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** FTA has requested MTACC to update the Technical Capacity and Capability Plan. The update of the TCC Plan is still pending awaiting MTACC to finalize the ESA's Cost Control Committees procedure. As of October 31, 2014, the revised TCC Plan was not submitted.
- **Schedule Management Plan (SMP):** There is no 3rd Quarter 2014 ELPEP-SMP Compliance Checklist. FTA and its PMOC will schedule a follow-up meeting to discuss checklist and ELPEP compliance.
- **Cost Management Plan (CMP):** There is no 3rd Quarter 2014 ELPEP-CMP Compliance Checklist. MTACC is updating the CMP and a draft submittal to FTA is expected in December 2014.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP):** There is no 3rd Quarter 2014 ELPEP-CMP Compliance Checklist.

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 September 2014, a total of 9,340,191 construction hours have been logged on the project with 85 lost time and 239 recordable incidents documented. The total hours and incidents equates to a Lost Time Rate (LTR) of 1.82 and a Recordable Rate (REC) of 5.12. 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. During this reporting period the Technical Working Group continued its review of the certifiable items associated with each certifiable element. Refinements to the checklists are being made as necessary. Objective evidence for certifiable items verified during equipment Factory Acceptance Testing is being accumulated. MTACC's Chief of Quality and System Certification Manager, SAS Systems Integration Manager (SIM), System Integrator (SI) for each contract, System Engineering Specialists (SES),

SAS Quality Management, MTA's Independent Engineering Consultant (IEC) and the FTA's PMOC continues to meet to address issues associated with the Safety and Security Certification process.

7.0 ISSUES AND RECOMMENDATIONS

Schedule Erosion: As noted in Section 2 of this report, 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.

Schedule Acceleration Opportunities: MTACC is pursuing incremental schedule acceleration opportunities where appropriate. The PMOC generally agrees with this approach to schedule management at this time in the project. However, the PMOC recommends the MTACC document specific schedule improvements associated with each accelerated work task and demonstrate these positive impacts in both the contractor monthly schedule updates and the IPS.

Schedule Management: PMOC on-site monitoring of construction and construction management activities continues to identify an apparent lack of focus and attention on short-term schedule milestone goals and the work necessary to achieve those goals. Schedule milestones are not discussed at project meetings and both MTACC's CM and contractor's management staff appear indifferent to the significance of executing work associated with achieving these milestones. This is not an isolated occurrence and has been discussed with MTACC senior management previously. It is the PMOC's opinion that this apparently apathetic approach to managing the construction phase represents the single largest risk to the timely completion of this project.

C4C – Revisions to Entrance #1: This effort represented a major redesign and contract repackaging effort that was the result of stakeholder issues beyond the control of the MTACC. At this time, a schedule has been cooperatively developed with the C4C contractor that forecast completion this work in time for the current December 30, 2016 RSD. Some delays have already been encountered. The risk of delay to this work is substantial and considerable effort remains necessary to ensure this element of the project is completed without delaying the RSD for the entire project.

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	September 21, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

A = Actual

Table 2 - Schedule Contingency

IPS Update #	90	92	95	97	98	99
Data Date	01/1/14	03/1/14	6/1/14	8/1/14	9/1/14	10/1/14
	Contingency (CD)					
RSD=12/31/2016						
Risk Mitigated	102	102	102	102	85	81
Risk Realized	20	44	52	102	85	81
RSD=02/28/2018						
Risk Mitigated	526	526	526	526	509	505
Risk Realized	446	446	478	526	509	505

Table 3 – Schedule Milestone Comparison

			Dates		Variance			Sch.
Pkg	MS	Description	Adjusted	UD #98	UD #99	Contract = (2) - (4)	Month = (3) - (4)	Float
			(2)	(3)	(4)			
C2B	MS #2	Shared site access @ 93rd Street shaft	03/22/14	10/27/14	12/30/14	-283	-64	339
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	09/21/14	01/29/15	01/19/15	-120	10	325
C2B	MS#5A	Shared Access E & W Track to grid 11				0	0	
C2B	MS #6	Full access to Comms Rooms & Closets	08/21/14	12/26/14	01/20/15	-152	-25	27
C2B	MS #7	Full access to Signals Rooms	08/21/14	12/26/14	01/15/15	-147	-20	30
C2B	MS #8	Full access to Traction Power Rooms:	08/21/14	12/26/14	01/12/15	-144	-17	33
C2B	MS #9	Full access to Station Service Centers	11/21/14	07/28/15	09/11/15	-294	-45	63
C2B	MS #10	Complete all remaining Comms, Signal , & Traction Power work	09/21/14	06/01/15	03/17/15	-177	76	230
C2B	SS	Substantial Completion	12/21/15	08/23/16	10/07/16	-291	-45	-4
C3	#3d	Mezz 6 & Platform Level Conduit & Station Fare Array		12/30/14	01/21/15	-42025	-22	263
C3	#4b	Compl Lwr/Uppr Platforms & Signal Rms	10/14/13	01/28/15	02/03/15	-477	-6	316
C3	SS	Substantial Completion	05/13/14	10/01/15	11/03/15	-539	-33	240
C4C	MS #3	Shared access thru 72nd Street Station 1172+40 - >1163+00	11/27/14	11/26/14	11/26/14	1	0	119
C4C	MS #7	Turnover of Communications Rooms to Systems Contractor	8/28/14	01/15/15	03/06/15	-190	-50	174
C4C	MS#7A	Complete Work in all Comm Rooms		03/21/16	04/01/16	-42461	-11	128
C4C	MS #8	Turnover of Signal Rooms South of station to C6	7/15/14	01/15/15	12/01/14	-139	45	48
C4C	MS #9	Complete all Signal Roms except M8	9/29/14	01/09/15	01/05/15	-98	4	61
C4C	MS #10	Complete north power rooms	2/25/15	11/26/14	12/15/14	72	-19	153
C4C	MS #11	Complete south power rooms	03/24/15	02/18/15	11/26/14	118	84	179

Pkg	MS	Description	Dates		Variance			Sch. Float
			Adjusted (2)	UD #98 (3)	UD #99 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C4C	MS #12	Full access @ Station Service Center(s)	08/28/14	01/09/15	01/09/15	-134	0	229
C4C	MS #13	Full access @ Lubrication Room(s)	08/28/14	8/29/2014A	8/29/14A		0	
C4C	MS #14	Complete all remaining Comm, Signal & Traction Power Rooms	08/28/14	01/09/15	01/05/15	-130	4	61
C4C	SS	Substantial Completion w/o Ent. #1	11/13/15	06/17/16	08/15/16	-276	-59	49
C4C	SS	Substantial Completion - Ent. #1	-	09/16/16	10/07/16		-21	-4
C5B	SS	Substantial Compl/All Work w/o Ent. #2	09/04/14	09/12/14	9/12/14A		0	
C5B	SS	Substantial Compl/All Work incl. Ent. #2	-	01/15/15	12/26/14		20	105
C5C	MS #1	Vehicle access thru 86th Street Station 1209+00 -> 1198+00	10/23/14	10/31/14	10/24/14	-1	7	99
C5C	MS #2	Limited Access; Sta. 1209+00->1198+00	01/22/15	12/31/14	01/09/15	13	-9	167
C5C	MS #3	Shared Access; Sta. 1209+00->1198+00	05/22/15	03/20/15	03/27/15	56	-7	112
C5C	MS #4	Shared Access; Sta. 1198+00->1172+00	10/23/14	01/09/15	01/05/15	-74	4	49
C5C	MS #5	Turnover of Comm. Rooms	09/23/14	11/07/14	12/02/14	-70	-25	78
C5C	MS #6	Turnover of Comm. Rooms	03/24/15	03/19/15	04/30/15	-37	-42	89
C5C	MS #7	Turnover of Signal Rooms	02/25/15	02/10/15	02/24/15	1	-14	16
C5C	MS #8	Turnover of Signal Rooms	02/25/15	02/10/15	02/24/15	1	-14	16
C5C	MS #9	Turnover Traction Power Rooms	02/26/15	02/27/15	02/25/15	1	2	52
C5C	MS #10	Turnover Traction Power Rooms	02/25/15	03/13/15	04/16/15	-50	-34	197
C5C	MS #11	Full access @ Station Service Center(s)	03/24/15	02/27/15	03/27/15	-3	-28	356
C5C	MS #14a	Complete all remaining Comm, Signal & Traction Power Rooms	09/23/14	11/04/14	9/22/2014A		43	
C5C	MS#14b	Limited Access all locations	09/23/14	02/27/15	04/02/15	-191	-34	382
C5C	MS#15	Comp. Permanent Power		09/09/15	12/17/15		-99	131
C5C		Substantial Completion	05/31/16	05/31/16	06/02/16	-2	-2	85
C6	#2A	Complete LAN - 96th St. Station	05/18/15	12/22/15	12/02/15	-198	20	131

Pkg	MS	Description	Dates		Variance			Sch. Float
			Adjusted (2)	UD #98 (3)	UD #99 (4)	Contract = (2) - (4)	Month = (3) - (4)	
C6	#2B	Complete WAN - 96th St. Station	05/18/15	12/22/15	12/02/15	-198	20	131
C6	#3A	Complete LAN - 86th St. Station	07/18/15	12/08/15	02/19/16	-216	-73	87
C6	#3B	Complete WAN - 86th St. Station	07/18/15	12/08/15	02/19/16	-216	-73	87
C6	#4A	Complete LAN - 72nd St. Station	02/18/15	11/17/15	03/31/16	-407	-135	34
C6	#4B	Complete WAN - 72nd St. Station	02/18/15	11/17/15	03/31/16	-407	-135	34
C6	#5A	Complete LAN - 63rd St. Station	04/18/14	12/08/14	01/01/15	-258	-24	408
C6	#5B	Complete WAN - 63rd St. Station	04/18/14	12/08/14	01/01/15	-258	-24	408
C6	#5C	Complete all 63rd St. Station work	04/18/14	07/09/15	07/31/15	-469	-22	283
C6	SS	Substantial Completion	08/18/16	08/22/16	10/10/16	-53	-49	-4

Table 4 - Project Budget/Cost 

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of October 31, 2014	
	\$ 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	3,141.541	59.64
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	3,141.541	59.64
Total Federal:	1,350.693	27.75	1,063.942		1,350.693	24.60	914.410	17.36
Total FTA share:	1,300.000	96.25	990.049		1,300.000	23.68	840.517	15.96
5309 New Starts share	1,300.000	100	990.049		1,300.000	23.68	840.517	15.96
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	2,227.131	42.28
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	\$ 2,940,666,181
Engineering Services Subtotal	\$622,862,000	\$655,000,000
Third Party Expenses	\$554,086,273	\$557,500,000
TA Expenses	\$131,160,085	\$130,775,000
Contingency	\$308,077,343	
Executive Reserve	\$160,000,000	
Subtotal	\$4,451,000,000	\$4,283,941,181

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

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (June 30,, 2014)
10	Guideway & Track Elements	\$612,404,000	\$642,478,000
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	\$1,026,608,085
90	Unallocated Contingency	\$555,554,000	\$448,076,915
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	\$273M	\$164.6M
	Total Contingency (Allocated plus Unallocated)	\$555.554M	\$273M (October 2014)	\$164.6M
Schedule	Revenue Service Date	June 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	70.6%		
	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 #99; Data Date = 10/1/2014

Financial data based upon MTACC reporting through 10/31/2014