

MINI-MONTHLY REPORT

February 28, 2014

Central Subway Project

**San Francisco Municipal Transportation Agency (SFMTA)
San Francisco, CA**

Draft Report delivered to FTA on March 7, 2014

Final Report delivered to FTA on March 17, 2014

PMOC Contract No.: DTFT60-09-D-00015

Task Order No. 3

Project No.: DC-27-5139

Work Order Number: 006

OPs Referenced: 01, 20, and 25

CLIN 0002B

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**EXECUTIVE SUMMARY
CENTRAL SUBWAY**

PROJECT DESCRIPTION

The Central Subway Project (CSP) will construct a modern, efficient light-rail line that will improve public transit in San Francisco. This new 1.7-mile extension of Muni’s T Third Line will provide direct connections to major retail, sporting and cultural venues while efficiently transporting people to jobs, educational opportunities, and other amenities throughout the city. The CSP is Phase 2 of the San Francisco Municipal Transportation Agency’s (SFMTA) Third Street Light Rail Transit Project. Phase 1 of the project constructed a 5.1-mile light-rail line along the densely populated 3rd Street corridor. It began revenue service in April 2007, restoring light-rail service to a high transit ridership area of San Francisco for the first time in 50 years. The CSP will extend the T Third Line from the 4th Street Caltrain Station to Chinatown, providing a direct, rapid transit link from the Bayshore and Mission Bay areas to SoMa, Union Square, and downtown.

Four new stations will be built along the 1.7-mile project alignment—an above-ground station at 4th and Brannan streets and three underground stations at Yerba Buena/Moscone Centers, Union Square, and Chinatown. Four light rail vehicles (LRVs) will be procured for the CSP. Ridership is projected at 43,521 Average Weekday Boardings in 2030.



PROJECT STATUS

Full Funding Grant Agreement (FFGA)

The FFGA was signed on October 11, 2012.

Design and Construction

Design

- All designs are complete.

Construction

Contract 1250 [Utility Relocation (UR) #1].

- Work is complete. Closeout continues.

Contract 1251 (UR #2).

- Work is complete. Closeout continues.

Contract 1252 Tunnel.

- Work is 76 percent complete, based on Expenditures to date.
- Tunnel Boring Machine (TBM) #1 (southbound) launched on July 22, 2013, and is near Sacramento Street (approximately Sta. 111) at the end of February 2014.
- TBM #2 (northbound) launched on October 25, 2013, and is just past Post Street (approximately Sta. 126) at the end of February 2014.
- Site work on the North Beach retrieval shaft and sound walls began on September 25, 2013, after demolition of the Pagoda Theater. The second level of shaft excavation was completed by the end of February 2014.

Contract 1300 Stations and Systems/Trackwork.

- Notice to Proceed (NTP) was issued on June 17, 2013.
- Yerba Buena/Moscone Station (YBM): The contractor started on the first of two Test Barrettes.
- Union Square/Market Street Station (UMS): Pedestrian barricades were set up on Stockton Street and the street was closed between Geary and Ellis. Pile guide wall preparations have begun.
- Chinatown Station (CTS): Utility relocations on Stockton and Washington streets have been completed. Slurry wall guidewalls have begun.
- Surface, Track, and Systems (STS): Utility potholing began in late January 2014 and continues.

Schedule

The Revenue Service Date (RSD) remains unchanged at December 26, 2018.

The December 2013 project schedule reflects 4.8 months of buffer float, which is below the minimum agreed to level of 8.0 months of schedule contingency at this phase of the project.

Cost

Cost Estimate: \$1.5783 billion
Total Contingency: \$71.26 million (minimum contingency is \$140 million)
Total net incurred costs: \$488.97 million (31 percent of the total project budget)
Current funding level: \$785.4 million (49.7 percent of the total project budget)

TOP ISSUES AND RECOMMENDATIONS

- Monthly cost reports prepared by the CSP over the past year were found to have numerous unexplained changes. The Project Management Oversight Contractor (PMOC) has notified CSP to make corrections and provide details for budget changes.
- It is important that the CSP team highlight and identify changes from the previous cost report. This maintains a project cost narrative throughout the term of the project. Federal Transit Administration (FTA) requires that project monthly cost reports be produced in the FTA standard cost category (SCC) format to allow comparisons to be made to assigned budget amounts and to show changes to these cost codes as the project develops through to completion.
- The Contract 1300 baseline schedule has now been fully submitted. The baseline schedule is likely to take more than a month of negotiations and discussions with the contractor to reach an approved schedule. In the meantime, the CSP has incorporated the Contract 1300 Bid Schedule and unapproved station activities into the current Master Project Schedule (MPS).
- In October 2013, the CSP submitted the Draft Contingency Management – Schedule Update, which proposed changes to the schedule contingency minimum levels based on a recent risk assessment performed by the Central Subway team. The team used risk-based software, which employs the Monte Carlo method, to perform a probability analysis on the Project’s Summary Schedule. At this time, the PMOC cannot recommend that FTA accept any modification to schedule contingency minimum levels. The PMOC recommends that the CSP incorporate the Contract 1300 baseline schedule as soon as it is approved. At that time, the PMOC recommends that the CSP incorporate the remaining high level schedule risks on the Project Risk Register into a new risk assessment.
- The current project schedule reflects 4.8 months of contingency, which is below the minimum agreed to schedule contingency level of 8.0 months.
- It is the PMOC’s opinion that staff morale is at a low point. The firing of the two Cost/Schedule staff and the resignation of the Tunnel Construction Manager (CM) and Chinatown Resident Engineer (RE) are cause for concern. It is the PMOC’s opinion that the CSP is understaffed in the following positions: RE, CM, Inspectors, Office Engineers (OEs), Cost/Schedule support staff, and a Change Order specialist. Management intends to hire some new staff, eliminate some positions all together, and has filled some positions with existing, less qualified staff. The PMOC is concerned that some of the existing staff are not qualified for their new positions. The PMOC recommends hiring the new employees as soon as possible.
- FAR 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels requires the use of U.S. flag vessels for at least 50 percent of the cargo from foreign ports. The tunnel contractor, Barnard Impregilo Healy JV (BIH), did not comply with the 50 percent requirement. BIH has been requested to provide additional documentation, including the ocean carrier’s freighted bills of lading, to the U.S. Maritime Administration (MARAD).

Table 1 shows FTA core accountability items for the CSP.

Table 1: Core Accountability Items			
Project Status:		Original at FFGA:	Current Estimate:
Cost	Cost Estimate	\$1,578,300,000	\$1,578,300,000
Contingency	Unallocated Contingency	\$74,722,000	\$8,995,945
	Total Contingency (Allocated plus Unallocated)	\$185,500,000	\$71,264,610
Schedule	Revenue Service Date	12/26/2018	12/26/2018
Total Project Percent Complete	Based on Expenditures	31%	
	Based on Earned Value	31%	
Major Issues	Status	Comments/Planned Action	
Schedule Contingency	Project schedule contingency is currently at 4.8 months.	The minimum schedule contingency agreed to at this stage of the project is 8.0 months. The CSP recently submitted justification to decrease the minimum required, but this has not been accepted.	
Cost Reporting	The June 2013 summary cost report prepared by the CSP was found to have numerous unexplained changes.	The CSP has agreed to revise the format of the cost summary spreadsheet and provide details for cost changes.	
TC&C	It is the PMOC's opinion that staff morale is at a low point. The firing of the two Cost/Schedule staff and the resignation of the Tunnel CM and Chinatown RE are cause for concern.	The project has recently hired several inspectors and has moved existing staff to fill vacant positions and will hire new staff. The PMOC does not feel that some of the existing staff is qualified for their new positions.	
Date of Next Quarterly Meeting:		April 23, 2014	

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LIST OF ATTACHMENTS

- A. CSP PROJECT OVERVIEW AND MAP 02/2014
- B. CSP SAFETY AND SECURITY CHECKLIST 02/2014
- C. CSP CRITICAL PATH SCHEDULE AS OF 01/31/14
- D. CSP THREE-MONTH LOOK-AHEAD 01/31/14
- E. THE PMOC’S CSP POINTS OF ACTION FOR SFMTA 02/2014
- F. CSP COST AND SCHEDULE CONTINGENCY DRAWDOWNS AS OF 02/2014
- G. PMOC CAPITAL COST ESTIMATE REPORT FOR FEBRUARY 2014

CENTRAL SUBWAY

A. GRANTEE'S CAPABILITY AND APPROACH

1. Technical capacity and capability to conduct the project

Assessment Status.

An updated staffing plan (January 2014 to June 2014) was provided to the PMOC on February 21, 2014. The PMOC has requested updated staffing plans be submitted by the Grantee each quarter. The most recently submitted plan was due on January 31, 2014.

The staffing plan identifies several unfilled positions including: Cost/Schedule staff, 2 OEs, Safety and Security Certification Specialist, and an Inspector. The Project has also identified the need for a Contract Change Order Specialist.

New Staff:

- The RE for UMS started on January 8, 2014.
- The first of many Inspectors for Contract 1300 started on January 21, with two additional Inspectors starting in mid-February 2014. Several additional Inspectors for Contract 1300 will be needed to cover potential night and weekend shifts. Some of these Inspectors are expected to transfer from Contract 1252 as that contract closes out in the next six months to a year.

Staff leaving or missing from the project include:

- Mark Benson, CM for the Tunnel contract, resigned from the project as of February 28, 2014. The Project will replace him with Alex Clifford. **PMOC Concern: The PMOC does not think that Mr. Clifford has the qualifications or experience to act as the CM for a \$230 million tunneling project.**
- Sarah Wilson, RE for the Tunnel contract, has been on personal leave since December 2013. Her return to the project is undetermined at this time. The current Assistant RE will handle both the Assistant RE and RE positions going forward.
- Ted Depooter, Chinatown RE, resigned from the project. The date of his departure has not been determined. The Project expects to replace him with a new RE.
- Two Cost/Schedule support staff for Contract 1252 were let go in January 2014. David Broussard will take over duties as the tunnel scheduler and will be the only scheduler on staff for the entire project.

PMOC Concern: It is the PMOC's opinion that staff morale is at a low point. The firing of the two Cost/Schedule staff and the resignation of a CM and Chinatown RE are cause for concern. It is the PMOC's opinion that the CSP is understaffed in the following positions: RE, CM, Inspectors, OEs, Cost/Schedule support staff, and a Change Order Specialist. Management intends to hire some new staff, eliminate some positions all together, and has filled some positions with existing, less qualified staff. The PMOC recommends hiring the new employees as soon as possible.

2. Use of project controls for scope, quality, schedule, cost, risk, and safety

SFMTA implemented a new Capital Program Control System in an effort to integrate existing systems with new software modules. The new system is comprised of Primavera P6, EcoSys Enterprise Planning and Controls (EPC), Contract Management 13 (CM13), and SharePoint. The system went live on December 13, 2012.

The PMOC has been working with the Project for the past year to establish a Cost Reporting format suitable for FTA reporting. The Project has made many changes to their cost reporting over the past year, which makes monthly comparisons difficult for the PMOC.

All construction documentation for Contract 1300 will be maintained in CM13. There has been project and contractor staff training in CM13; however, this is still a new process for many. To date, there have been some difficulties with access for all the needed staff and the sorting/identifiers for the numerous documents.

PMOC Concern: The CSP experienced problems with the Cost Reporting information coming from the EcoSys EPC database and abandoned the use of this information in mid-2013. This is affecting the cost reporting and causing the staff to manually input data. The Cost reporting portion of the Monthly Progress Report has caused repeated delays.

Refer to Sections D, E, and F for detailed discussion.

3. Compliance with applicable statutes, regulations, guidance, and FTA agreements

FAR 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels requires the use of U.S. flag vessels for at least 50 percent of the cargo from foreign ports. The tunnel contractor, BIH, did not comply with said requirement. BIH has provided documentation, including the ocean carrier's freighted bills of lading, to MARAD. MARAD is currently considering imposing some type of corrective action on BIH.

B. PROJECT SCOPE

1. Status and quality of design/construction documents, bidding, and construction status

Design.

All designs are complete.

Construction.

Contract 1250 (UR #1). This contract relocates utilities within the footprint of the proposed YBM.

- Work is complete.

Contract 1251 (UR #2). This contract relocates utility lines within the footprint of the proposed UMS and temporarily reroutes existing trolley coach lines around the future construction zone.

- Work is complete.

Contract 1252 Tunnel.

- TBM #1 (southbound) launched on July 22, 2013, and is near Sacramento Street (approximately Sta. 111) at the end of February 2014. TBM #2 (northbound) launched on October 25, 2013, and is just past Post Street (approximately Sta. 126) at the end of February 2014.
- Site work on the North Beach retrieval shaft began on September 25, 2013, after demolition of the Pagoda Theater. Installation of tube-a-manchettes is complete. The first two of the four levels of the shaft excavation should be completed by the end of February 2014.
- The Green Street shaft tube-a-manchettes have been installed.
- Slip lining of existing brick sewer lines in North Beach has been put on hold. The contractor discovered Auxiliary Water Supply System (AWSS) lines running through the brick sewers, which was not expected. At this time, the project will replace a section of the 3x5 brick sewer at the former retrieval shaft location on Columbus Street, and will only perform pre-construction videos instead of slip lining for all the areas of AWSS conflicts.

Contract 1300 (Combination of UMS, CTS, YBM, and STS)

- Bid opening was April 18, 2013. NTP was issued on June 17, 2013.
- CTS: The contractor has completed most utility relocations and is preparing guidewalls for the slurry wall construction.
- UMS: The contractor has installed decorative pedestrian barriers along Stockton Street. Stockton Street is now closed between Geary and Ellis. Preparations for the guidewalls and pile installation have begun.
- YBM: The contractor has installed one of the two test barrettes and slurry walls construction will begin shortly.
- STS: Potholing for existing utilities began on January 27, 2014, and will continue for several months. The contractor is developing the design drawings for all utility work south of the tunnel portal.

Fire and Life Safety/ Safety and Security Issues.

- The Construction Specification Conformance Checklists have been completed and approved for all construction packages. In September 2013, the California Public Utilities Commission (CPUC) staff began attending monthly as-built meetings to review the completed items.
- The San Francisco Fire Department (SFFD) regularly attends the now combined Fire and Life Safety Committee (FLSC) and Safety and Security Certification Review Committee (SSCRC) meetings. The SFFD will continue to coordinate with

the Tunnel and Stations projects to identify issues of importance during construction.

- An updated Safety and Security Management Plan (SSMP) has been pending completion by the SFMTA since March 2013.

2. List and status of third-party agreements including utilities, railroads, other agencies, etc.

Bay Area Rapid Transit (BART).

The TBM in the southbound tunnel crossed under the BART tunnels on November 28 and 29, 2013. The TBM in the northbound tunnel crossed under BART on January 29, 2014. The Independent Review Panel (IRP) has had numerous discussions with BART, CSP, and the contractor staff, regarding the status of tunneling operations and any issues related to the crossings. Both of the TBMs passed under BART with very minimal movements detected.

Caltrans.

No updates to report.

CPUC Communications.

The CPUC was invited to and is participating in the various safety meetings, including the SSCRC and FLSC meetings. Representatives of the CPUC also regularly attend the SFMTA/FTA Quarterly Progress Review Meetings (QPRMs). The last QPRM was held on January 28, 2014.

San Francisco Public Utilities Commission (SFPUC).

The underground utility contractor for Contract 1252, Synergy, discovered problems with several of the existing sewer lines in North Beach. AWSS lines were found running directly through the existing sewers, which prevented slip lining many of the lines prior to tunneling activities, as was previously planned. As a result, all work was stopped in November 2013. The CSP is in discussions with the SFPUC to determine appropriate solutions.

San Francisco Parks and Recreation Department.

The Memorandum of Understanding (MOU) for the Union Square Garage with the Parks and Recreation Department has been completed.

Private Property Owners.

The Project has reached agreement with the owner and homeowners association of 950 Stockton (Mandarin Tower) to monitor and install grout pipes to protect the property. The City will now withdraw the condemnation action.

For 19 Stockton, the owner has been unresponsive. Condemnation was filed in February 2013. Pre-judgment possession was granted October 3, 2013, allowing the City access to install monitoring equipment and compensation grout tubes at the property.

Negotiations continue for all other property agreements required for the project. These agreements will allow SFMTA to install settlement monitoring equipment at sensitive buildings adjacent to the project. There are now 370 total licenses (ten were added to address the potential Pagoda retrieval shaft) and property agreements.

3. Selection of delivery method, description of contract packages, construction sequencing, contract terms and conditions

The CSP construction is to be contracted by a traditional Design-Bid-Build methodology.

The CSP developed and adopted a construction delivery methodology during the Preliminary Engineering (PE) phase of the project, which recommended seven construction contracts for delivery of the Program.

In mid-September 2012, this strategy was changed to combine the remaining three stations and the systems contracts into one contract (Contract 1300). This contract was awarded in May 2013.

4. Vehicle status of design, procurement, approvals by state safety board, testing, etc.

SFMTA issued a Request for Proposals on September 30, 2013, for the procurement of 260 LRVs. The scope includes the design, manufacture, test, and delivery of LRVs together with associated services, parts, special tools, manuals, and training. This follows a Request for Qualifications, which was issued on March 29, 2013. Four car builders (AnsaldoBreda, CAF USA Inc., Kawasaki Rail Car Inc., and Siemens Industry Inc.) were deemed to be in the competitive range and were requested to submit proposals. The due date for bids, originally December 10, 2013, was extended to February 25, 2014.

5. Real Estate

The CSP is in possession of all three subsurface easements required to construct the tunnels and both fee acquisitions required to construct the YBM and CTS stations.

Relocation

All project commercial and residential relocations are complete.

6. Labor Relations and Policies

The Small Business Enterprise (SBE) goal for the new Contract 1300 was established at 20 percent. The winning contractor has bid the contract with nearly 25 percent SBE participation.

C. PROJECT MANAGEMENT PLAN AND SUB-PLANS IMPLEMENTATION**1. Project Management Plan (PMP)**

The PMOC received an updated PMP Revision 3 on May 20, 2013, which addressed many of the previous PMP comments. FTA accepted PMP Revision 3, dated May 1, 2013.

2. Risk and Contingency Management Plan (RCMP)

An updated RCMP Revision 3 was received by the PMOC on April 30, 2013. The PMOC provided its final Spot Report to FTA on July 19, 2013.

SFMTA submitted a CSP “Contingency Management – Schedule 2012 Update” on May 22, 2013. On October 11, 2013, the CSP provided an updated report with justification in the form of schedule modeling. The PMOC provided a review of this document to FTA on November 21, 2013, and cannot recommend that FTA accept any modification to schedule contingency minimum levels based on the current documentation provided.

3. SSMP

The SSMP was projected to be updated by the end of March 2013 but has not yet been completed.

4. Environmental Assessment / Mitigation Plan/Archaeological Plans

The PMOC received the Fourth Quarter 2013 Mitigation Monitoring Reporting Program (MMRP) update from SFMTA on January 9, 2014, and provided a Spot Report to FTA on January 22, 2014.

SFMTA has provided evidence of contractor submittals and Inspector Daily Reports to verify that the Mitigation Measures identified in the MMRP are being carried out during construction.

It is the PMOC’s opinion that the grantee is sufficiently managing to ensure that the mitigation measures identified in the MMRP will be carried out during the course of the project.

5. Real Estate Acquisition Management Plan (RAMP)

The PMOC received the RAMP, Revision 5, dated September 26, 2013, on November 19, 2013. The PMOC will provide to FTA a review of the Real Estate costs included in the RAMP.

6. Quality Assurance/Quality Control (QA/QC) Program Plan**QA/QC Plan Implementation.**

Since the beginning of this project, Project QA has logged, tracked, addressed, and closed-out each recommendation/finding made by the PMOC, identifying them as a Corrective Action item and then using the overall project Corrective Action Log.

The Quality Manager continues to conduct training for all new members of the project team as they are mobilized.

Contractor QC, as detailed in the *Contract Technical Specification*, is the means by which the contractor ensures that construction, including that of subcontractors and suppliers, complies with the requirements of the Contract. The contractor, as witnessed by the Project Engineer and/or Quality Manager, for each definable feature of work, shall conduct at least three phases of control (Preparatory Phase, Initial Phase, and Follow-up Phase) to ensure that all work is carried out per the Contract.

7. Fleet Management Plan and Service Plan

SFMTA submitted a Rail Systems / Operations Capacity Analysis to test and assess the Phase 1 + Phase 2 CSP Service Integration Plan. The PMOC reviewed the report and provided comments to FTA on June 27, 2013. Additionally, an updated Transit Fleet Management Plan (TFMP) was expected from SFMTA at the end of September 2013.

PMOC Concern: There are several assumptions and simplifications in the model that, if addressed, could potentially change the results of the simulation in a negative way. The magnitude of potential changes cannot be estimated without further analysis, and the PMOC cannot offer a strong opinion on the validity of the simulation results based on the information provided. SFMTA responded to the comments in the PMOC's report on September 20, 2013. The responses will be reviewed in conjunction with the TFMP, which has not yet been submitted to FTA.

D. PROJECT SCHEDULE STATUS

Table 2: Schedule Milestones	
PE:	Authorized in July 2002
Record of Decision:	Issued November 26, 2008
Final Design (FD):	Authorized in January 2010
FFGA Request:	Submitted September 2011
FFGA Executed:	October 11, 2012
Ground Breaking: (Utility Relocation Contract)	February 9, 2010
RSD:	December 26, 2018

Minor changes were made to the update as of January 31, 2014. The latest schedule has been revised and interface points have been used to link the Tunnel contractor's detailed schedule to the current MPS. A number of activities have been added to the project schedule based on the station contractor not having an approved baseline schedule. The activities that were added started on November 1, 2013, and run through August 1, 2014, and tie to summary activities for the balance of work. Currently, 185 activities were added to the MPS.

The Closeout Complete activity (TUN1190) has not changed from 194 days of float. The Substantial Completion activity (TUN1180) has not changed from a positive 222 days from last month. Previously, these activities were behind schedule. The MPS needs to be kept consistent with the milestones that were developed for tracking purposes.

The current schedule reflects 4.8 months of buffer float, which is unchanged from last month. Overall, the buffer float is still down from 14.8 months, which was reflected in the August 2012 schedule. The minimum contingency required is 8.0 months. The PMOC requests that the CSP prepare a recovery schedule to increase buffer float to the required level.

In July, SFMTA approved the contractor's request to start the southbound tunneling before the northbound tunneling. The southbound TBM was scheduled to launch on July 8, 2013, but was delayed until July 24, 2013. This has caused a delay to the anticipated completion of Contract 1252 from May 15, 2015, to June 18, 2015 (34 day delay). This did not cause a delay to the overall project schedule due to the cross passages schedule having 96 days of float based on the STS Tunnel Portal Completion Interface Point of September 24, 2015. As the stations contractor has not supplied detailed baseline information, scheduling should be closely monitored.

Major Duration Changes:		12/31	1/31
YBM1020	Install Slurry Walls and Roof/Restore Street	34	53
CTS31.66.105	Install North Guidewall in Washington Street	0	5
CTS1010	Building Demolition	51	67
STS1010	4 th Street Utility Work	93	114
FDS2330	1300 UMS/CTS/YBM & STS Subway Completion (1700 CD from NTP)	197	228
STS10020	STS Required Tunnel Portal Completion (830 CD from NTP)	197	228
MPS-CTS.33.31.290	CTS Install New Sewer Manholes/Piping	3	24
CTS1020	Install Guidewalls, Slurry Walls & Surface Deck	0	14
UMS2100	UMS & YBM Tunnel Interface Complete (620 CD from NTP)	197	228
UMS2100	CTS Tunnel Interface Complete (450 CD from NTP)	197	228
MPS YBM31.09.730	Install Borehole Extensometers	0	21
MPS YBM33.66.215	Install Slurry Wall Test Barrette TB2	2	23
MPS YBM33.66.200	Install Slurry Wall Test Barrette TB1	2	23

Based on the latest update as of January 31, 2014, the RSD is December 26, 2018, which is currently on schedule based on the date that was in the approved baseline schedule.

Throughout the project, there are two buffer floats (#17, #18) incorporated into the critical path, which reflects 104 work days and converts to 150 calendar days of time. This equates to 4.8 months of buffer float, which is 3.2 months below the required FTA guidelines for the project at this point in time.

The Contract 1300 baseline schedule has now been fully submitted by the contractor. This schedule was submitted by individual stations and systems over the past several months, and the Project has provided comments to the contractor after each submission. The Project has many concerns with the overall baseline schedule. One example is that the contractor has compressed the schedule by completely closing some streets to allow for increased productivity; however, the

contract does not allow this. **PMOC Concern: The Contract 1300 baseline schedule is likely to take more than a month of negotiations and discussions with the contractor to reach an approved schedule.**

As of December 31, 2013, the RSD for the project is December 26, 2018, which was the date approved in the baseline schedule.

The critical path summary of the project is:

- CTS Building Demolition
- CTS Install Guidewalls, Slurry Walls and Install Surface Deck
- CTS Excavate Headhouse & Bracing
- CTS SEM & Install Supports
- CTS Headhouse Structural Concrete/Remove Bracing
- CTS Install M/E/P
- CTS Start Up & Testing
- CTS P-1254R Commissioning Complete
- BUF0017 STS Buffer Float
- Safety and Security Certification / Pre-Revenue Activities
- BUF0018 Muni Float
- RSD on December 26, 2018

See Attachment D, which is a three-month look-ahead of all CSP activities.

E. PROJECT COST STATUS

The Project Cost Reporting monthly update for January was received by the PMOC on February 27, 2014. It was explained by the CSP that the Monthly Progress Report was late once again due to problems associated with the cost reporting portion of the report.

The PMOC and the CSP have had numerous discussions over the past year regarding the cost reporting by the project. It is important that the CSP team highlight and identify changes from the previous month's report. This maintains a project cost narrative throughout the term of the project. The CSP has addressed many of the PMOC's concerns; however, the cost information currently produced in the CSP monthly report does not include explanations of some budget changes or baseline budgets, as requested by the PMOC.

PMOC Concern: The recent monthly cost reports prepared by the CSP were found to have numerous unexplained changes. The PMOC has notified CSP to make corrections and provide details for budget changes and other inconsistencies.

The Current Cost Estimate for the CSP is \$1.5783 billion in Year of Expenditure dollars and is the basis of the total project cost as presented in the 2011 New Starts Report submittal. This capital cost projection incorporates allocated and unallocated contingencies to cover the various risks associated with completion of the project.

Total net incurred costs for the project are \$488.97 million. This figure reflects expenditures through SFMTA FAMIS Report (\$445.84 million) plus the utilities joint trench Form B reimbursement payment (\$6.07 million) and estimates of outstanding pay requests (\$19.40 million). This incurred amount equals 31.0 percent of the total project budget of \$1.5783 billion.

The current funding level to date is \$785.4 million, which represents 49.8 percent of the total project budget.

Change Order Control.

The Contract 1252 RE Trend Log, dated February 20, 2014, had the following activities:

- One-hundred-thirty-four (none added this past month): Total identified changes including both contractor and owner-generated changes.
- Three Contract Modifications (CMods) were processed this month: CMods 23, 24, and 25.
- Three-hundred and twelve: The average number of days from Change Order Request (COR) notification to CMod execution.

PMOC Concern: Numerous CORs, some dating back to early 2012, have yet to be resolved between the contractor and SFMTA.

The Project intends to implement a new approach for the Configuration Management process, in which they will hold meetings with the REs every week on a Friday prior to the regularly scheduled Configuration Management Board (CMB) meeting on Wednesday. The intent is to discuss upcoming issues and to better prepare documentation.

Funding and Expenditures.

Federal, state, and local project funding and expenditures are shown in Table 3.

Table 3: Project Funding (x1000)

	Committed	Awarded	Expenditures Billed to date	% of Expenditure by Source
<u>Federal</u>				
New Starts	942,200	319,182	176,187	18.7%
Congestion Mitigation	41,025	41,025	41,025	100%
<i>Federal Subtotal</i>	<i>983,225</i>	<i>360,207</i>	<i>217,212</i>	<i>22.1%</i>
<u>State</u>				
Traffic Congestion Relief Program	14,000	14,000	14,000	100%
State Transportation Improvement	88,000	0	0	0.0%
Prop. 1B / PTMISEA	307,792	225,912	117,987	38.3%
Prop. 1A / High Speed Rail	61,308	61,308	34,404	56.1%
<i>State Subtotal</i>	<i>471,100</i>	<i>301,220</i>	<i>166,391</i>	<i>35.3%</i>
<u>Local</u>				
Prop. K Sales Tax	123,975	123,975	105,368	83.1%
<i>Local Subtotal</i>	<i>123,975</i>	<i>123,975</i>	<i>105,368</i>	<i>83.1%</i>
Project Total:	1,578,300	785,401	488,971	31.0%

Earned Value Analysis.

May 2013 was the first monthly report in which the CSP has provided Appendix B, Earned Value Analysis. The project baseline for the MPS is set as the current schedule, which computes the planned values based on the budget at completion multiplied by the schedule percentage

complete (baseline). Once the baseline is established, the planned values will be reestablished. Contract 1252 is using the original approved baseline schedule to calculate Earned Value.

November Earned Value Analysis:

- Overall Budgeted Cost: \$1,578,300,000
- Planned Value: \$497,830,423
- Earned Value: \$471,307,019
- Actual Cost: \$488,971,279
- Schedule Performance Index (SPI): 0.95
- Cost Performance Index (CPI): 0.96
- Percent Complete: 31.0

F. PROJECT RISK, RISK MANAGEMENT AND RISK MITIGATION

The monthly Risk Mitigation Meeting was held on February 11, 2014. The PMOC attended the meeting.

Cost Contingency.

The current Total Project Contingency is \$71.26 million, an increase of \$1.5 million from the December reporting period, and is a \$68.74 unfavorable balance against the current FTA recommended minimum contingency level of \$140 million.

PMOC Concern: The award of Contract 1300 reduced project cost contingency by approximately \$120 million, to a level significantly below the FTA recommendation.

On April 26, 2011, SFMTA obtained a commitment from the San Francisco County Transportation Authority for \$150 million of (State) Regional Improvement Program funds to the project to be accessed in the event project costs increase above \$1.5783 billion.

Schedule Contingency.

Schedule Contingency Management criteria were developed from the FTA Risk Assessment prior to entry into FD. Minimum schedule contingency levels at various project milestones or "Hold Points" were agreed to with SFMTA at Risk Workshop #4, held on February 24 through 27, 2009.

The September 2012 project schedule reflected 5.2 months of buffer float, which was a significant change from the previous month's reported float of 14.8 months. Float was reduced due to delays in awarding Contract 1300.

In October 2012, the PMOC requested justification for the reduction in schedule contingency and/or a recovery schedule from the CSP.

On June 17, 2013, Schedule Contingency Hold Point 2, Commence UMS/CTS was obtained with the NTP for Contract 1300. This reduced the FTA recommended schedule contingency from ten to eight months. The current schedule reflects 4.8 months of buffer float.

In October 2013, the CSP submitted the Draft Contingency Management – Schedule Update, which proposed changes to the schedule contingency minimum levels based on a recent risk assessment performed by the Central Subway team. The team used risk-based software, which

employs the Monte Carlo method, to perform a probability analysis on the Project's Summary Schedule.

At this time, the PMOC cannot recommend that FTA accept any modification to schedule contingency minimum levels. The PMOC recommends that the CSP incorporate the Contract 1300 baseline schedule as soon as it is approved. At that time, the PMOC recommends that the CSP incorporate the remaining high level schedule risks on the Project Risk Register into a new risk assessment.

PMOC Concern: In accordance with FTA guidelines, a minimum of eight months of schedule contingency is recommended at this phase of the project.

See Attachment F for schedule contingency drawdown graph.

G. ACTION ITEMS AND CONCERNS

Action Items are included in Attachment E.

APPENDIX A. THREE-MONTH LOOK-AHEAD (March to May 2014)

SFMTA Management:

- Prepare Monthly Progress Reports.
- Hire staff for Contracts 1252 and 1300 construction.
- Update SSMP.
- Complete approved MPS.

SFMTA Construction Activities:

- 1252 Tunnel. Both TBMs should continue to mine. The construction of the newly located North Beach retrieval shaft continues. Tunnel liner segments will continue to be shipped and production will continue.
- 1300 Stations Trackwork and Systems. Process early submittals and prepare for the beginning stages of construction. Prepare and start station box construction at all three stations. Potholing of existing utilities will continue.

SFMTA Real Estate Activities:

- The Project will continue to work with property managers, owners, and attorneys to acquire all the needed property agreements.

The PMOC expects to attend the following meetings:

- Weekly Management (Monday)
- Weekly CMB (Wednesday)
- Weekly Tunnel Construction Progress (Thursday)
- Weekly Contract 1300 Construction Progress (Tuesday)
- Real Estate (TBD)
- Monthly Risk (second Tuesday of the month)
- Monthly SSCRC (third Thursday of the month)
- Quarterly FLSC (third Thursday of the month)
- The next PMOC End of the Month Meeting with Grantee is early April 2014.
- FTA/QPRM scheduled for April 23, 2014.

APPENDIX B. CSP SCHEDULE UPDATE

SFMTA Central Subway Project - Jan 2014 Update				SFMTA Milestone Report_1												03-Mar-14 10:18																									
Activity ID	Activity Name	Original Duration	Remaining Duration	Milestone	Schedule % Complete	Start	Finish	Total Float	2012		2013			2014				2015				2016				2017				2018				2019				2020			
									Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
CENTRAL SUBWAY PROJECT		4012	1568		0%	02-Jan-08 A	26-Dec-18	735																																	
Preliminary Engineering Phase		45	0		0%	01-Jun-09 A	22-Sep-09 A																																		
FTA New Starts Submittal		45	0		0%	01-Jun-09 A	22-Sep-09 A																																		
PJD1325	2011 FTA New Starts Submittal	45	0		100%	01-Jun-09 A	22-Sep-09 A																																		
Final Design		1977	0		0%	02-Jan-08 A	21-May-13 A																																		
Design, Procurement and Approvals		1977	0		0%	02-Jan-08 A	21-May-13 A																																		
FFG0550	Mitigation Monitoring & Reporting Plan Update	40	0		100%	30-Apr-10 A	15-Dec-10 A																																		
FTA0114	FTA Approve LONP2 Request for TBM Launch Box	40	0		100%	15-Dec-10 A	08-Feb-12 A																																		
PJD1010	Final SEIS/SEIR	184	0		100%	02-Jan-08 A	24-Sep-08 A																																		
FTA0040	FTA RECORD OF DECISION	1	0		100%	27-Oct-08 A	26-Nov-08 A																																		
MS0003	100% through Bid/Award - Project Milestone #3	0	0		100%		21-May-13 A																																		
PJD1220	Project Readiness (to request Entry to FD)	0	0		100%	22-Sep-09 A																																			
MS0004	20% through Construction - Project Milestone #4	0	0		100%		21-May-13 A																																		
FTA0139	FTA Approval of LONP2 for TBM Launch Box	0	0		100%		08-Feb-12 A																																		
HidP1C	FTA Execute FFGA - Milestone #2	0	0		100%		11-Oct-12 A																																		
Construction Phase		1568	1568		0%	10-Sep-14	26-Dec-18	0																																	
Construction Tunnels CN-1252		0	0		0%	10-Sep-14	10-Sep-14	1478																																	
MS0004A	Tunnel Excavation Complete - Project Milestone #4A	0	0		0%		10-Sep-14	1478																																	
Construction CN-1300		997	997		0%	15-Mar-15	06-Dec-17	295																																	
Construction CTS Station P-1254R		997	997		0%	15-Mar-15	06-Dec-17	295																																	
MS0005	50% through Construction Project - Milestone #5	0	0		0%		15-Mar-15*	1292																																	
MS0006	75% through Construction - Project Milestone #6	0	0		0%		13-Dec-16*	653																																	
MS0007	90% through Construction - Project Milestone #7	0	0		0%		06-Dec-17*	295																																	
Project Start Up		0	0		0%	26-Dec-18	26-Dec-18	0																																	
MS0009	CSP Revenue Service Date	0	0		0%		26-Dec-18*	0																																	

Primary Baseline
 Actual Work
 Remaining Work
 Critical Remaining Work
◆ Baseline Milestone
◆ Milestone
 Summary

SFMTA Milestone Comparison				
Baseline/Last Month/Current Month 1/31/2014				
Activity ID	Activity	Approved	Update	Update
		Baseline 5/31/09	12/31/2013	1/31/2014
MS0001	FTA Approval to Enter FD	10/19/2009	1/07/2010A	1/07/2010A
MS0002	FTA Execute FFGA	6/13/2011	10/11/2012A	10/11/2012A
MS0003	100% Through Bid/Award	12/28/2011	5/21/2013A	5/21/2013A
MS0004	20% Through Construction	11/29/2012	5/21/2013A	5/21/2013A
MS0004A	Tunnel Excavation Complete	2/19/2013	9/10/2014	9/10/2014
MS0005	50% Through Construction	1/8/2014	3/15/2015	3/15/2015
MS0006	75% Through Construction	6/20/2014	12/13/2016	12/13/2016
MS0007	90% Through Construction	7/20/2016	12/6/2017	12/6/2017
MS0008	Construction Complete	1/17/2018	5/11/2018	5/11/2018
MS0009	CSP Revenue Operations	12/26/2018	12/26/2018	12/26/2018
MS0010	CSP Complete	4/27/2022	12/30/2020	12/30/2020

APPENDIX C. LESSONS LEARNED

LL#	Date	Phase	Category	Subject	Lesson Learned
1	09-30-10	FD	Management	Consultant Contracts	The Project must have a full understanding of the agency and other approving governmental authorities to avoid delay of contract approval and consequential delay of the MPS.
2	09-30-10	FD	Cost	Staffing Plan	The project staffing plan needs to be formatted during PE and updated at least quarterly during FD to manage SCC 80 costs and monitor design production.
3	09-30-10	FD	Scope	Letter of No Prejudice (LONPs)	A defined scope of grantee and PMOC responsibilities needs to be provided for content and acceptability of LONP requests.
4	09-30-10	FD	Management	SSMP	FD consultants should be trained, shortly after mobilization, in the format and their responsibility regarding the System Safety Consultant.
5	10-30-10	FD	Cost	Baseline Cost Estimate (BCE) Update	The BCE should be updated with current costs as soon as they are known by the Project to allow mitigation of cost contingency usage.
6	02-21-12	FD	Management	Program Controls	Program Controls system/software selected for use for the duration of the project should be in place and functional prior to approval to enter FD. Doing so will avoid a transition during FD that could create a lag in timely reporting of cost and schedule status.
7	02-21-12	FD	Management	Risk Mitigation	Oversight Procedure (OP) 40 needs to be revised to establish minimum requirements for secondary mitigation at different phases of the project, similar to those for cost and schedule contingency. The PMOC recommends five percent of project cost at Entry into FD and three percent at execution of an FFGA.

LL#	Date	Phase	Category	Subject	Lesson Learned
8	02-21-12	FD	Scope	Third Party Agreements	All third party agreements need to be identified as soon as possible, but no later than 65% design completion. This includes leases, both temporary and permanent; MOUs; and licenses, specifically for preconstruction property surveys and settlement monitoring instruments (especially important for underground construction). These third party agreements need to be secured no later than the advertisement date of the construction that they affect. Third party agreements need to be tracked by the project continuously, reported monthly, and updated in a third party agreement matrix submitted quarterly to FTA.
9	02-21-12	FD	Cost	Cost Estimating Procedures	During the preliminary design phase, the Project should establish the cost estimating procedures, format, and software to be used by all estimating entities for the entire duration of the project.
10	02-21-12	FD	Cost	Allocated Cost Contingency	In the BCE submitted to FTA for Entry into FD, the Project should identify percentages of allocated cost contingency contained in the BCE that are apportioned for design risk, market risk, and construction risk.
11	02-28-12	FD	QA	Design Management Action Log	Design Management should develop a matrix as a tracking tool to document, track, and close out known elements that are missing from design submission packages.
12	08-15-12	FD	Environmental Mitigations	MMRP	Numerous mitigations identified in the MMRP are to be handled by incorporating specific design details and/or statements in the contract drawings and technical specifications. The grantee should note on the MMRP the relevant drawings and/or technical specifications.

LL#	Date	Phase	Category	Subject	Lesson Learned
13	08-31-12	FD	Management	Risk Contingency Levels and Hold Points	It became apparent, during the monitoring of the cost contingency drawdown curve for the project that the contingency levels and hold points no longer represented the current stage of project development and risk reduction/contingency usage related to project development. The project advanced through 100 percent project design; however, the project did not receive credit for the cost contingency usage established by the risk model. The PMOC recognized this deficiency and participated with the grantee in developing a cost contingency drawdown that reflects current project development and reduced risk.
14	06-30-13	Const.	Management	Change Order Process	Perform an audit of the Project's procedures related to Change Orders and processing. The Project should train staff and inform contractor of their obligations in the process.
NEW 15	1-30-14	Const.	Management	IRP Decision-makers	At the request of SFMTA, the American Public Transportation Association (APTA) formed a panel of geotechnical and tunnel experts to perform a peer review of the BART Undercrossing. Prior to crossing under the BART tunnels, the IRP, contractor, SFMTA, and BART representatives convened at predetermined TBM locations to discuss the TBM progress and determine whether the tunneling should proceed. It is critical, that decision makers from each organization attend these meetings. It was noted that BART Senior Management did not attend and instead differed decisions to lower level staff.

APPENDIX D. CONTRACT STATUS

The following sections provide the status of ongoing contracts associated with the CSP.

Contract No.	1250	
Contract Description:	UR #1 (YBM)	
Status:	Completed June 2011.	
Cost:	Original Contract Value	\$9,273,939
	Approved Change Orders	\$2,694,211
	Current Contract Value	\$11,968,150
	Expended to Date	\$11,968,150
	% Expended	100
	SBE Participation	87%
Schedule:	Completed June 2011	
Issues or Concerns:	Final claim by contractor for delays caused by archaeological discoveries has not been resolved.	

Contract No.	1251	
Contract Description:	UR #2 (UMS)	
Status:	Work is complete.	
Cost:	Original Contract Value	\$16,832,550
	Approved Change Orders	\$3,962,031
	Current Contract Value	\$20,794,581
	Expended to Date	\$20,794,581
	% Expended	100
	SBE Participation	97%
Schedule:	Substantial completion in August 2012	
Issues or Concerns:	Final claim by contractor has not been resolved.	

Contract No.	1252	
Contract Description:	Tunnels	
Status:	NTP 1 was January 2012. TBM #1 and TBM #2 currently tunneling.	
Cost:	Original Contract Value	\$233,584,015
	Approved Change Orders	reporting inconsistencies
	Current Contract Value	reporting inconsistencies
	Expended to Date	\$180,324,017
	% Expended	76%
	Disadvantaged Business Enterprise (DBE) Participation	6%
Schedule:	Substantial completion expected April 2015. Total contract days are 1,150.	
Issues or Concerns:		

Contract No.	1300	
Contract Description:	Three subway stations (YBM, UMS, and CTS) and STS.	
Status:	Contract awarded. Four contracts have been combined into one.	
Cost:	Original Contract Value	\$839,676,395
	Approved Change Orders	\$90,000
	Current Contract Value	\$839,766,395
	Expended to Date	\$39,357,082
	% Expended	5%
	DBE Participation	Contract states 20%.
Schedule:	NTP issued June 17, 2013.	
Issues or Concerns:		

Contract No.	CS-155-1	
Contract Description:	Design Package 1 for Contracts 1250, 1251, and 1252. PB/ Telemon	
Status:	Design is complete. Construction support is ongoing for Contract 1252.	
Cost:	Original Contract Value	\$5,795,000 (includes exercised options)
	Approved Change Orders	\$ 1,697,245
	Current Contract Value	\$7,492,245
	Expended to Date	\$7,167,357
	% Expended	95.7%
	SBE Participation	31.0%
Schedule:		
Issues or Concerns:		

Contract No.	CS-155-2	
Contract Description:	Design Package 2 for UMS, CTS, and YBM. CSDG prime	
Status:	Designs are complete for all of the station contracts. Construction support of Contract 1300 is underway.	
Cost:	Original Contract Value	\$35,059,252 (includes exercised options)
	Approved Change Orders	\$1,460,360
	Current Contract Value	\$36,519,612
	Expended to Date	\$26,545,394
	% Expended	72.7%
	SBE Participation	43.2%
Schedule:		
Issues or Concerns:		

Contract No.	CS-155-3	
Contract Description:	Design Package 3 for STS. HNTB-B&C Prime	
Status:	Design is complete. Construction support of Contract 1300 is underway.	
Cost:	Original Contract Value	\$16,822,238
	Approved Change Orders	\$312,814
	Current Contract Value	\$17,232,252
	Expended to Date	\$11,655,673
	% Expended	67.4%
	SBE Participation	30.0%
Schedule:		
Issues or Concerns:		

Contract No.	CS-149	
Contract Description:	Central Subway Partnership (Project Manager/Construction Manager).	
Status:	On-going	
Cost:	Original Contract Value	\$85,139,092
	Approved Change Orders	0
	Current Contract Value	\$85,139,092
	Expended to Date	\$39,000,000 (est)
	% Expended	44.8%
	SBE Participation	37.3%
Schedule:		
Issues or Concerns:		

Contract No.	CS 156	
Contract Description:	Project Controls Consultant.	
Status:	On-going.	
Cost:	Base Contract Value	\$7,886,193
	Approved Change Orders	0
	Current Contract Value	\$7,886,193
	Expended to Date	\$6,648,402
	% Expended	84.3%
	SBE Participation	18.3%
Schedule:		
Issues or Concerns:		

APPENDIX E. LIST OF ACRONYMS

AWSS	Auxiliary Water Supply System
BART	Bay Area Rapid Transit
BCE	Baseline Cost Estimate
BIH	Barnard Impregilo Healy JV
CM	Construction Manager
CM13	Contract Management 13
CMB	Configuration Management Board
CMod	Contract Modification
COR	Change Order Request
CPUC	California Public Utilities Commission
CSP	Central Subway Project
CTS	Chinatown Station
DBE/SBE	Disadvantaged/Small Business Enterprise
EPC	Enterprise Planning and Controls
FD	Final Design
FFGA	Full Funding Grant Agreement
FLSC	Fire and Life Safety Committee
FTA	Federal Transit Administration
IRP	Independent Review Panel
LONP	Letter of No Prejudice
LRV	Light Rail Vehicle
MARAD	U.S. Maritime Administration
MMRP	Mitigation Monitoring Reporting Program
MOU	Memorandum of Understanding
MPS	Master Project Schedule
NTP	Notice to Proceed
OE	Office Engineer
OP	Oversight Procedure
PE	Preliminary Engineering
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
QA/QC	Quality Assurance/Quality Control
QPRM	Quarterly Progress Review Meeting
RAMP	Real Estate Acquisition Management Plan
RCMP	Risk and Contingency Management Plan
RE	Resident Engineer
RSD	Revenue Service Date
SCC	Standard Cost Category
SFFD	San Francisco Fire Department
SFMTA	San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission
SSCRC	Safety and Security Certification Review Committee
SSMP	Safety and Security Management Plan
STS	Surface, Track, and Systems
TBM	Tunnel Boring Machine

TFMP	Transit Fleet Management Plan
UMS	Union Square/Market Street Station
UR	Utility Relocation
YBM	Yerba Buena/Moscone Station