PMOC MONTHLY REPORT

Second Avenue Subway Phase 1 (MTACC-SAS) Project

Metropolitan Transportation Authority

New York, New York

Report Period August 1 to August 31, 2013

PMOC Contract No. DTFT60-09-D-00007

Task Order No. 4, Project No. DC-76-5020, Work Order No. 01

Urban Engineers of New York, P.C., 2 Penn Plaza, Suite 1103, New York, New York 10121

PMOC Lead: Charles A. Halboth, PE, 212-736-9100; cahalboth@urbanengineers.com

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

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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, Task Order No. 002. 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 August 2013, 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 86th Street Excavation, Utility Relocation and Road Decking contract (G-26013 (C5A)) and the TBM Tunneling Boring contract (G-26002 (C1)) is still on schedule to be closed during the 3rd Quarter 2013. The overall project is approximately 56.9% complete. Progress continued on the eight (8) active construction contracts and featured the following accomplishments:

- G-26005 (C2A) "96th Street Site Work and Heavy Civil" Milestone #1 has been completed. Latest contractor's schedule forecasts a September 24, 2013 Substantial Completion date. Structural work at Entrance 1 continues to drive the completion.
- G-26010 (C2B) "96th Street Station Civil, Architectural, and MEP" Reconstruction work continues in the existing tunnels north of 99th Street (Milestone #1). This will allow Contractor C6 shared access to the existing tunnels from 99th Street to 105th Street and the hatch at 102nd Street. Major work involves construction of station walls and mezzanine between 92nd and 95th Streets.

- G-26006 (C3) "63rd Street Station Rehabilitation" Concrete and masonry work is almost complete. Architectural, mechanical and electrical work is underway throughout the station. Ancillary #1 is expected to be completed in September 2013 (Milestone #6).
- G-26007 (C4B) "72nd Street Station Cavern Mining and Lining" Ongoing work includes rebar and permanent concrete arch placement in the Main and G4/S2 Caverns and low and high bench installation in the Horseshoe Tunnel. Work is on a pace to support the forecast substantial completion date of January 3, 2014.
- G-26011 (C4C) "72nd Street Station Architectural and MEP Systems" Mobilization and pre-construction activities are underway. Site access to the north cavern for construction activities will be provided as of September 16, 2013.
- G-26008 (C5B) "86th Street Station Cavern Mining and Lining" All blasting is complete. Installation of concrete invert slabs in the cavern, entrances and ancillaries is ongoing. Option #1 work in the south tunnels is progressing with erection of formwork for the tunnel lining.
- G-26012 (C5C) "86th Street Station Architectural and MEP" Mobilization continues. Site access for construction activity is forecast for early April 2014.
- G-26009 (C6) "Track, Power, Signals and Communication Systems" Preparation of submittals, clipboard surveys, review of station drawings, and procurement of material continues to be the primary work in progress. Work at the 63rd Street Station includes installation of conduits, cable trays, insulation joints, and equipment in communication rooms.

a. Procurement

Procurement of construction contractors for SAS – Phase 1 is complete.

b. Construction

As of August 31 2013, there are eight (8) active construction contracts on the SAS Phase 1 Project. Contracts C1 and C5A are still in the close out process. Construction progress on the active contracts during this period includes:

- **Contract G-26005 (C2A) 96th Street Site Work and Heavy Civil**
  - Ancillary #2 (Milestone #1)
    - Contractor has statused this milestone as completed with open punch list activities.
  - Ancillary #1 (Milestone #2) all work completed
  - Entrance #1 – Rainbow Hardware (Milestone #2)
    - Remaining work includes the removal of existing H-piles and pile cap; cut remaining mini piles; continued excavation to tier 3; build new pile cap; encase column and back-fill; and knock-out slurry wall. CCM projected completion of Milestone #2 is September 23, 2013.
  - Entrance #2 (Milestone #2) all work completed

- Substantial Completion
  - Projected for September 23, 2013 with completion of all structural and demolition work at Entrance #1 former Rainbow Hardware.

- **Contract G-26010 (C2B) 96th Street Station Civil, Architectural, and MEP**
  - Milestone #1 – Complete work for shared access to existing tunnels 99th Street to 105th Street and hatch at 102 Street.
    - Milestone #1 is being driven by completion of the high and low bench installation from 102nd Street to 103rd Street and masonry wall installation from 101st Street to 102nd Street in the existing tunnel.
      - Benches are 98.0% complete
      - Installation FRE conducts in S1/S2 is 97.0% complete with 70.0% installation of dragline
      - Intumescent painting of steel (99th to 102nd Street) is 95.0% complete
      - Masonry wall installation (99th to 102nd Street) is 88.0% complete

- **Contract G-26006 (C3) 63rd Street Station Rehabilitation**
  - Surveying of the Deformation Monitoring Points (DMPs) is ongoing and will continue throughout the project.
  - **Area 5 (Reconstruction consists of 6 mezzanines and the deck plaza roof)**
    - Emphasis this period was on completing erection of CMU (concrete masonry unit) walls and setting of all associated door frames and window units. CMU work is complete on the 1st, 2nd and lower 4th Mezzanines.
    - Floor topping is being completed at the 1st Mezzanine, east, the 3rd, 4th & 6th Mezzanines.
  - **Entrance #1**
    - Began steam installation and continued building out the Gas Meter Room.
    - At Entrance #1 all concrete piers are complete. Street utility work is complete and the MPT has been re-adjusted at 63rd and 3rd Ave.
  - **Ancillary #1**
    - Completing installation of plumbing risers. Working towards the scheduled September 2013 completion date.
  - **Ancillary #2**
    - Began placing micro-piles.
  - **Platforms**
    - Continued with Stair S41, & S43/S44 stairs on the G3 platform.
    - Continued with new light fixtures on the carriers on the G4 platform.
  - **Fan Plants**
    - Continued with installation of fans in the East and West Fan Rooms.

- **Contract G-26007 (C4B) 72nd Street Station Cavern Mining and Lining**
  - Milestone #1 turnover is scheduled for August 9, 2013 and Substantial Completion remains at December 27, 2013.
  - Cavern walls- The west/east side is complete except 2 east walls which will remain open for the 69th Street shaft. Current plan is to install one wall on September 19, 2013 and the other wall on September 23, 2013.
  - Backfilling of the 72nd St. Shaft was completed to the utility level. Street utility work is currently in process and is scheduled to be completed on September 17, 2013.
  - Removal of the 72nd Street muck house has been completed.
  - The arch in the main cavern will be completed on September 13, 2013. Two arch pours remain.
  - Removal of the 69th Street muck house is still on schedule to be completed by mid-October 2013 with street restoration occurring after substantial completion due to seasonal restrictions.
  - Installation of rebar arch for the C4 Turnout is in progress. Four sections completed two sections remain.
  - High and low bench concrete placement in the C4 TBM is scheduled to be completed on September 6, 2013.
  - 63rd Street Stub Cavern low bench was completed. Concrete placement for the upper level and Horseshoe tunnel high benches will start the week of September 9, 2013 and is anticipated to be completed on October 4, 2013.
  - Entrance #3 is complete.
- **Contract G-26011 (C4C) 72nd Street Station – Station Finishes, MEP, Ancillary Buildings & Entrances**
  - Job Progress Meeting: The fifth Job progress meeting was held, it was announced by the contractor that project mobilization is scheduled to occur the week of September 30th. The mobilization will take place north on grid line 17 at Ancillary 2, Entrance 2 & Entrance 3.
  - Long lead items, and the need to expedite the submittal and review process for these items was discussed extensively.
  - The contractor's Safety Manager for the project resigned which has delayed the Safety Kick-Off meeting. The contractor currently has temporary employees staffing both the Safety Manager and Quality Manager positions. MTACC has expressed concern over this situation and its potential to impact the pending mobilization and start of construction activity.
- **Contract G-26008 (C5B) 86th Street Station Cavern Mining and Lining**
  - Work continues with 2 shifts. All surface operations end at 10:00PM daily.
    - **Main Cavern (North and South)**

- In the overall Cavern the trenching, laying of underslab pipe and placement of invert slab and waterproofing continues.
- The contractor has mobilized for erection of wall forms and continued wall waterproofing. The first concrete wall placement is scheduled for September 13, 2013 on the east wall, followed by the opposite west wall. There are 2 wall forms on a rolling track, east and west walls. Each form accommodates approximately 130cy of concrete and is approximately 2 ½feet thick. The MTACC site Quality Engineer has participated in the pre-pour form inspections.

➢ **Schedule**

- The MTACC scheduler advised the PMOC that the mechanical excavation at Entrance #2 is progressing better than expected and the resumption of blasting is on hold. Entrance was #1 proceeding on schedule and the progress with wall forms in the Cavern is mitigating some of the previous delays.

➢ **Ancillary #1/ Ancillary #2**

- The current bench levels at Ancillary #1 & Ancillary #2 continue to be used for storage and general project support.

➢ **Entrance #1**

- Completing encasement of existing concrete columns.
- Waterproofing is ongoing and first invert slab was placed and is continuing.

➢ **Entrance #2**

- The contractor advised they are getting good progress with the mechanical excavation and that there is no timeline for resuming blasting.

➢ **Option #1 (Lining the south, east tunnel and mining the Cross Passageways)**

- In the East Tunnel waterproofing is complete. The placement of invert slab is complete. Tunnel forms are being positioned in place for upcoming tunnel lining placement.

➢ **Ship America**

- The new Cavern wall forms are being fabricated in Canada and Europe. In response to a question from the PMOC the contractor advised that they are preparing documentation to address Ship America requirements.

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

- The Schedule Kick-off Meeting was held on July 31, 2013. The BIM (Building Information Modeling) kick-off meeting was held on August 22, 2013.
- The Quality Kick-off Meeting will be held once the Quality Plan is approved and the Safety Kick-Off Meeting will be held on a date closer to the site access date for onsite work to begin

➢ **Contract G-26009 (C6) Track, Power, Signals and Communication Systems**

- **63rd St. Station**
  - Work in three communication rooms is ongoing with the installation of equipment pads, ladder trays, brackets as well miscellaneous electrical work. CSJV is projecting the completion of all "available work" in these communication rooms by mid-September 2013.
  - Plinth work and miscellaneous punch list activity on the C3/C4 platforms is ongoing.
- **Procurement**
  - Antenna cable (manufactured and in storage at the vender's warehouse)
  - Signal cable (completed)
  - Comm. cable (completed)
  - Power cable - 2000 MCM and 500 MCM (delivered)
  - Fiber optic cable (delivered)
  - Wayside tray 63rd (delivered)
  - Stops and layouts (delivered)
  - Signal Equipment (in manufacturing)
  - Running rail (delivered)
  - LVT Blocks (10,070 delivered)
  - 3rd rail (in manufacturing and expected to be delivered in October 2013)
  - SWP's (#1 scheduled for delivery in September 2013 and #2 and #3 scheduled for delivery October 2013 and December 2013 respectively)
  - ALU (Factory Acceptance Test of communication equipment anticipated on September 17, 2013 with equipment delivery in October 2013.
- **Submittal Progress**
  - Total projected submittals: 4,360
  - Total submitted to date: 2,431
  - Total projected to complete: 1,929
  - Pending MTA response: 319

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

Implementation of the Quality Management System as defined in the contract specification is ongoing. Quality control activities are being performed by the contractors per their Contractor's Quality Plans (CQPs). The MTACC's SAS Quality Managers and Project Quality Managers are performing quality assurance activities. The PMOC attends Monthly Quality Management Meetings and Quarterly Quality Oversights on each SAS contract.

The major issues noted by the PMOC during August 2013 were out of specification conditions for concrete on all contracts, and the excessive number of nonconformance reports that are still open on the C2A, C4B, and C5B contracts. Inspection Daily Reports on C2A and C2B were taking too long to be submitted but based on many requests from the PMOC, they are now being submitted in a timely manner. At the end of July 2013, the backlog was between two and three

weeks on both contracts. At the end of August 2013, the backlog was down to one week on both contracts. The PMOC is concerned that at the Monthly Quality Management Meeting on two separate contracts, the contractor's Project/Construction Manager did not attend the meeting. The SAS and contractor's quality managers interact on a daily basis and the purpose of the Monthly Quality Management Meetings are to raise quality issues that require project/construction management decisions. The PMOC recommends that SAS Executive Management stress the importance of contractor project/construction management attending the Monthly Quality Management Meetings.

Revision 3 of the SAS Project Quality Manual (PQM), issued in April 2009, is being revised. The SAS Quality Manager has indicated that a draft to Revision 4 is being reviewed internally and will be sent to the PMOC for review in September 2013.

The SAS Deputy Project Executive directed that for every SAS contract, each week one NCR be generated for all instances where air entrainment, slump, and/or time to place concrete were out of specification during that week. As a result, each contractor, as shown below, is complying with this directive.

Contract Packages C2A and C2B	
Status:	On C2A, through August 31, 2013, a total of 35 NCRs have been issued. 24 have been closed and 11 are still open. One new NCR was written in August on concrete placement. On C2B, through August 31, 2013, a total of 12 NCRs have been issued. Five have been closed and seven are still open. No NCRs were written in August and the seven that were open at the end of July were still open at the end of August. The contractor is now submitting their Daily Inspection Reports on both contracts within one week of being written. Both contracts had been two to three weeks behind in submitting their Daily Inspection Reports.
Observation:	The PMOC has been voicing its concern that it was taking too long to submit their Daily Inspection Reports. The contractor is now submitting their Reports within one week of being written.
Concerns and Recommendations:	Substantial Completion for the C2A contract is scheduled for September 24, 2013. The PMOC is concerned that eleven NCRs are still open and recommends that effort be expended to close these before Substantial Completion occurs. The PMOC will continue to monitor the time it takes to submit Daily Inspection Reports.
Contract Package C3	
Status:	On the C3 contract, through August 31, 2013, a total of 54 NCRs have been issued. 38 have been closed and 16 are still open. Three new NCRs were written in August, one of which was for concrete placement. One NCR was closed in August.

Observation:	The concrete NCR generated in August 2013 was for exceeding the two-hour requirement for placing the concrete.
Concerns and Recommendations:	The C3 Contractor's Quality Manager has taken the proper action and the PMOC has no concerns at this time.
Contract Package C4B	
Status:	On the C4B contract, through August 31, 2013, a total of 87 NCRs have been issued. 35 have been closed and 52 are still open. Three new NCRs were written in August, two of which were for concrete placement. No NCRs were closed in August.
Observation:	Both of the concrete NCRs generated in August 2013 were for exceeding the two-hour requirement for placing the concrete. The C4B contractor had submitted a waiver to the specification requesting a maximum pour time of 180 minutes. They are considering withdrawing this waiver and replacing it with one that requests a maximum pour time of 150 minutes.
Concerns and Recommendations:	The PMOC is concerned that neither waiver will be approved since if they are approved, it could set a precedent for other SAS, MTACC, and/or NYCT contracts. If neither waiver is approved, the PMOC recommends that the contractor devise a method that places the concrete within 120 minutes. The PMOC is also concerned that there are still 52 open NCRs on this Contract.
Contract Package C5B	
Status:	On the C5B contract, through August 31, 2013, a total of 40 NCRs have been issued. 16 have been closed and 24 are still open. Eleven new NCRs were written in August, ten of which were for concrete placement. Two NCRs were closed in July.
Observation:	Of the ten open concrete NCRs generated in August 2013, six were for two different parameters. The ten NCRs had the following sixteen parameters out of specification: three involving entrained air, six pertaining to slump, three exceeding the weight requirement, and four for exceeding the two-hour requirement for placing the concrete.
Concerns and Recommendations:	It is the PMOC's opinion that the Quality System is functioning properly on this contract at this time. As nonconformances are identified they are documented in a timely manner. However, the PMOC is concerned that there were many instances in August where concrete placement was out of specification and it is recommended that the contractor perform a root cause analysis to determine actions that can be taken to reduce the number of concrete placement nonconformances.

Contract Package C6	
Status:	On the C6 contract, through August 31, 2013, a total of three NCRs have been issued. Two have been closed and one is still open. One new NCR was written in August.
Observation:	The C6 Contractor's Quality Manager is documenting NCRs as they occur.
Concerns and Recommendations:	The C6 Contractor's Quality Manager has taken the proper action and the PMOC has no concerns at this time.

2.0 SCHEDULE DATA

Integrated Project Schedule (IPS) Update #85 was received on September 11, 2013 and is based on a data date of August 1, 2013. This update contained a ".PDF" schedule report for all remaining work, the ".XER" schedule files for the IPS and individual contracts as well as a narrative report. The IPS forecast for the completion of all construction and NYCT Pre-Revenue Training & Testing activities is unchanged this period and remains September 20, 2016, with approximately 101 calendar days (CD) or 72 work days (WD) of contingency when measured against MTACC's target Revenue Service Date (RSD) of December 30, 2016.

Issues that affect or may affect the IPS that occurred during August 2013 include the following:

- At the 63rd Street Station (C3), Milestones #3 and #4 have been divided into "sub-milestones" to better represent the scope of work involved and reasonable schedule goals for its completion. At this time, these "sub-milestones" are not supported by schedule logic from the C3 contract. The C3 Contractor and MTACC have significant disagreements over the project schedule, of which these milestones are one element. C6 construction logic is based on these new "sub-milestones".
- MTACC has acquired the services of a new senior scheduler dedicated to Contract 6 who will begin work in mid-September. This fills a position that has been open since May 2013 and should assist in improving the quality of C6 input to the IPS.
- At the 72nd Street Station, Contract C4B achieved Milestone #1 (Complete all work north of Gridline 17) on August 9, 2013. Formal access to this area (Including Entrance #3) will be provided to C4C on September 16, 2013, which is 11 CD earlier than the September 27, 2013 access date.
- MTACC continues to evaluate a separate schedule initiative involving the accelerated completion of system installation and testing activities. These initiatives, as well as contractual challenges with their implementation continue to be evaluated by MTACC.

Project Critical Path: The most "critical" or longest schedule path that controls the completion of SAS Phase 1 has consistently involved construction of the 86th Street Station for an extended period of time. The complex interaction between multiple construction contracts is typical of all stations involved in the project. The "most critical" path for the overall project consists of the following elements:

1. C5B, South Cavern Construction: This path involves the construction of concrete inverts, walls and arches in the south cavern. This work currently has 31 WD of schedule float.

Invert construction is currently underway and all work in this area is forecast to be complete on March 7, 2014, followed by turnover of the main cavern south of Grid Line #15 to C5C on April 1, 2014.

2. C5B, North Cavern Construction: This path involves the construction of concrete inverts, walls and arches in the north cavern. This work currently has 29 WD of schedule float. Invert drainage is currently being installed. All work in this area is forecast for completion on September 23, 2014. This work is followed by final cleanup activities and Contract 5B Substantial Completion (w/o Entrance #2) October 2, 2014 and forecast start of work by C5C on October 24, 2014. Approximately 15 WD of schedule float is embedded in the schedule between the C5B and C5C turnover.

3. C5C, Station Construction: Upon gaining access to the north and south cavern areas on the dates noted above, the C5C Contractor has until February 25, 2015 to complete construction of all traction power rooms and provide shared access to the C6 Contractor (MS #(and #10). The work currently has 14 WD of schedule float due to the built-in schedule contingency between C5C completion of work and the actual start of C6 work.

4. The critical path then shifts to C6 Systems installation work in the 86th Street Station Traction Power Substation Room. This is where the 0 WD float path begins, again as the result of a schedule buffer between C5C MS #9 and #10 on February 25, 2015 and the actual handoff to C6, forecast for March 18, 2015. Work within the TPSS continues through January 21, 2016 where once completed is followed by Local Testing of the Traction Power System at 86th Street Station. From that time, Traction Power Integrated Testing is estimated to require approximately six months through July 28, 2016, at which point the critical activities become the "Dispatch Tower Tests at 96th Street Station," "Traction Power Operational Test" and "Route Familiarization and Equipment Training," resulting in a forecast Revenue Service Date (RSD) of September 20th, 2016.

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

+6 WD: This path is initiated by Act # C6S 72 45, Circuit Check – 72nd Street RR, which now has a constrained start date of August 13, 2013. It is noted that this path "jumps" to the +16 WD float path, providing a continuous chain of activities from signal equipment procurement through the start of testing at 72nd Street. The PMOC has expressed concern for several months regarding the apparent lack of progress on this path and its "near-critical" status within the IPS. The status of this work is not consistent with MTACC's positive report regarding the procurement status of "long-lead" equipment. At this time, it is unclear whether this is a true "near-critical" path or a false path resulting from erroneous update information. The PMOC recommends clarification of the status of the work be a top priority for the next IPS update.

+14 WD: NYCT Pre-Revenue Operation Activities scheduled to start on August 18, 2014 is unchanged this period. Float on this path remains unchanged this update period.

+22 WD This path involves the detailing, manufacture and installation of signal equipment between 63rd and 72nd Street Stations. The path is initiated by Activity # C6S 63 55 Detailing and Detail Check – 147 CIR, for which no progress was reported this

period. Last period, this path had +47 WD of schedule float. The loss of 25 WD of float is consistent with no progress having been achieved this update period. Delivery of equipment is now forecast for February 27, 2015.

This path represents a major chain of work activity extending continuously from equipment procurement through completion of Operational Testing in June 2016.

Similar to the +6 WD float path, the status of this work is not consistent with MTACC's positive report regarding the procurement status of "long-lead" equipment and it is unclear whether this is a true "near-critical" path or a false path resulting from erroneous update information. The PMOC recommends clarification of the status of the work be a top priority for the next IPS update.

+23 WD: This path is initiated by equipment submittal and approval, manufacture and delivery of traction power equipment at the 86th Street Station. This path is initiated by two activities, C6 TP86-165 Submit DC Breaker Wrings-86th St. and C6 TP86-170 Submit HT SWGR Wrings-86th St. No progress was reported on these activities during the last two update periods. Last period, this path had approximately +46 WD of schedule float. With no progress reported this path lost 23 WD of float in a 20 WD update period.

+32 WD: This path involves the shop drawing development, manufacture, and installation and testing of signal equipment at the 96th Street Station. This work (Act # C6S 9640, Circuit Design – 96th St. RR) was originally scheduled to start on April 1, 2013 (IPS Update #81). The current IPS update has revised the start date to August 5, 2013. Based upon achieving "zero progress" on the first activity in this chain of activities, it seems unrealistic that it would gain 10 WD of schedule float over the most recent update period.

Revisions to logic and duration of downstream activities, specifically the relationships between equipment fabrication/delivery and the start of field installation activities continue to prevent this work from becoming critical.

This path represents a major chain of work activity at the 96th Street Station extending continuously from equipment procurement through completion of Operational Testing in June 2016.

This is another area where reported schedule status does not appear consistent with other project status reporting. It is unclear whether this is a true "near-critical" path or a false path resulting from erroneous update information.

+33 WD: This path is initiated by Act #C2B S170, Build Mezzanine 95th to 92nd Streets. This path follows construction of the 96th Street Station structure between 95th and 92nd Streets through April 22, 2014, at which time MEP system installation is forecast to commence. Architectural and MEP construction in this portion of the station is forecast to complete on December 23, 2014, at which time Ancillary #1 is made available to the C6 Contractor for signal system installation.

+43 WD: This path involves the shop drawing development, manufacture, and installation and testing of signal equipment at the 86th Street Station. This work (ACT # C6S 8650, Circuit Design – 1200 CIR) was scheduled to start on April 1, 2013 (IPS Update #81). Current IPS Update # 85 has revised the start date to August 6, 2013.

Once again, over the past 5 updates, float values for the path have varied significantly, ranging from +16 to +63, although no progress was reported and no revisions were noted in the Revision History section of the narrative report accompanying the update. For the current period, the loss of 20 WD of float is consistent with having achieved "zero progress".

This path represents a major chain of work activity at the 86th Street Station extending continuously from equipment procurement through completion of Signal System Testing in May 2016.

It is unclear whether this is a true "near-critical" path or a false path resulting from erroneous update information.

+44 WD: This path is initiated by the "design" of the communications system at the 96th Street Station (Act #C6C 150, Communications Design – 96th Street), which is reportedly underway. The original duration of the "design" activity exceeds two years and the successor "installation" activity has a duration of 235 WD. MTACC has previously committed to providing a better breakdown of communication activities. Following design and installation of hardware and software, local and integrated testing is scheduled to start on November 16, 2015 and is forecast to complete in approximately 18 months, completing on May 27, 2016, followed by integrated system and proof of operation testing.

Schedule float for the work represented by this schedule path is unchanged this period.

+46 WD: This path begins with installation of the main cavern arch at the 72nd Street Station, which is currently underway. This work is followed by the main cavern arch at the south cavern, construction of the main cavern electrical bench, and Contract C4B Substantial Completion, currently forecast for January 3, 2014.

The path then shifts to C4C construction of Ancillary #1 through the hand-off of the signal relay room to the C6 Contractor in October 2014. At this point, the float is reduced to +29 WD as a result of a one month buffer built between the two contracts. C6 then performs signal system installation and local testing at the 72nd Street Station through February 2016. Signal testing continues from February 2016 to late June 2016 when work in the Relay Room is complete and ready for Integrated Testing, which is forecast to complete on July 28, 2016, denoting the completion of all Systems Integration Testing for the project.

MTACC considers this one of the most critical schedule paths. It is noted that this path may be impacted by subsequent delays to signal system procurement identified in other near-critical paths.

Other Float Paths: The following list summarizes the schedule float currently available for project elements where time-of-performance has been a concern.

Schedule Float		
Upd. #85	**Upd. #84**	**Description**
+35	+34	Entrance #1 Complete – 63rd Street Station
+124	+124	Deliver Concrete Ties (including LVT) and Track

Schedule Float		
Upd. #85	**Upd. #84**	**Description**
+53	+64	Handoff C5B—C5C @Entrance #2
+186	+186	C4C – Entrance #1 Design & Construction

Milestone Summary: For contracts actively under construction, a tabulation of current schedule performance against contractual milestones is presented in Table 3. Based on these milestones, the PMOC notes the following:

1. For C2A; the IPS reflects the Contractor's Milestone forecast dates.
2. For C2B; the IPS does not reflect the Contractor's Milestone forecast dates for MS Nos. 1 through 10. The IPS was updated to reflect MTACC's position with respect to these milestones. A Memorandum of Understanding (MOU) between Contract 2B and Contract 6 which is expected to be finalized in the very near future, will clarify certain conditions and allow the Contract 2B contractor to modify their interim milestone dates and conform to the contract milestones dates.
3. For C3; the IPS does not reflect the Contractor's Substantial Completion forecast date of January 15, 2015. The Contractor's Schedule has been evaluated and MTACC is not in agreement with the schedule details which prolong the contract duration. MTACC has reported it is engaging the contractor in negotiations to resolve several schedule disputes on this project.
4. For C4B and C5B; the IPS reflects the Contractor's Milestone forecast dates.
5. For C4C and C5C; the IPS is based on and reflects the Access and Milestone dates per the Contract Documents.
6. For C6; the IPS does reflect the Contractors Milestone forecast dates for Milestones #2A/#2B, #3A/#3B, and Substantial Completion. The IPS does not reflect the Contractor's Milestone Dates for #4A/4B and #5A/#5B/#5C. MTACC is evaluating the Contractor's position resulting in the variance in these milestone dates.
7. Two milestones were partially achieved during this reporting period:
    - C3 MS #3a: Complete Mezzanine Level Communication Rooms and Station Service Center.
    - C2A MS #2: Tunnel Invert @Entrance #2.
8. C2A MS#1 lost 33 CD during this update period and is now forecast for completion on September 9, 2013. The IPS Substantial Completion date for C2A is reported as September 9, 2013, although Milestone #2 is not forecast to complete until September 24, 2013. This appears to be an updating error.
9. The C5B Contract gained 7 CD against both of its schedule milestones this period. Overall, C5B milestones (not including Entrance #2) are forecast to complete approximately 28 CD later than specified.

ELPEP/SMP Compliance: In the opinion of the PMOC, SAS Phase 1 remains in substantial compliance with the metrics, deliverables and intangible goals enumerated in the Enterprise

Level Project Execution Plan (ELPEP), dated January 15, 2010 (Section IV. b, page 8) and as further described by the Schedule Management Plan (SMP). Specifically:

1. Forecast Revenue Service Date
   - ELPEP Requirement: February 28, 2018
     - Current Forecast: December 30, 2016
2. Minimum schedule contingency (measured against February 28, 2018 RSD)
   - ELPEP Requirement: 240 CD
     - Current Forecast: 526 CD
3. Minimum Allowable Float; Real Estate Acquisition
   - ELPEP Requirement: 60 CD
     - Current Forecast: All Real Estate Takings are complete as of November 1, 2011.
     - Cost to Cure Activities - Current Forecast:
       - 72nd Street Station – Entrance #1; TF = +186 WD
4. Minimum Allowable Secondary Float Path
   - ELPEP Requirement: 25 Calendar Days (approximately 18 WD).
     - Current Forecast: There are no independent float paths with float less than 25 CD in this update.
5. Secondary Schedule Mitigation (critical path compression)
   - ELPEP Requirement: 125 CD
     - Current Forecast: Schedule mitigation efforts are under review.

Schedule Contingency: IPS Update #85 forecasts all Phase 1 construction and pre-revenue testing to be complete on September 20, 2016. This results in 102 CD (73 WD) contingency when measured against the MTACC's target RSD of December 30, 2016 and a 526 CD contingency when measured against the FTA Risk-Informed RSD of February 28, 2018.

Schedule Comments: There are several issues of concern involving the IPS:

1. The apparent inability or unwillingness of the C6 management team (including contractor, CCM and MTACC) to maintain and update the project schedule/IPS with reasonable timeliness and accuracy. The updated schedule is not consistent with other reporting and identifies problem areas not recognized by the project staff.
2. Unresolved schedule disputes involving structural steel, site access and utility interferences at the 63rd Street Station have compromised the information contained in the schedule and the coordination of work with other contractors.
3. Delayed incorporation of C4C and C5C construction schedules in the IPS. Notice-Of-Award was provided for these contracts on February 14, 2013 and June 12, 2013 respectively. To date, the IPS has not been updated with construction schedule information from either of these contracts.

4. Delayed incorporation of upgraded schedule information regarding communication system installation into the IPS. Delays involving communications work has been identified as a significant risk to project completion. Enhancing the detail and quality of communications systems schedule information was suggested by the PMOC and agreed by MTACC several months ago. To date, no visible progress has occurred.

To some extent, the SAS Project Team has used the IPS in developing "work-around" solutions to several issues that could have resulted in a delay to the RSD. The PMOC is concerned that, due to the issues noted above, the current IPS is compromised to the point that it may be of limited or negligible value in making subsequent decisions of this nature.

3.0 COST DATA

Based upon financial expenditures reported by the MTACC through August 31, 2013, SAS Phase 1 is approximately 56.9 % complete. The completion status of the individual construction contracts through August 31, 2013, also based upon reported expenditures through that date, is as follows:

- C26002 (Tunnel Boring) – 100.0%
- C26005 (96th Street Station) – 98.5%
- C26010 (96th Street Station) – 20.3%
- C26013 (86th Street Station) – 100%
- C26008 (86th Street Station) – 61.49%
- C26006 (63rd Street Station) – 56.1%
- C26007 (72nd Street Station) – 88.7%
- C26009 (Systems) – 14.2%

Aggregate Construction % Completion:

- 100% of all construction has been bid.
- 100% of all construction is under contract
- 56.7% of all construction is complete

Based upon cost data received from MTACC for the period through August 31, 2013:

- Value of construction in place this period = $50,380,373
- Estimated value of construction remaining = $1,099,402,124
- Target construction completion = September 20, 2016
- Number of months remaining = 36.7

The estimated average rate of construction required to achieve target completion date = $29,947,871/ MO. The average progress (payments) achieved over the most recent six month period is $48,852,287/ MO. Based on a review of cost data for August 2013, it appears that adequate overall progress was made on the project to achieve the RSD of December 30, 2016.

Soft Cost expenditures (not including real estate, OCIP, etc.) reported this period by MTACC totaled $5.8M. Based upon the available reporting, the revised soft cost budget should be adequate to fund the estimated 36.7 month remaining duration of the project.

Estimate-At-Completion (EAC): The SAS Project Team has extended its risk-based contingency forecasting effort to the development of an EAC for all construction. The project EAC is a combination of the risk-based approach for construction cost and traditional estimating for soft costs. Table 6 contains a summary of the updated EAC, which is currently $4,223,571,401. This update includes the updated construction EAC and all revisions included in Revision 10 of the Project Cost Estimate.

Based on the information available, this updated EAC continues to validate the reasonableness of the MTACC's Current Working Budget of $4.451B. Based upon current information, this effort suggests the project can be built within the limits of the Current Working Budget.

Cost Growth: The value of AWOs reported by MTACC/NYCT in August 2013 is summarized as follows:

	Executed AWOs	AWO Exposure
August 2013	$107,273,026	$135,826,243
July 2013	$105,776,829	$132,373,637
Change	$1,496,197	$3,452,606
Change	1.41%	2.61)%

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

Const. Pkg.	AWO Exposure $			Changes this Period
	August-13	July-13	Period Δ	
C1	$41,184,443	$41,184,443	$0	Final value as reported by MTACC.
C2A	$50,500,953	$50,722,786	$(221,833)	Net exposure reduction based on revised estimates for AWO # 118, 127, 135, 140, 144 and 156 as well as initial estimate for AWOs # 126 and 151. No new AWOs were added this period.
C2B	$11,830,514	$11,337,396	$493,118	Net exposure increase based on revised estimates for AWO # 7, 16, 20, 29, 31, 33, 34 and 39 as well as initial estimates for AWO # 40, 41 and 47. Six AWOs were added this period, one of which has an estimated cost.
C3	$10,342,864	$9,765,271	$577,593	Net exposure increase based on revised estimates for AWO # 20, 21, 34, 44, 46, 49, 50, 54, 58, 61, 62, 64, 69, 70, 71, 72, 73, 77, 78, 80, 81 and 82. Eight AWOs were added this period, all of which have estimated values.
C4B	$2,652,966	$2,353,783	$299,183	Net increase based on revised estimates for AWO # 72 and initial estimates for AWO # 75 and 79. Two AWOs were added this period, neither of which has an

Const. Pkg.	AWO Exposure $			Changes this Period
	August-13	July-13	Period Δ	
				estimated value.
C4C	$38,204	$48,564	$(10,342)	Net decrease based on revised estimates for AWO # 3 and 7.
C5A	$6,525,471	$6,525,471	$0	Final value as reported by MTACC.
C5B	$9,869,605	$8,013,139	$1,856,466	Increase based on initial estimates for AWO # 55, 62 and 63. No new AWOs were added this period.
C5C	$0	$0	$0	No AWO exposure to date.
C6	$2,881,223	$2,422,802	$458,421	Net increase based on revised estimates for AWO # 2 and 19 as well as initial estimates for AWO # 8, 12, 20 and 21. Five AWOs were added this period, two of which have estimated costs.
	$135,826,243	$132,373,637	$3,452,606	

The changes in Executed AWO Value are summarized as follows:

Const. Pkg.	Executed AWO $			Changes this Period
	August-13	July-13	Period Δ	
C1	$41,184,443	$41,184,443	$0	Final value as reported by MTACC.
C2A	$40,111,589	$36,978,189	$3,133,400	AWOs executed this period include # 116, 123, 126, 128, 132, 140, 145, 147, 149, 156 and 157.
C2B	$1,738,543	$1,412,543	$326,000	AWOs executed this period include # 12, 16, 27 and 34
C3	$4,643,934	$3,840,512	$803,422	AWOs executed this period include # 24, 36, 41, 55, 60, 66 and 67.
C4B	$4,413,862	$7,760,628	$(3,346,766)	AWOs executed this period include # 54, 69 and 78.
C4C	$(1,212)	$10,788	$(12,000)	AWO # 3 was executed during this period.
C5A	$6,525,471	$6,525,471	$0	Final value as reported by MTACC.
C5B	$7,572,388	$7,505,688	$66,700	AWO # 30 and 60 were executed this period.
C5C	$0	$0	$0	No AWOs executed to date.
C6	$1,084,008	$558,567	$525,441	AWOs # 10, 19, 20 and 21 were executed this period.
	$107,273,026	$105,776,829	$1,496,197	

As of August 31, 2013, the status of Additional Work Orders (AWOs) 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	$41,184,443	12.22%	$41,184,443	12.22%
C26005 (2A)	98.50%	$325,000,000	$50,500,953	15.54%	$40,111,589	12.34%

C26010 (2B)	20.30%	$324,600,000	$11,830,514	3.64%	$1,738,543	0.54%
C26006 (3)	56.10%	$176,450,000	$10,342,864	5.86%	$4,643,934	2.63%
C26007 (4B)	88.70%	$447,180,260	$2,652,966	0.59%	$4,413,862	0.99%
C26011 (4C)	1.60%	$258,353,000	$38,204	0.01%	($1,212)	0.00%
C26013 (5A)	100.00%	$34,070,039	$6,525,471	19.15%	$6,525,471	19.15%
C26008 (5B)	61.49%	$301,860,000	$9,869,605	3.27%	$7,572,388	2.51%
C26012 (5C)	0.00%	$208,376,000	$0	0.00%	$0	0.00%
C26009(6)	14.20%	$261,900,000	$2,881,223	1.10%	$1,084,008	0.41%
TOTAL		$2,674,814,299	$135,826,243	5.08%	$107,273,026	4.01%

To date, approximately $1,471,231,993 (55%) worth of all base contract construction work has been completed. As a %of work completed, the AWO exposure for these contracts = 9.23% and the executed AWO % = 7.29%. Based on performance to date, a forecast of total AWO expenditure of approximately $200 M appears reasonable. This compares favorably with the $229 M AWO contingency contained in the MTACC CWB. The PMOC notes that the forecast "closeout AWOs" for contract packages C1 and C5A have significantly reduced previous forecasts. The PMOC continues to recommend that all AWOs be critically reviewed, evaluated and documented on a contemporaneous basis to determine if compensable responsibility exists for some of these expenditures.

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).

Cost Contingency: Recalculation of contingencies was not completed this period as a consequence of the incorporation of Revision 10 to the project cost estimate. Cost contingencies will be update for the next reporting period.

4.0 RISK MANAGEMENT

The Monthly Risk Report for July 2013 was received on August 26, 2013. Significant risks reviewed and updated during this period include:

Risk	Discussion Summary
Risk CNS 4 (C6) Problems related to managing the contractual interfaces during construction may result in delays and related claims.	An interface manager has been hired to implement the Interface Management Plan.
Risk COM 2 (C6) Continuous and potentially late changes to the communications	The strategy for managing this risk is unchanged. These mitigation strategies are being monitored continuously as an aid to effective implementation. Recent problems include:

Risk	Discussion Summary
systems could delay C6 and the RSD.	• Project staff has been unable to achieve agreement with NYCT staff on changes made to date. • Extended review time required by NYCT reviewers. • NYCT reviewers making design changes via the shop drawing review process. A series of senior management meetings are being considered as a means of elevating this problem to senior management if resolution cannot be achieved at lower management levels.
Risk C5B, C2B, C4C, C5C and C6 Schedules There is the risk that the Project schedule will be delayed beyond the present revenue service date.	The SAS project team is continuing to evaluate the C6 Contractor's proposal for schedule acceleration. Partial or staggered implementation may be an option, and dependent on the progress of predecessor work activities. It is understood that any acceleration agreement must involve an equitable distribution of risk between contractor and MTACC. The ability to achieve the handoff milestones between finish contractor and the systems contractor are the key element in this effort.
Permanent (Station) Power	Establishment of permanent power at the stations could involve both schedule delay and significant additional cost. Several critical items need to be completed to get permanent power connected including: • Con Ed comments on the design of facility permanent power need to be addressed. • Con Ed's acceptance of contractor`s plan. The project has committed to hire an individual to act as liaison between the project designer and ConEd as a means of expediting preconstruction activities. Some acceleration of street-level restoration work may also be needed to facilitate Con Ed's work.
Risk CNS 8 (C6) Delayed Safety Certification delays RSD	Recent conversations with the NYS Public Transportation Safety Board have confirmed their role to be one of oversight and verification of the MTACC/ NYCT certification process. Their role will not impact the RSD.
Buy America	There are still risks associated with the resolution of the LVT Block issue that may cause significant delay to the project. MTACC's waiver request will be submitted shortly. Risks identified include:

Risk	Discussion Summary
	• Extended delay in evaluation and granting of the waiver • Rejection of the waiver request.

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. Ongoing efforts to engage construction managers in more active participation in the process will be beneficial.

5.0 ELPEP

There were no ELPEP meetings held during August 2013. With respect to SAS, the current status of each of the main ELPEP components is summarized as follows:

- **Technical Capacity and Capability (TCC):** The TCC Plan update has been completed. FTA/PMOC review is in progress. SAS PMP Rev. 9 was received on July 16, 2013. The PMOC's review of this document is in progress.
- **Schedule Management Plan (SMP)**: The SMP will require changes in response to results of the MTACC's internal ELPEP audit of project procedures. Draft revisions to this plan have yet to be received. The PMOC continues to monitor and verify SAS substantial compliance with the SMP.
- **Cost Management Plan (CMP)**: The CMP will require changes in response to results of the MTACC's internal ELPEP audit of project procedures. The PMOC continues to monitor and verify SAS substantial compliance with the CMP.
- **Risk Mitigation Capacity Plan (RMCP) and Risk Management Plan (RMP)**: Monthly Risk Review Meetings continue. At the present time, the Project Budget is $4.451 billion and the Revenue Service Date is December 31, 2016. The risk analyses indicate a high level of confidence in completing SAS Phase 1 within the budget. However, there is currently only a 20% confidence level that without significant mitigation, the RSD of December 31, 2016 can be achieved.

The SAS Project Team has implemented the principles and requirements embodied in the ELPEP. The procedural changes instigated 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 is ongoing.

As of August 31, 2013, a total of 6,509,464 construction hours have been logged with 62 lost time and 175 recordable incidents documented. The total hours and incidents equates to a lost time rate of 1.90 and a recordable rate of 5.38. Both rates decreased slightly from the previous month. The US Bureau of Labor Statistics (BLS) national rate (Heavy & Civil construction) for lost time and recordable incidents are 2.0 and 3.5 respectively.

7.0 ISSUES AND RECOMMENDATIONS

Schedule Reliability

In the opinion of the PMOC and as discussed in Section 2.0 of this report, there are several significant deficiencies in the IPS which compromise its overall reliability and usefulness. In summary:

- Schedule disputes are risks that are reasonably anticipated on most major infrastructure projects. MTACC needs to emphasize isolation and resolution of disputes in a manner that minimizes impact to remaining work.
- Where contractors are either non-cooperative or incapable of schedule management that support the needs of the project, additional resources and/or a more forceful approach may be required to encourage a minimum acceptable level of cooperation
- In some cases, it appears the CM staff is not actively involved in the schedule management process.

The PMOC recommends consideration of these factors as a part of MTACC's "rework" of the IPS noted in the IPS Update #85 narrative.

Schedule Recovery/Acceleration

The SAS Project Team's efforts to develop schedule acceleration alternatives to either recover lost time or accelerate the project RSD appear to have become focused on the Contract 6 plan to double-shift its installation and testing activities. All or portions of this approach may be effective in accomplishing this goal, however the PMOC is concerned that the project team has effectively abandoned the search for other means to support the same goal. The PMOC recommends the SAS Project Team continue efforts to identify and evaluate other means of schedule improvement.

Resolution of Quality Issues

There are 52 open NCRs on the C4B construction contract, the majority of which involve concrete placement, where the discharge of concrete to its point of deposit exceeds 90 minutes after the addition of cement to the aggregates. These NCRs have accumulated over a significant period of time, during which the only issue raised has been the frequency of documentation (daily, weekly, monthly) of the non-conformance.

The PMOC is concerned that the manner by which this non-conformance has been handled reflects a breakdown in the function of the MTACC Quality Management System. Delay in resolving these NCRs has eliminated the potential for process adjustments that could have resolved the non-conformance. At this time, a determination of "accept as-is" is essentially forced upon the MTACC and NYCT.

The technical and process issues specific to these NCRs may be inconsequential, but the management of the issue does not suggest a fully functional quality management function. The

PMOC recommends this matter be thoroughly evaluated and corrective action and/or training of project management and quality staff be initiated to ensure a fully functional quality management program.

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	03/20/2007 A	03/20/2007 A
Construction Complete	December 31, 2013	August 30, 2016	October 2017
Revenue Service	June 30, 2014	December 30, 2016	February 2018

A = Actual

Table 2 - Schedule Contingency

IPS Update #	74	77	80	83	84	85
Data Date	9/1/2012	12/1/2012	3/1/2013	6/1/2013	7/1/2013	8/1/13
Contingency (CD)						
RSD= 12/31/2016	No	89	89	109	102	102
RSD= 2/28/2018	Report	513	513	533	526	526

Table 3 - Schedule Milestone Comparison

Pkg	MS	Description	Dates			Affected Pkg.	Variance		Sch. Float
			Adjusted (2)	Ud #84 (3)	Ud #85 (4)		Contract = (2) - (4)	Month = (3) - (4)	
C2A	#1	96th Tunnel Exc, Inv. 97-99, Anc. #2	07/15/13	08/07/13	09/09/13	C2B	-56	-33	**71**
C2A	#2	96th Tunnel Inv. 92-95, Anc. #1	07/15/13	09/23/13	09/24/13	C2B	-71	-1	**91**
C2A	#2	96th Tunnel Inv. 92-95, Ent #1	07/15/13	09/23/13	09/24/13	C2B			**72**
C2A	**#2**	**96th Tunnel Inv. 92-95, Ent #2**	**07/15/13**	07/18/13	**7/15/13A**	**C2B**	**0**	**3**	**-**
C2A	SS	Completion of all work, including Entrance #3.	07/15/13	09/23/13	09/09/13	C2B	-56	14	**55**
C2B	MS #1	Complete work 99th to 105th Streets; provide shared access at 102nd St access shaft	09/21/13	9/20/13	9/20/13	C6	1	0	**140**
C2B	MS #2	Complete work & provide shared site access @93rd Street shaft	03/22/14	7/22/14	3/21/14	C6	1	123	**363**
C2B	MS #3	Complete work & provide limited access @E&W Trackway thru Sta. (1238+50 and 1225+25), & 99th to 105th St Tunnel and 'Exclusive Access @Rail Shaft	10/21/13	10/21/13	10/21/13	C6	0	0	**166**
C2B	MS #4	Complete work & provide 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	9/22/14	9/25/14	C6	-4	-3	**140**
C2B	MS #5	Complete work & provide shared access @East & West Tunnels South of 96th St Station (1225+25 and STA 1209+00)	02/20/14	2/21/14	2/26/14	C6	-6	-5	**89**
C2B	MS #6	Complete work & provide full access to Comm. Rooms & Closets	08/21/14	8/21/14	8/21/14	C6	0	0	**248**
C2B	MS #7	Complete work & provide full access to Signals Rooms	08/21/14	8/21/14	8/21/14	C6	0	0	**89**
C2B	MS #8	Complete work & provide full access to Traction Power Rooms:	08/21/14	8/21/14	8/21/14	C6	0	0	**165**

Pkg	MS	Description	Dates			Affected Pkg.	Variance		Sch. Float
			Adjusted (2)	Ud #84 (3)	Ud #85 (4)		Contract = (2) - (4)	Month = (3) - (4)	
C2B	MS #9	Complete work & provide full access to Station Service Centers	11/21/14	1/15/15	11/21/14	C6	0	55	**208**
C2B	MS #10	Complete all Comm. Signal, & Traction Power work in remaining areas not identified in Milestones 1 through 9	09/21/14	1/26/15	1/26/15	C6	-127	0	**33**
C2B	SS	Substantial Completion	12/21/15	3/10/16	4/28/16		-129	-49	
C3	**#3a**	**Compl Mezz Level Comm Rms/ Service Center**	**04/15/13**	**03/31/14**	**7/22/13A**	**C6**	**-98**	**252**	**-**
C3	#3b	Conduits @ Mezzanine Level	04/15/13	03/31/14	10/11/13	C6	-179	171	**161**
C3	#3c	Compl Mezz Level Comm. Rms/ Service Center	04/15/13	03/31/14	01/31/14	C6	-291	59	**88**
C3	#4	Compl Lwr/ Uppr Platforms & Signal Rms	10/14/13	04/02/14	12/05/13	C6	-52	118	**204**
C3	#4b	Compl Lwr/ Uppr Platforms & Signal Rms	10/14/13	04/02/14	03/11/14	C6	-148	22	**133**
C3	#5	Compl All work Anc. #2 in Parking Garage	08/30/13	11/04/13	11/04/13		-66	0	**328**
C3	#6	Complete work @ Ancillary #1	07/09/12	09/20/13	09/20/13		-438	0	**357**
C3	SS	Substantial Completion	05/13/14	01/15/15	12/29/14	C6	-230	17	**43**
C4B	**#1**	**Compl All work North of Grid Line 17**	**06/25/13**	**08/06/13**	**8/7/13A**	**C4C**	**-43**	**-1**	**-**
C4B	SS	Substantial Compl/ All work South GL 17	12/03/13	12/27/13	01/03/14	C4C	-31	-7	**47**
C5B	#1	Compl All work South of Grid Line 15	03/04/14	04/08/14	04/01/14	C5C	-28	7	**30**
C5B	SS	Substantial Compl/ All Work North GL 15 (w/0 Ent. #2)	09/04/14	10/09/14	10/02/14	C5C	-28	7	**29**
C5B	SS	Substantial Compl/ All Work incl. Ent. #2	-		02/25/15				**53**
C6	**#1**	**Completion of Signal Block Design**	**08/18/12**	**9/10/12A**	**9/10/12A**	**C6**	**-23**	0	**-**
C6	#2A	Complete LAN - 96th St. Station	05/18/15	05/18/15	05/18/15	C2B	0	0	**124**
C6	#2B	Complete WAN - 96th St. Station	05/18/15	05/18/15	05/18/15	C2B	0	0	**124**
C6	#3A	Complete LAN - 86th St. Station	07/18/15	07/17/15	07/17/15	C5C	1	0	**121**
C6	#3B	Complete WAN - 86th St. Station	07/18/15	07/17/15	07/17/15	C5C	1	0	**121**
C6	#4A	Complete LAN - 72nd St. Station	02/18/15	03/19/15	03/27/15	C4C	-37	-8	**208**

Pkg	MS	Description	Dates			Affected Pkg.	Variance		Sch. Float
			Adjusted (2)	Ud #84 (3)	Ud #85 (4)		Contract = (2) - (4)	Month = (3) - (4)	
C6	#4B	Complete WAN - 72nd St. Station	02/18/15	03/19/15	03/27/15	C4C	-37	-8	**208**
C6	#5A	Complete LAN - 63rd St. Station	04/18/14	06/27/14	06/10/14	C3	-53	17	**61**
C6	#5B	Complete WAN - 63rd St. Station	04/18/14	06/27/14	06/10/14	C3	-53	17	**61**
C6	#5C	Complete all 63rd St. Station work	04/18/14	06/27/14	06/10/14	C3	-53	17	**61**
C6	SS	Substantial Completion	08/18/16	08/18/16	08/18/16		0	0	**96**

Notes:

1. All schedule dates based upon August 1, 2013 update (IPS Update #85)
2. Contract packages 1 and 5A have completed all work and follow-on activities are proceeding w/o impact.
3. Contract packages 4C and 5C; no variances with contract milestones to date.
4. Dates followed by an "A" signify an actual completion on that date.

Table 4 - Project Budget/ Cost

	FFGA			FFGA Amend	MTA Current Working Budget (CWB)		Expenditures as of August 30, 2013	
	$ 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**	**2,530.918**	**48.05**
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**	**2,530.918**	**48.05**
Total Federal:	**1,350.693**	**27.75**	**1,063.942**		**1,350.693**	**24.60**	**759.897**	**14.42**
Total FTA share:	**1,300.000**	**96.25**	**990.049**		**1,300.000**	**23.68**	**686.004**	**13.02**
5309 New Starts share	1,300.000	100	990.049		1,300.000	23.68	**686.004**	**13.02**
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**	**1,771.021**	**33.62**
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	$2,728,172,492	$2,904,530,820
Engineering Services Subtotal	$576,541,264	$625,000,000
Third Party Expenses	$534,800,000	$557,500,000
TA Expenses	$125,160,085	$130,775,000
Contingency	$321,104,648	
Executive Reserve	$160,000,000	
Subtotal	$4,451,000,000	$4,228,571,401

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

Std. Cost Category (SCC)	Description	FFGA	MTA's Current Working Budget (March 31, 2013)
10	Guideway & Track Elements	$612,404,000	$638,107,000
20	Stations, Stops, Terminals, Intermodal	$1,092,836,000	$1,294,629,000
30	Support Facilities	0	$0
40	Site Work & Special Conditions	$276,229,000	$534,865,000
50	Systems	$322,707,000	$265,792,000
60	ROW, Land, Existing Improvements	$240,960,000	$281,500,000*
70	Vehicles	$152,999,000	0**
80	Professional Services	$796,311,000	$973,000,000
90	Unallocated Contingency	$555,554,000	$463,107,000
Subtotal		$4,050,000,000	$4,451,000,000
Financing Cost		$816,614,000	$816,614,000
Total Project		**$4,866,614,000**	**$5,267,614,000**

* Includes $47 M Cost-to-Cure.

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

Table 7 -- Core Accountability Items -- August 2013				
Project Status:		**Original at FFGA**	**Current***	**ELPEP****
Cost	Cost Estimate	$4,050 M	$4,451 M	$4,980 M
Contingency	Unallocated Contingency	$555.554 M	$361 M	$181 M
	Total Contingency (Allocated plus Unallocated)	$555.554 M	$361 M (July 2013)	$361 M
Schedule	Revenue Service Date	June 30, 2014	December 30, 2016	February 28, 2018
Total Project Percent Complete	Based on Expenditures	56.9%		
	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 continue to be "requested" by NYCT Operations long after the formal completion of the project design. These changes have primarily affected the Systems (C6) Contract, where the approved AWOs will substantially increase project cost. The schedule impact of the changes added to date has not been determined. To date, the SAS Project Team's ability to resist the incorporation of these requests appears limited. Total construction is approximately 55% complete and the schedule for achieving the RSD of December 30, 2016 is challenging. At some point, the MTA will have to enforce a "no

		more design changes" if the project is to achieve its schedule (and cost) performance objectives.
Construction Contract Management and Coordination	Open	The SAS Project team has yet to demonstrate that it can closeout a contract or execute the turnover of work areas between contractors in a timely and efficient manner. Construction staff does not appear to be pro-actively planning and expediting the MTA's responsibilities and obligations necessary to accomplish these key activities. The PMP does not adequately address this aspect of construction management. The PMOC recommends the SAS Project Team develop detailed processes and procedures to guide its construction staff through their responsibilities in the closeout and turnover phases of the project and formally incorporate these measures in Revision 9 of the PMP.
Organization	Open	The PMOC is concerned that organization changes within the SAS Project Management Team are not addressing the root cause of management problems and may actually be causing some confusion within the team regarding roles and responsibilities.
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 #85; Data Date = 8/01/2013

Financial data based upon MTACC reporting through 8/31/2013