MONTHLY REPORT
January 2015

Central Subway Project
San Francisco Municipal Transportation Agency (SFMTA)
San Francisco, CA

Draft Report delivered to FTA on *February 18, 2015*
Final Report delivered to FTA on *March 13, 2015*

PMOC Contract No.: DTFT6014D00010
Task Order No. 5
Project No.: FTA-13-0294
Work Order Number: 001
OPs Referenced: 01 and 25
CLIN 0002B

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Time on project: 8 months

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The Central Subway Project (CSP) is constructing a 1.7-mile extension of Muni's T Third Line along 4th Street and Sacramento Street in downtown San Francisco. 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. 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 South of Market (SoMa), Union Square, and downtown.

Four new stations are being constructed as part of the project—an at-grade station at 4th and Brannan streets and three underground stations at Yerba Buena/Moscone Center (YBM), Union Square/Market Street (UMS), and Chinatown (CTS). Four light rail vehicles (LRVs) will be procured for the CSP as part of a larger procurement that will replace the entire LRV fleet. Average Weekday Boardings are projected at 43,521 in 2030.

PROJECT STATUS

The Full Funding Grant Agreement (FFGA) was signed on October 11, 2012. Design is complete and the project has been under construction since February 2010. *At the end of December 2014, the project was 46.2% complete based on expenditures.* There are two active construction contracts: 1252 Tunnel Construction and 1300 Stations and Systems/Trackwork. *The 1252 contract was 96.7% complete at the end of December and was expected to be substantially complete April 15, 2015.*

The 1300 Contract was 25.1% complete based on expenditures at the end of December. Substantial completion is scheduled for February 2018, but the SFMTA December Monthly Progress Reports states that the contract may be four to five months behind schedule based on the actual completion date of the slurry wall panels at CTS. The Revenue Service Date (RSD) is scheduled for December 2018.

Core Accountability Information

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	$10,019,456

Table 1: Core Accountability Items			
	Total Contingency (Allocated plus Unallocated)	$185,500,000	*$80,962,141*
Schedule	Revenue Service Date	12/26/2018	12/26/2018
Total Project Percent Complete	Based on Expenditures	*46.2%*	
	Based on Earned Value	*45.1%*	
Major Issues	**Status**	**Comments/Planned Action**	
Schedule Contingency	Project schedule contingency is currently at 4.8 months. Based on progress of the stations contract, much of this contingency may have been consumed by delays.	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 will not be accepted until the 1300 schedule is adopted and incorporated into an updated schedule risk assessment.	
Cost Contingency	*The current Total Project Contingency is $81.0 million.* The FTA recommends a minimum contingency level of $140 million.	On April 26, 2011, SFMTA obtained a commitment from the Metropolitan Transportation Commission (MTC) 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.	
Technical Capacity and Capability	The SFMTA team for the CSP is fully staffed.	*None.*	
Date of Next Quarterly Meeting:		May 6, 2015	

- *Earned Value (EV): $711,261,784 – an increase of $8.50 million from November and 45.1 percent of the budgeted project cost.*
- *Planned Value: $757,871,395 – an increase of $16.6 million from November.*
- *Actual Cost: $729,740,038 – an increase of $8.84 million from November.*
- Cost Performance Index (CPI): 0.97, where greater than 1 means that value of the work completed is more than the cost of the work (under budget) and less than one means that the value of the work is less than the cost of the work (over budget).

- *Schedule Performance Index (SPI): 0.94* where SPI greater than 1 is ahead of schedule and less than 1 is behind schedule.

The PMOC notes that actual cost and earned value have lagged planned value by a large margin in the past three months.

Contingency

Cost Contingency

The total available contingency is $81.0 million, which is below the minimum required contingency of $140 million. It still appears that the tunnel contract likely will not consume its entire allocated contingency, potentially freeing some contingency for other aspects of the project. *Based on the favorable contract price for the supply of light rail vehicles, the base project cost for the vehicles was reduced by $10.8 million and the allocated contingency for vehicles was increased by the same amount. As a result, total project contingency was increased by 15%.* **In the opinion of the PMOC, the project will likely have cost contingency above the required minimum at the next milestone – Tunnel Demobilization Complete.**

Schedule Contingency

The current master program 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. The December SFMTA progress report continues to state that delays have been experienced on critical tasks on the baseline schedule. The effectiveness of the contractor's efforts to recover the delays has yet to be confirmed. **In the opinion of the PMOC, the reported delays to the 1300 Contract suggest that much of any available schedule float may have already been consumed.**

PMOC Observations, Opinions and Concerns

- PMOC Concern: *SFMTA reported that as of December 1, 2014 the schedule had been approved as noted by SFMTA and that the schedule was delivered to the PMOC. SFMTA reports that it has yet to receive an updated schedule from the contractor showing the current status of work. SFMTA is working to create its own updated version of the schedule using contractor look-ahead schedules and other information.* Until an accurate update of the 1300 Contract schedule is available and incorporated into the program master schedule, reflecting the actual progress of the construction work, it is not possible to determine what float is available in the schedule and whether that float is sufficient to accommodate the remaining schedule risks that may impact the project. The accuracy of the cost and schedule performance indicators can only be assured with the incorporation of the 1300 Contract Baseline and subsequent updated schedules into the performance measurement process.

- *In the opinion of the PMOC, most of the 4.8 months of buffer float that is shown as available in the current master program schedule may have been consumed by delays to the 1300 Contract schedule. SFMTA and TPC are working together to recover the accumulated delays. The contractor also believes that they can make up time during the mass excavation of the stations. In the opinion of the PMOC, The effectiveness of strategies to recover the accumulated delays should be carefully monitored over the coming months.*
- *In the opinion of the PMOC, although the Schedule Performance Index and Cost Performance Index values improved substantially in the October SFMTA progress report for the CSP, the PMOC notes that actual costs and earned value have been lagging planned value since that time.* In the coming months SFMTA should closely monitor costs in relation to the completed work, examine the method of calculating planned and earned value and monitor the effectiveness of actions that are being taken to recover the schedule slippage that has occurred on the 1300 Contract.
- In the opinion of the PMOC, the allocated cost contingency for the 1300 Contract may not be sufficient to complete the contract and the overall allocated contingency for the project may be low for the percentage completion level of construction. On the other hand, the allocated contingency for the 1252 Contract is probably higher than needed. *The PMOC also notes that adjustments to the project contingency have been made reflecting the favorable contract price for LRVs. In the opinion of the PMOC, the total contingency, including unallocated contingency and less identified trends, of 9.6% of the potential remaining spending, is probably sufficient to assure on-budget completion of the project. In the opinion of the PMOC, the project will likely have cost contingency above the required minimum at the next milestone – Tunnel Demobilization Complete due to favorable cost performance of the tunnel contract and the LRV procurement.*
- *The backlog of RFIs and Submittals was nearly cleared in December, as a result of SFMTA CSP management's continued focus on the effort to clear these outstanding items. I*n the opinion of the PMOC, SFMTA has taken aggressive action to clear the backlog of critical RFIs that represented a risk of delays to the project and claims by the contractor. *SFMTA should continue to focus on timely responses to contractor submittals and RFIs to avoid future buildup of a backlog of overdue responses.*
- 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.
- The PMOC notes that the trend log for the 1300 Contract does not allow tracking of contract changes that will be paid outside of the CSP program separate from changes that will be covered by the program budget. Although the trend log includes notes as to the

funding sources for each change, the PMOC suggests that the ability to do separate tracking of program costs would be useful to both SFMTA and FTA.

- In the opinion of the PMOC, until the claims are officially settled, there is a risk that some of the claimed cost may be incurred. These costs are not being tracked in the trend log.
- *In the opinion of the PMOC, the unexpected subsidence that occurred above the excavation site for Cross Passage 5 was responded to in an appropriate manner with due consideration for both schedule and quality of the resulting constructed facilities. The PMOC notes that at present the required repairs are expected to be completed before the scheduled substantial completion date for the contract. There is still some risk of further delays, depending on the effectiveness of the ongoing work to stabilize the ground and control groundwater movement at the site. In the opinion of the PMOC, the contractor should prepare an analysis of the cause of the leak.*
- In the Opinion of the PMOC, SFMTA took appropriate action to withhold payments from the 1300 Contract and require that the adopted QC procedures be followed. The continuing failure of TPC to follow required quality procedures is a concern. In the opinion of the PMOC, the issue has been elevated to the highest levels of the project organization and appropriate attention is being given to the issue.
- In the opinion of the PMOC, the 1300 Contractor's ineffective management and administration of subcontractor work and lack of management support for the project quality program is a long-standing concern *and a schedule risk.* Many critical aspects of the contract will be constructed by subcontractors, including the 4th and King intersection improvements and the LRT track and systems. SFMTA should continue to use the partnering process and other tactics to increase TPC's engagement in the quality process and direction of subcontractor work.
- In the opinion of the PMOC, having a subcontractor responsible for system integration for the construction of track and systems may not provide the degree of control required to provide a well-coordinated work plan or an efficiently executed construction process. The identified subcontractor would not have direct contractual relationships with the other subcontractors executing the work resulting in a possible inability to effectively coordinate and direct the work being done by multiple parties.
- *In the opinion of the PMOC, the auditor's findings regarding the CSP cost control system should give FTA increased confidence in the accuracy of the project cost reports produced by SFMTA. The PMOC agrees with the report's recommendations regarding the closure of Index Codes for past work, as we have observed that resolving improper charges to such codes by employees of other city departments is a source of wasted time and management attention for the CSP team.*

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A. PROJECT STATUS

Full Funding Grant Agreement (FFGA)

The FFGA was signed on October 11, 2012.

Design

All designs are complete.

Construction

Contract 1250 (UR #1). This contract relocated utilities within the footprint of the proposed YBM and work is complete.

Contract 1251 (UR #2). This contract relocated utility lines within the footprint of the proposed UMS and temporarily rerouted existing trolley coach lines around the construction zone and work is complete.

Contract 1252 Tunnel.

- *At the end of December 2014, work on the tunnel contract was 96.6 percent complete.*
- *The contractor poured the two bulkheads that close off the northern end of the tunnel and completed final grading and roof decking at the retrieval shaft opening. Work at the north end of the tunnel project is scheduled to be complete in early January 2015. Street lights remain to be installed in the North Beach area.*
- Four of the five cross passages have been completed. *Freezing pipes were installed and the ground freezing operation was completed at Cross Passage 5 in December. Excavation of the Cross Passage was completed and waterproofing had been installed in preparation for placement of the reinforcing steel for the concrete structure. While the construction crews were away from the site, material began to leak into the tunnel, resulting in subsidence of the ground above the excavation and damage to trunk utility lines running beneath the street. The utility lines were quickly capped and there was no interruption of utility service to any adjacent properties. When the leak was discovered, crews took action to stop the leak and prevent further subsidence of the ground. A design for the necessary repairs and revisions to the excavation plan was underway at the end of December. The repairs and subsequent completion of the cross passage was scheduled to be complete prior to the April 15, 2015 substantial completion date.* ***In the opinion of the PMOC, the unexpected subsidence that occurred above the excavation site for Cross Passage 5 was responded to in an appropriate manner with due consideration for both schedule and quality of the resulting constructed facilities. The PMOC notes that at present the required repairs and completion of the Cross Passage construction are expected to be completed before the scheduled substantial completion date for the contract. There is still some risk of further delays, depending on the effectiveness of the***

ongoing work to stabilize the ground and control groundwater movement at the site. In the opinion of the PMOC, the contractor should prepare an analysis of the cause of the leak.

- *The tunnel portal structure is under construction in the former launch box. The base slab is complete and construction of the walls and roof is nearing completion. Seismic frames for the two tunnel portals were being installed.*
- Substantial completion is still expected in April 2015.

The full closure of 4th Street at the Interstate 80 underpass was implemented on December 1, 2014. The closure facilitates accelerated construction of the portal structure and the transition of the track to at-grade running south of the portal. The closure was implemented with no major traffic problems.

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

- *As of the end of December 2014, the construction of the Stations and Surface, Track and Systems contract was 25.1% complete.*
- Union Square/Market Street Station (UMS): *Construction activity at UMS was limited due to the holiday construction moratorium.* The surface of Stockton Street between Ellis Street and Geary Street was restored and covered with artificial turf. Temporary decorative pedestrian lighting and seating was placed along the two block section of Stockton Street called "Winter Walk". The only work performed was on the F and G piles on Ellis Street, which were completed. No work was performed on the North and South Concourse areas, the Station Box or the O'Farrell Street Emergency Exit. All piles for the north and south concourses were complete at the end of December and the only piles remaining to be placed were at the station box. The separating wall between the construction zone and the Powell Street BART station at Ellis Street was completed. The contractor began preparations for work inside the Union Square garage.
- Chinatown Station (CTS): *Construction of the slurry wall panels for the station was completed and the contractor started to demobilize the slurry operation. The contractor continued work on the AWSS line along Washington Street.*
- Yerba Buena/Moscone Station (YBM): Production of the permanent slurry wall panels continued on the east side of the station and traffic on 4th Street remained at one lane. *80 of the 95 slurry wall panels have been installed, an increase of 12 in December. The remaining panels are expected to be completed in January. Temporary shoring was installed in the center of 4th Street and excavation of the western portion of the station box started. Archeological data recovery was ongoing during the excavation. Installation of the station roof slab will be done once excavation reaches the required depth. AWSS installation at the corner of 4th and Folsom was completed.*

- Surface, Track, and Systems (STS): AT&T duct bank installation continued. The contractor continued potholing for utility locations to support the design of three sewer lines. The contractor has nearly completed the design for three sewer lines that are being delivered using a design-build delivery. Streetlight, sewer and water line installation continued.
- SFMTA is working on the schedule for installation of the complex trackwork at the 4th and King intersection. The construction contract requires the work to be completed over several holiday weekends, when commuter traffic will not be expected over a 3-day period. The weekends scheduled for construction cannot have scheduled San Francisco Giants games, due to the expected heavy traffic associated with access by fans. The contractor submitted a proposal to conduct the work over one extended period of street closures, rather than a number of separate weekend closures. The contractor's work plan addressed the installation of track, but not the installation of systems-related components or traffic signal control equipment. SFMTA states that it intends to start holding meetings to develop the work plan for the 4th and King intersection. SFMTA is concerned that the Contractor does not appear to be willing to actively coordinate the work of its subcontractors. Four subcontractors will be working on the 4th and King construction and one of them has been identified by the Contractor as being responsible for system integration. SFMTA plans to proactively engage the Contractor and the involved subcontractors in preparing the work plan. **In the opinion of the PMOC, having a subcontractor responsible for system integration may not provide the degree of control required to provide a well-coordinated work plan or an efficiently executed construction process. The identified subcontractor would not have direct contractual relationships with the other subcontractors executing the work resulting in a possible inability to effectively coordinate and direct the work being done by multiple parties.**

Third-party Agreements Including Utilities, Railroads, Other Agencies, Etc.

Bay Area Rapid Transit (BART)

No updates to report.

Caltrans

SFMTA needs to extend the Caltrans encroachment permit for STS work. There appears to be some concern regarding the ability to demonstrate conformance of the design of the traffic control devices with CalTrans standards.

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 next QPRM is scheduled for February 5, 2014.

San Francisco Public Utilities Commission (SFPUC)

No updates to report.

San Francisco Department of Public Works (SFDPW)

Sidewalk Legislation Permit for the STS work was expected to be approved in October 2014. The SFMTA monthly report does not document the status of this legislation.

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

For 19 Stockton Street (Armani Exchange Building), 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. *A settlement conference was held in November 2014 in advance of the compensation trial, which was held as scheduled in December. The judgment regarding the value of the license for the property is pending.*

For 790 Market Street/2 Stockton Street (Forever 21 Store), SFMTA has been communicating with the property owner regarding engineering issues and restrictions imposed by the easement for the property.

At the Macy's concourse entrance, SFMTA real estate staff is leading coordination with Macy's. A retail consultant will be retained to obtain recommendations regarding retail services in the station concourse.

Notice of the pending termination of the lease agreement has been given to the property owner at the retrieval shaft. The lease is expected to be terminated in May 2015.

The Project has installed settlement monitoring equipment at sensitive buildings adjacent to the project. There are now 370 total licenses for monitoring equipment (ten were added to address the potential Pagoda retrieval shaft) and property agreements.

Selection of Delivery Method, Description of Contract Packages, Construction Sequencing, Contract Terms and Conditions

The CSP construction has been 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.

Vehicle Status of Design, Procurement, Approvals by State Safety Board, Testing and Integration

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 followed a Request for Qualifications, which was issued on March 29, 2013. On September 19, 2014, the mayor of San Francisco announced that SFMTA had awarded a contract to supply 175 LRVs to the Siemens Corporation for $648 million, or $3.7 million per vehicle. The initial order includes four LRVs for the Central Subway and 20 LRVs for near term fleet expansion and 151 LRVs for fleet replacement. Options for up to 85 additional vehicles are available for fleet expansion. At the contracted price, the cost to the CSP of the four vehicles allocated to the project will be $14.81 million. This compares to a budgeted cost of $26,385,653 for SCC 70, including spare parts and contingency, and represents an $11.5 million savings. This savings partially offsets the trend of higher than estimated costs on the construction components of the project.

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. The CSP leased property at the former Pagoda Theater site for the retrieval shaft. That lease is expected to be terminated in May 2015 after the shaft is covered.

All project commercial and residential relocations are complete.

Labor Relations and Policies

Appendix E of the Project Monthly Report details the Small Business Enterprise (SBE) goals and actual participation on each contract. SFMTA contact goals range from 6 percent to 30 percent on each of the contracts. The majority of the contracts have met these goals to date. See Appendix G.

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, Barnard Impregilo Healy JV (BIH), did not comply with said requirement.

On May 22, 2014, The U.S. Maritime Administration (MARAD) confirmed that The Robbins Company's (TBM manufacturer) total revenue to the U.S.-flag carriers is far less than that of the non-U.S.-flag carriers for this project. MARAD finds The Robbins Company to be non-compliant with the Cargo Preference Regulations. At some point, MARAD will be compiling

and publishing a list of agencies and contractors who have been non-compliant. MARAD has no intention of assessing a financial penalty; however, this does not prevent FTA from assessing an equitable adjustment to their contract should they so choose. The PMOC understands that FTA will not exercise this option.

The tunneling contractor has not achieved the level of participation in its contract by women and apprentices. SFMTA is requesting documentation from BIH of its good faith efforts in regard to hiring women and apprentices for its work.

B. PROJECT MANAGEMENT PLAN AND SUB-PLAN IMPLEMENTATION

Project Management Plan (PMP)

PMP Revision 4 was submitted to FTA on May 1, 2014, and the outgoing PMOC prepared a Draft Report for FTA on July 9, 2014. The outgoing PMOC found the PMP adequate for the current stage of the project and made minor recommendations, which should be incorporated into the next revision of the plan. The next update of the PMP is scheduled to be provided by SFMTA on March 31, 2015.

Environmental Assessment/Mitigation Plan/Archaeological Plans

The PMOC received the Fourth Quarter 2014 Mitigation Monitoring Reporting Program (MMRP) update from SFMTA on January 23, 2015. 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. *Furthermore, the 4th Quarter report incorporates refinements suggested by the PMOC in October 2014.* **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.**

Real Estate Acquisition Management Plan (RAMP)

The RAMP Revision 5, dated September 26, 2013, was submitted to FTA on November 19, 2013. All required real estate for the project has been acquired in accordance with the RAMP.

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 outgoing PMOC reviewed the report and provided comments to FTA on June 27, 2013. A Draft Transit Fleet Management Plan (TFMP), dated March 2014, was submitted to FTA on April 11, 2014. The FTA has not requested a review of the updated TFMP.

Quality Assurance/Quality Control (QA/QC) Program Plan

See section F.

Safety and Security Management Plan (SSMP)

See section G.

Risk and Contingency Management Plan (RCMP)

See section H.

C. PROJECT MANAGEMENT CAPABILITY AND CAPACITY

Project Staff

- An updated staffing plan (third quarter 2014) and organization charts were provided to the PMOC on October 10, 2014. All open SFMTA staff positions have been filled.
- The December SFMTA Progress Report continues to state that the 1300 Contractor's management and administration of the subcontractors is a concern. The Contractor is not evaluating the adequacy of the subcontractors' submittals and there is evidence that the Contractor is not actively engaged in managing and coordinating the ongoing work of the subs. **In the opinion of the PMOC, lack of Contractor control and management of its subcontractors represents a significant schedule risk for the project. Activities that involve multiple subcontractors should be effectively managed by the prime contractor.**
- *The SFMTA's December 2014 staffing analysis shows a shortage of consultant staff in design support for construction for the 1300 Contract (14.18 staff planned and 5.20 staff actual).* Slow responses to RFIs have been a problem, especially for the YBM station. SFMTA reported in late September that additional design staff had been assigned to clearing overdue RFIs and that it is monitoring the backlog carefully. SFMTA stated that a realistic target for clearing the overdue RFIs was the end of October. The backlog of RFIs and Submittals was not cleared in October, and SFMTA CSP management continued to focus on the effort to clear these outstanding items. *At the end of December most of the long overdue responses had been closed. SFMTA management developed a simplified tool for quick review of submittals and RFIs that are past due and reviews the information at the weekly project management meeting.* **In the opinion of the PMOC, SFMTA has taken aggressive action to clear the backlog of critical RFIs that represented a risk of delays to the project and claims by the contractor*, and this attention* has resulted in the problem being significantly reduced. *SFMTA should continue to focus on timely responses to contractor submittals and RFIs to avoid future buildup of a backlog of overdue responses.***

D. PROJECT COST STATUS

Project Cost Control Systems

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. CSP staff determined that the cost reporting information coming from the EcoSys EPC database was not working for this project and abandoned the use of this information in mid-2013. This increased the level of effort needed to provide accurate cost reporting and caused the staff to need to manually input data. FTA performed a review of the EcoSys module component of Capital Programs Control System. A draft report was provided to SFMTA for their technical review. Comments from SFMTA are pending. After receiving SFMTA's comment, FTA will issue a final report with recommendations.

In November 2014 the Office of the Controller, City Services Auditor published a report documenting the results of an independent review of the CSP cost accounting and management systems. The audit found that despite the various challenges faced by the CSP Office with respect to reporting project costs to the FTA, current reported costs are supported by reliable source data and past variances have been resolved. Specifically, the audit noted:

- Current schedule and cost predictions suggest that the project will not exceed its baseline budget and will open to the public as planned;
- Schedule and cost performance expectations compare to industry practices;
- Remaining significant project expenses related to construction are accounted for and contingency levels are closely monitored;
- Several levels of review and approval within various SFMTA entities must occur before a project expense is paid;
- City's Accounting System serves as the basis for reporting costs to the FTA;
- Excel-based cost reporting tool used to replace the capital program control system is functional; and
- Explanations for past reporting errors have been accepted by the FTA

The report included two recommendations:

- Continue working on fine tuning the cost workbook and associated written procedures
- Work with SFMTA Accounting and the Controller's Office to formally "close" FAMIS index codes no longer used, such as those related to the already completed preliminary engineering phase, to minimize erroneous posting of current costs to past phases and activities.

In the opinion of the PMOC, the auditor's findings should give FTA increased confidence in the accuracy of the project cost reports produced by SFMTA. The PMOC agrees with

the report's recommendations regarding the closure of Index Codes for past work, as we have observed that resolving improper charges to such codes by employees of other city departments is a source of wasted time and management attention for the CSP team.

SFMTA has been working to create a useful Trend Log for Contract 1300 using CM 13. The trend log was finalized in July and is up and running. **The PMOC recognizes the significant accomplishment of creating the trend log for the 1300 Contract.** The PMOC notes that the trend log does not allow tracking of contract changes that will be paid outside of the CSP program separate from changes that will be covered by the program budget. Programming of the CM13 module would be needed to provide separate tracking of program and non-program costs. **Although the 1300 Contact trend log includes notes as to the funding sources for each change, the PMOC suggests that the ability to do separate tracking of program costs from non-program work would be useful to both SFMTA and FTA**.

Project Cost

Cost estimate:	$1.5783 billion
Total contingency:	$81.0 million, an increase of $10.5 million (minimum contingency is $140 million)
Total net incurred costs:	*$729,740,038 (46.2% of the total project budget)*
Current funding level:	$1,029,794, 000 (65.3 percent of the total project budget)

- Earned Value (EV): *$711,261,784 – an increase of $8.5 million from November, and 45% of the budgeted project cost*
- Actual Cost: *$729,740,038 – an increase of $8.8 million from November*
- CPI: 0.97

CPI is a measure of cost efficiency on a project. It is the ratio of EV to actual cost value. A CPI equal to or greater than one indicates a cost under run and a value of less than one indicates a cost overrun. A value of 0.9 or greater is considered acceptable, considering the margin of error in estimating the value of completed work.

Two large claims have been made by the utility contractors for work on Contracts 1250 ($3.6 million) and 1251 ($3.8 million). SFMTA has stated that these total cost claims are not valid, since California law provides for total cost claims only if a contractor can demonstrate that it lost money on the contract. Audits of both contracts indicate that the contractors earned profits on both contracts, which suggests that the total cost claims will be invalidated**. In the opinion of the PMOC, until the claims are officially settled, there is a risk that some of the claimed cost may be incurred.** These potential costs are not being carried in the project trend log.

Project Cost Trends

SFMTA tracks potential changes in project cost, calling these potential changes "trends." Trends include all potential changes in the contract value. As the status of an identified trend changes, it may become a contract modification, it may become an item that is paid on a force account basis or it may be denied/closed with no impact to the project cost. Table 2 summarizes the trends for the two active construction contracts.

Table 2: Contract, Budget and Trends for Active Construction Contracts

	1252 - Tunnel	1300 Stations, STS
Original Contract	233,584,015	839,676,396
Approved Contingency	17,484,956	20,000,000
Extra Budget *for Non-Project Costs*	6,173,508	
Approved Budget	244,895,463	859,676,396
Approved Changes	*1,326,807*	*(1,587,913)*
Current Contract (1252 does not include non-project costs)	*234,910,822*	*838,088,483*
Remaining Contingency	*16,158,146*	*21,587,913*
Potential Changes (Trends)	*675,135*	*5,914,088*
Potential Contract	*235,585,987*	*844,002,571*
Contingency Less Trends	*15,483,011*	*15,673,825*
Spent to Date	*227,055,938*	*210,172,419*
Potential Left to Spend	*8,530,019*	*633,830,152*

*T*he remaining contingency, less identified trends, represents 181% of the potential left to spend for Contract 1252 and 2.5% of the potential left to spend for Contract 1300. The combined allocated contingency for all construction work less identified trends represents about 5.0% of the potential remaining construction expenditure. **In the opinion of the PMOC, the allocated contingency for the 1252 Contract is greater than the amount required to assure completion of the contract within the budget. The allocated contingency for the 1300 Contract may not be sufficient to complete the contract and the overall allocated contingency may be low for the percentage completion level of construction. However, there likely is sufficient unallocated contingency and excess allocated contingency from other program components, such as vehicles, for successful completion of the program.**

Table 3 shows the overall budget, trends, and contingency status for the entire Central Subway program. **As shown, the total contingency, including unallocated contingency and less identified trends, represents *9.6*% of the potential remaining spending, which in the**

opinion of the PMOC is probably sufficient to assure on-budget completion of the project. The trend analysis does not reflect the award price for the LRVs to be used on the project.

Table 3 – Budget and Contingency Status for Central Subway Project

	Total Construction	Right of Way	Vehicles	Professional Services	Unallocated Contingency	Total Program
Original Contract	1,136,999,020	36,511,799	24,108,712	310,518,041		1,508,137,572
Approved Contingency	*45,301,196*	*1,000,000*	2,276,941	18,221,079	10,019,456	76,818,672
Extra Budget for Non – Project Costs	*6,173,508*					
Approved Budget (w/o Extra Launch Shaft Cost)	1,175,543,973	37,511,799	26,385,653	328,839,120	10,019,456	1,578,300,001
Approved Changes	6,395,137	-	(10,799,712)	-		(4,404,575)
Current Contract	1,136,737,914	36,511,799	13,309,000	310,518,041		1,497,076,754
Remaining Contingency	38,906,059	1,000,000	13,076,653	18,221,079	10,019,456	81,223,247
Potential Changes (Trends)	6,589,223					6,589,223
Potential Contract	1,143,327,137	36,511,799	13,309,000	310,518,041		1,503,665,977
Contingency Less Trends	32,316,836	1,000,000	13,076,653	18,221,079	10,019,456	74,634,024
Spent to Date	494,465,362	29,567,129	2,082,762	203,624,786		729,740,039
Potential Left to Spend	648,861,775	6,944,670	11,226,238	106,893,255		773,925,938
Contingency Less Trends/Potential Left to Spend	5.0%	14.4%	116.5%	17.0%		9.6%

Change Order Control

The Contract 1252 Contract Modification/Trend Log – December 2014 had the following activities:

- *46 Contract Modifications (CMods) totaling $1,326,807 of additional CSP program costs, all of which have been certified.*
- *6 Pending Contract Modifications (PCMs), totaling $675,135 million in added contract value.*

One change order valued at $28,160 was executed for this contract in December.

CMods total $7.5 million, of which $5,150,000 is for the relocation of the retrieval shaft and $1.0 million is for utility work, which are not program costs.

The Contract 1300 Tend Log – *December* reflects the following:

- *12 trend items that may lead to changes*
- *14 Proposed Contract Changes (PCCs)*
- *9 Change Order Requests (CORs)*
- *1 Pending Change Order*
- *4 Approved CMods*
- *A total potential change of +$5,914,088 is being reported in December 2014, a decrease of $1,456,159 in total potential changes from November.*

No changes were executed for this contract in December.

Funding and Expenditures

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

Table 4: Project Funding (x1000)

	Committed	Awarded	Encumbrances to Date	% of Expenditure by Source
Federal				
New Starts	942,200	*469,198*	Not provided	Not provided
Congestion Mitigation	41,025	*41,025*		
Federal Subtotal	*983,225*	*510,223*		
State				
TCRP	14,000	14,000		
State RIP	88,000	12,498		
Prop. 1B / PTMISEA	307,792	225,912		
Prop. 1A / HSR	61,308	61,308		
State Subtotal	471,100	395,598		
Local				
Prop. K Sales Tax	*123,975*	*123,975*		
Local Subtotal	*123,975*	*123,975*		
Project Total:	**1,578,300**	**1,029,794**	**Not provided**	**Not provided**

E. PROJECT SCHEDULE STATUS

As of the end of December, the Project had approved the Contract 1300 baseline schedule. SFMTA was working with the contractor to obtain an accurate update of the baseline schedule showing the current status of the construction work. The December SFMTA Monthly Report states that there has been schedule slippage on the critical path of the station contract and that

the contractor has started working two shifts per day on the critical activities to recover the slippage. The December SFMTA progress report indicates that delays of *four to five months* have accumulated for tasks on the critical path for completion of the 1300 *Contract, based on the actual completion date of the CTS slurry walls. The CTS work is the longest path on the schedule and is therefore critical for the Revenue Service Date.* The planned revenue service date remains unchanged at December 26, 2018.

The 1252 Contract is currently projected to be substantially complete on the planned April 15, 2015 date. There is some risk that the utility and pavement repair work at the CP 5 site will extend beyond the planned substantial completion date for the contract. The substantial completion of the 1252 Contract is not on the critical path for the overall project.

- *Earned Value – $711,261,784 – an increase of $8.5 million from November, and 45% of the budgeted project cost*
- *Planned Value – $757,871,395 – an increase of $16.6 million from November.*
- *SPI: 0.94*

SPI is a measure of schedule efficiency on a project. It is the ratio of earned value to planned value. An SPI equal to or greater than one indicates more work was completed than planned and a value of less than one indicates less work was completed than planned. A value of *equal to or greater than 0.9 reflects satisfactory performance, considering the margin of error in estimating both earned value and planned value.*

Actual cost and earned value were approximately $8 million (or 51%) less than planned value of $16.6 million for the month of December. This is the second consecutive month in which earned value and actual cost have lagged behind planned value by at least $7 million. **In the opinion of the PMOC, once the *approved* baseline schedule for the 1300 contract has been officially updated, the estimates of planned and actual earned values will need to be refined further. The relationship between planned value and earned value should be closely monitored. If earned value continues to be substantially less than planned value, the project is likely falling further behind schedule.**

Based on the reported EV and Planned Value, the project has earned $46.6 million less than planned. SFMTA stated that the methods of calculating earned value and planned value measures were revised in October to correct long-standing errors in the calculation. However, the planned value and earned value calculations are not yet based on an updated baseline schedule for the 1300 Contract. The cost performance index showed marked improvement in the October SFMTA C*SP progress report and continue to show favorable values for November and December. However, the Schedule Performance index has fallen from 0.96 in October to 0.94 in December.* SFMTA has agreed to provide a detailed description of how the calculation of these performance indicators was changed and corrected. **In the opinion of the PMOC, the accuracy of the cost and schedule performance indicators can only be assured with the incorporation**

of the updated 1300 Contract Baseline schedule into the performance measurement process.

Table 5 shows the status of the schedule milestones established for the project.

Table 5: Schedule Milestones – (A = Actual Date)	
PE:	Authorized in July 2002 (A)
Record of Decision:	Issued November 26, 2008 (A)
Final Design (FD):	Authorized in January 2010 (A)
FFGA Request:	Submitted September 2011 (A)
FFGA Executed:	October 11, 2012 (A)
Ground Breaking: (Utility Relocation Contract)	February 9, 2010 (A)
Tunnel excavation complete (hole through):	June 2, 2014 (SB); June 11, 2014 (NB) (A)
Cross passages complete:	December 20, 2014
Tunneling substantial completion:	April 12, 2015
Station construction NTP:	June 17, 2013 (A)
Station construction substantial completion:	February 24, 2018
RSD:	December 26, 2018

The current master schedule (incorporating the unapproved 1300 Contract schedule) reflects 4.8 months of buffer float. *Based on statements in the December 2014 CSP Progress Report, the 1300 Contract is four to five months behind schedule for tasks on the critical path.* **In the opinion of the PMOC much of the available schedule float appears to have been consumed by delays to the critical path activities in the 1300 Contract schedule.** SFMTA and TPC are working together to recover the accumulated delays. *At the end of December slurry wall construction was complete at CTS and was nearing completion at YBM. The work will now transition to mass excavation, where repetitive operations may hold the potential for better than planned productivity.* **In the opinion of the PMOC, The effectiveness of strategies to recover the accumulated delays should be carefully monitored over the coming months.**

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 FTA recommended schedule contingency at this time of the project is 8.0 months. As noted above, the current schedule reflects only 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 CSP 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 updated Contract 1300 baseline schedule as soon as it is completed. 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 8.0 months of schedule contingency is recommended at this phase of the project. We are awaiting the results of a schedule analysis based on the adopted and updated 1300 Contract baseline schedule to determine what schedule contingency remains.

Critical Path Summary

CTS Install Guidewalls, Slurry Walls, and Install Surface Deck
CTS Excavate Headhouse & Bracing
CTS Sequential Excavation Method & Install Supports
CTS Headhouse Structural Concrete/Remove Bracing
CTS Install Mechanical, Electrical and Plumbing (M/E/P) Equipment
CTS Start Up & Testing
CTS P-1254R Commissioning of Station Complete
Safety &Security Certification / Pre-Revenue Activities
RSD on December 26, 2018

Three Month Look-ahead

The following activities are planned over the next 3 months:

1252 Contract

- Complete the roof structure of the retrieval shaft
- Remove all contractor equipment and restore the retrieval shaft site
- Continue repairs of tunnel liner segments
- *Stabilize the ground above CP 5*
- *Re-excavate CP 5*
- Install temporary support for CP 5
- Complete invert structure for CP 5
- Complete the final liner for CP 5
- Remove/abandon CP 5 freezing equipment
- Complete the walls and roof of the portal
- *Install seismic frames at the portal headwall*
- *Pour the portal headwall*

- *Pour slab and walls for the transition to grade south of portal*
- Begin final backfill of portal structure
- Install utilities in the portal

1300 Contract

UMS

- *Remove the temporary pedestrian improvements and remobilize construction equipment along Stockton Street at UMS*
- *Remove utilities in Ellis Street*
- Begin work in UMS garage
- Continue installation of battered piles along Stockton Street
-

CTS

- Start excavation of the headhouse
- *Excavation to surface level deck*
- *Form, reinforce and pour surface level deck*
- *Prepare for excavation under deck*

YBM

- Complete installation of slurry walls *and demobilize equipment*
- *Continue excavation on west side of station box*
- *Pour first section of station roof on west side*
- Remove utilities from headhouse roof slab area
- Excavate to the first strut level in headhouse
- Install struts at level one in headhouse

STS

- *AT&T Ductbank installation*
- *Sewer installation*
- *Streetlight conduit installation*
- *Waterline installation*
- *AWSS installation*
- *Muni ductbank installation*
- *Install cast-in-place drilled piles for station platforms*
- Procure ATSC Equipment

The PMOC expects to attend the following meetings:

- *Weekly Management (first Monday of each month)*
- *Weekly Contract 1300 Construction Progress (first Tuesday of each month)*

- *Weekly CMB (first Wednesday of each month)*
- *Weekly Tunnel Construction Progress (first Thursday of each month)*
- *CSP month-end meetings on March 3, April 7 and May 5*
- FTA/QPRM scheduled for *May 6, 2015*

F. QUALITY ASSURANCE/QUALITY CONTROL

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 Project 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 complies with the requirements of the Contract. The contractor conducts 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.

For each of the construction contracts, the contractor's staff includes a Contractor‘s Quality Manager (CQM), who reports to the Contractor’s Management at an organization level superior to the contractor’s Project Manager. The reporting structure is to provide the CQM with direct access to the contractor’s Principal Officers. For each of the construction contracts, a Contractor Non-Conformance Report Log for identifying, correcting, documenting, and controlling non-conformances is maintained by the contractor. Subsequent work may not progress for work that is the subject of a Corrective Action Request until conditions adverse to quality are corrected.

Based on observations of the weekly progress meetings for each of the active construction contracts and the weekly CSP management meeting, the project team is actively engaged in quality assurance to ensure that the contractors are following the requirements of the Contractor QC process.

The following quality concerns for the 1252 Tunnel Contract were identified in the SFMTA December monthly report:

- Contractor’s field repairs of tunnel liner segments per approved procedures
- Open CNCRs that await closing as a function of required liner repairs
- Turn-over of final BIH JV Quality Documentation as contract completion approaches

In the opinion of the PMOC, these are fairly routine procedural issues that should be able to be resolved as part of the contractor’s tunnel repair and contract close out processes.

The following quality issues for the 1300 Stations Contract were identified in the SFMTA December monthly report:

- TPC's management and administration of their Sub Contractors. TPC's Project Engineers in particular are not apparently involved with the actual on-going work as well as not scrutinizing and evaluating the adequacy of Sub Contractor's submittals.
- TPC's Project Manager, Project Engineer's and Field Supervision's support of the implementation of TPC's Quality Control Program.
- Excavation of Slurry Wall Panels and Battered Piles proximately to the in-situ Precast Tunnel Liners as monitored per the established protocols.
- Implementation of the approved waterproofing, waterstop and construction joint details for the UMS Station Roof pile caps.
- *Test columns results and subsequent performance of UMS Jet Grouting*
- TPC's honoring of RE Hold Points

In the opinion of the PMOC, the 1300 Contractor's management and administration of subcontractor work and lack of management support for the project quality program is a long-standing concern. Many critical aspects of the contract will be constructed by subcontractors, including the 4th and King intersection improvements and the LRT track and systems. SFMTA should continue to use the partnering process and other tactics to increase TPC's engagement in the quality process and direction of subcontractor work.

G. SAFETY AND SECURITY

Safety and Security Management Plan (SSMP)

An updated SSMP Revision 2, dated February 2, 2014, was submitted to FTA on May 2, 2014. The outgoing PMOC did not review the SSMP at that time. The SSMP outlines the plans needed prior to revenue operations. These plans include the Rail Activation Plan, the System Integration Test Plan, the Safety and Security Certification Plan (SSCP), and the Pre-Revenue Operations and Start-up Plan. These three plans have not been developed by SFMTA at this time, although SFMTA is working on the initial Rail Activation Plan.

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. Numbers of signed off 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. The project has been working with the SFFD to try and eliminate the Air Replenishment System in both the tunnels and the stations.

Construction Safety

The project is maintaining an excellent safety record, with recordable and lost time incidents well below the OSHA goals for the type of construction. No incidents occurred on either of the active construction contracts in December. The current accident records are shown in Table 6.

Table 6: Construction Safety Data – Project to Date

	No. of Incidents	Incident Rate	Goal
1252 Tunnel Contract			
OSHA Recordable Accidents	10	*2.52*	<3.4
Job Transfer/Restricted Duty Incidents	7	*1.76*	NA
Lost Time Incidents	1	*0.25*	<1.6
Total Incidents	18	*4.53*	NA
Hours Worked	*795,183*		
1300 Contract			
OSHA Recordable Accidents	0	0	<3.4
Job Transfer/Restricted Duty Incidents	0	0	NA
Lost Time Incidents	0	0	<1.6
Total Incidents	0	0	NA
Hours Worked	*391,988*		

H. PROJECT RISK, RISK MANAGEMENT AND RISK MITIGATION

RCMP Revision 3 was received by the PMOC on April 30, 2013. The outgoing 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 new schedule modeling and a recommendation to reduce the current FTA minimum schedule contingency of 8.0 months. The outgoing PMOC provided a review of this document to FTA on November 21, 2013, and could not recommend at that time that FTA accept any modification to schedule contingency minimum levels based on the current documentation provided.

The current PMOC recommends that the CSP incorporate the *updated* Contract 1300 baseline schedule as soon as it is approved and updated. 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 Contract 1300 baseline schedule was adopted in early December. The schedule risk assessment is now expected from the CSP *in early 2015.*

The PMOC did not observe the December Risk Mitigation meeting for the CSP.

In the opinion of the PMOC, the risk meetings are an effective forum for the evaluation of risks and the identification of mitigation measures. The PMOC will continue to monitor the Risk Mitigation meetings to assess the SFMTA's risk mitigation activities.

I. ACTION ITEMS

Table 7 on the following page shows the current action items for SFMTA.

Table 7
The PMOC's Central Subway Points of Action for SFMTA
(Note: All closed items are removed a month after being closed. Changes to open items since last update are indicated in BLUE.)

Category	NO.	ACTION	DATE OPENED	DUE DATE	DATE CLOSED	COMMENTS
S, RA	**159**	Once the Contract 1300 Baseline Schedule has been approved, incorporate remaining high level schedule risks into a new risk assessment.	4/21/14	~~1/13/15~~ Revised to 3/3/15		PMOC recommendation from the Contingency Management – Schedule 2012 Update, Revision 1, October 2013."
S, T	**160**	Initial draft of the Rail Activation Plan	12/2/14	3/31/15		A sub-plan of the Project Management Plan
PMP	**161**	Annual update of PMP	12/2/14	3/31/15		Regular annual update
C, S	**162**	Documentation of changes in Earned Value and Planned Value estimation	1/14/15	~~1/28/15~~ Revised to 3/3/15		As promised in December 2014

Category Key:
C – Cost
FMP – Fleet Management Plan
IRP – Independent Review Panel
PMP –Project Management Plan
QA – Quality Assurance
RA – Risk
RE – Real Estate
S – Schedule
SC – Scope
SS – Safety
T – Tech. Cap. & Cap.
CH – Change Mgmt.

APPENDIX A. LIST OF ACRONYMS

APTA	American Public Transportation Association
AWSS	Alternative Water Supply System
BART	Bay Area Rapid Transit
BCE	Baseline Cost Estimate
BIH	Barnard Impregilo Healy
Caltrans	California Department of Transportation
CLIN	Contract Line Item Number
CM13	Contract Management 13
CMB	Configuration Management Board
CMod	Contract Modification
COR	Change Order Request
CPI	Cost Performance Index
CPUC	California Public Utilities Commission
CQM	Contractor‘s Quality Manager
CSP	Central Subway Project
CTS	Chinatown Station
EPC	Enterprise Planning and Controls
EV	Earned Value
FAR	Federal Acquisition Regulation
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
M/E/P	Mechanical, Electrical and Plumbing
MMRP	Mitigation Monitoring Reporting Program
MOU	Memorandum of Understanding
MPS	Master Project Schedule
MTC	Metropolitan Transportation Commission
Muni	Common Public Reference to SFMTA
NTP	Notice to Proceed
OP	Oversight Procedure
PCC	Proposed Contract Change
PCM	Pending Contract Modification
PE	Preliminary Engineering
PG&E	Pacific Gas and Electric Company

PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
PTMISEA	Public Transportation Modernization, Improvement, and Service Enhancement Account
QA/QC	Quality Assurance/Quality Control
QPRM	Quarterly Progress Review Meeting
RAMP	Real Estate Acquisition Management Plan
RCMP	Risk and Contingency Management Plan
RSD	Revenue Service Date
SBE	Small Business Enterprise
SCC	Standard Cost Category
SFDPW	San Francisco Department of Public Works
SFFD	San Francisco Fire Department
SFMTA	San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission
SoMa	South of Market (Street)
SPI	Schedule Performance Index
SSCP	Safety and Security Certification Plan
SSCRC	Safety and Security Certification Review Committee
SSMP	Safety and Security Management Plan
STS	Surface, Track, and Systems
TPC	Tutor Perini Corporation
TBM	Tunnel Boring Machine
TFMP	Transit Fleet Management Plan
UMS	Union Square/Market Street Station
UR	Utility Relocation
YBM	Yerba Buena/Moscone Station

APPENDIX B. SAFETY AND SECURITY CHECKLIST

Central Subway Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Light Rail Transit		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/ Operate/Maintain, CM/GC, etc.)	Design-Bid-Build		
Project Plans	*Version*	*Review by FTA/FRA*	**Status**
Safety and Security Management Plan	**2014**	**2011**	Revision 1 Update submitted to FTA 02/25/2011. Not submitted to FRA. Revision 2 submitted to FTA on May 2, 2014
Safety and Security Certification Plan (SSCP)	**2011**		SSCP was revised 10/2011. Revision 1 was developed in November 2011. Not submitted to FRA.
System Safety Program Plan (SSPP)	**2009**	**2009**	SSPP dated 03/13/2009 submitted to FTA 07/31/2009. Not submitted to FRA.
System Security Plan (SSP) or Security and Emergency Preparedness Plan (SEPP)	**2009**		Not submitted to FTA. Not submitted to FRA.
Construction Safety and Security Plan	**2012**		Health and Safety Construction Safety Standards Revision 3, June 27, 2012
Safety and Security Authority	*Y/N*		**Notes/Status**
Is the grantee subject to 49 CFR Part 659 state safety oversight requirements?	Y		
Has the state designated an oversight agency as per Part 659.9?	Y		California Public Utilities Commission (CPUC) Consumer Protection & Safety Division 505 Van Ness Avenue San Francisco, CA 94102 (415) 703-1017 phone (415) 703-1758 fax Point of contact: Arun Mehta

Central Subway Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Light Rail Transit		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/ Operate/Maintain, CM/GC, etc.)	Design-Bid-Build		
Project Plans	*Version*	*Review by FTA/FRA*	**Status**
Has the oversight agency reviewed and approved the grantee's SSPP as per Part 659.17?	Y		SFMTA currently operates its LRT system in compliance with a SSPP approved by the CPUC. These plans will be revised, as required to incorporate the addition of the CSP, during the late construction and early testing phase and submitted to the CPUC for approval prior to the planned start of revenue operations.
Has the oversight agency reviewed and approved the grantee's Security Plan or SEPP as per Part 659.21?	Y		See above.
Did the oversight agency participate in the last Quarterly Program Review Meeting?	Y		
Has the grantee submitted its safety certification plan (SCP) to the oversight agency?	Y		SFMTA submitted the SSCP to CPUC staff for review and Commission approval during the preliminary engineering phase. The plan was approved in March 2009. The SSCP revised in November 2011 will be submitted to the CPUC for approval.
Has the grantee implemented security directives issues by the Department Homeland Security, Transportation Security Administration?	N/A		Currently, there are no TSA directives or programs applicable to the project. If any arise during the course of the project, the activities to comply will be developed and shown on a revision of the project safety and security activities schedule.
SSMP Monitoring			
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y		The PMOC reviewed the CSP SSMP and provided a spot report to FTA in May 2011. FTA approved the CSP SSMP on May 16, 2011. A follow-up Adherence Audit was conducted September 14-16, 2011. The audit found that CSP is conducting its activities in accordance with the SSMP.

Central Subway Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Light Rail Transit		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/ Operate/Maintain, CM/GC, etc.)	Design-Bid-Build		
Project Plans	*Version*	*Review by FTA/FRA*	**Status**
Grantee reviews the SSMP and related project plans to determine if updates are necessary?		Y	SSMP Revision 2 was submitted to FTA on May 2, 2014.
Does the grantee implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.		Y	Safety and security are under the direction of the SFMTA Safety and Security Manager and supplemented by Project Management / Construction Management consultant staff, including a Safety and Security Certification professional who has been dedicated to supervise project Safety and Security Certification.
Does the grantee maintain a regularly scheduled report on the status of safety and security activities?		Y	Construction activities are reported in the weekly construction progress meetings and the CSP Monthly Progress Report.
Has the grantee established staffing requirements, procedures and authority for safety and security activities throughout all project phases?		Y	
Does the grantee update the safety and security responsibility matrix/organizational chart as necessary?		Y	The PMOC found the revised matrix in the SSMP, rev. 1, 02/08/11, to be compliant.
Has the grantee allocated sufficient resources to oversee or carry out safety and security activities?		Y	
Has the grantee developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?		Y	CSP has prepared a Preliminary Hazard Analysis Report, Rev. 0, April 23, 2009. Corrective actions and analysis for different project phases have been identified in the report.

Central Subway Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Light Rail Transit		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/ Operate/Maintain, CM/GC, etc.)	Design-Bid-Build		
Project Plans	*Version*	*Review by FTA/FRA*	**Status**
Does the grantee implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?	Y		
Does the grantee monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y		Safety & Security is an ongoing agenda item on the current construction contracts (1252 and 1300).
Does the grantee ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	Y		
Has the grantee ensured the development of safety design criteria?	Y		
Has the grantee ensured the development of security design criteria?	Y		
Has the grantee ensured conformance with safety and security requirements in design?	Y		Certification checklists are developed and certified.
Has the grantee verified conformance with safety and security requirements in equipment and materials procurement?	Y		Safety and Security Conformance checklists have been prepared for each of the construction contracts.
Has the grantee verified construction specification conformance?	Y		This is on-going as construction progresses.
Has the grantee identified safety and security critical tests to be performed prior to passenger operations?	N		Currently being developed.

Central Subway Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Light Rail Transit		
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Project Delivery Method (Design/Build, Design/Build/ Operate/Maintain, CM/GC, etc.)	Design-Bid-Build		
Project Plans	*Version*	*Review by FTA/FRA*	**Status**
Has the grantee verified conformance with safety and security requirements during testing, inspection and start-up phases?	N		Project is in early stages of construction.
Does the grantee evaluate change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	Y		
Has the grantee ensured the performance of safety and security analyses for proposed work-arounds?	N/A		
Has the grantee demonstrated through meetings or other methods, the integration of safety and security in the following: ☐ Activation Plan and Procedures ☐ Integrated Test Plan and Procedures ☐ Operations and Maintenance Plan ☐ Emergency Operations Plan	N/A		Currently being developed. An Integration Matrix has been implemented for all disciplines including safety and security concerns.
Has the grantee issued final safety and security certification?	N		Project is in early construction phase.
Has the grantee issued the final safety and security verification report?	N		Project is in early construction phase.
Construction Safety			
Does the grantee have a documented/ implemented Contractor Safety Program with which it expects contractors to comply?	Y		Health and Safety Construction Safety Standards Revision 3, June 27, 2012

Central Subway Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Light Rail Transit		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/ Operate/Maintain, CM/GC, etc.)	Design-Bid-Build		
Project Plans	*Version*	*Review by FTA/FRA*	**Status**
Does the grantee's contractor(s) have a documented companywide safety and security program plan?	Y		
Does the grantee's contractor(s) have a site-specific safety and security program plan?	Y		There are currently two contractors that have plans. Contract documents require that the contractor develops an Environmental Health and Safety Program, specific to the contract work.
Provide the grantee's OSHA statistics compared to the national average for the same type of work?	Y		Provided in the Central Subway Monthly Progress Report
If the comparison is not favorable, what actions are being taken by the grantee to improve its safety record?	N/A		Statistics are favorable. No action is needed.
Does the grantee conduct site audits of the contractor's performance versus required safety/security procedures?	Y		
Federal Railroad Administration			
If shared track: has grantee submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested)	N/A		No shared track. No waivers are anticipated.
If shared corridor: has grantee specified specific measures to address shared corridor safety concerns?	N/A		
Is the CHA underway?	N/A		
Other FRA required Hazard Analysis – Fencing, etc.?	N/A		

Central Subway Project Overview			
Project mode (Rail, Bus, BRT, Multimode)	Light Rail Transit		
Project phase (Preliminary Engineering, Design, Construction, or Start-up)	Construction		
Project Delivery Method (Design/Build, Design/Build/ Operate/Maintain, CM/GC, etc.)	Design-Bid-Build		
Project Plans	*Version*	*Review by FTA/FRA*	**Status**
Does the project have Quiet Zones?	N		
Does FRA attend the Quarterly Review Meetings?	N		

N/A = Not applicable.

APPENDIX C. PROJECT MAP AND OVERVIEW

CENTRAL SUBWAY PROJECT: Project Overview and Map

Date:	December 16, 2014
Project Name:	Central Subway Project (CSP) New Starts Light Rail Transit
Grantee:	San Francisco Municipal Transportation Agency (SFMTA)
FTA Regional contact:	Mr. Jeffrey S. Davis
FTA Headquarters contact:	Ms. Kim Nguyen

Scope

Description:	The CSP will extend the Third Street Light Rail line from the Caltrain station at Fourth and King Streets to Chinatown. It was incorporated in the FEIS/FEIR on the Third Street Light Rail project published in December 1998, but FTA did not include the CSP in the Record of Decision (ROD) issued in March 1999. A ROD for the CSP, however, was issued by FTA on November 26, 2008, and the U.S. Department of Transportation and FTA determined that the requirements of the National Environmental Policy Act (NEPA) of 1969 were satisfied for the CSP. The environmental record for the CSP is included in the Final Supplemental Environmental Impact Statement (SEIS), Volume II, dated July 11, 2008 and the Final SEIS, Volume I, dated September 23, 2008. These documents present the detailed statement required by NEPA and U.S.C. 5324 (b). SFMTA requested authority to enter Preliminary Engineering (PE) in March 2002 and submitted a Project Management Plan (PMP) in June 2002. FTA approved entry into PE in July 2002. Approval to enter Final Design (FD) was granted by FTA on January 7, 2010. The Full Funding Grant Agreement (FFGA) was signed on October 11, 2012
Guideway:	The length of the CSP will be 1.7 miles of double-tracked line. Stations: The CSP includes three subway stations and one surface station.
Additional Facilities:	The CSP does not include any ancillary facilities.
Vehicles:	The CSP Service Plan dated October 2009 clarified that approximately four vehicles will be required.
Ridership:	43,521 Average Weekday Boardings are projected in 2030.

Schedule

07/02	Approval Entry to PE	2016	Estimated Rev Ops at Entry to PE

01/10	Approval Entry to FD	2018	Estimated Rev Ops at Entry to FD
10/11/12	FFGA	2018	Estimated Rev Ops at FFGA

12/2018 Revenue Operations Date at date of this report

46.2% *Percent Complete* Construction (*December 2014 data*)

Cost

$764 million	Total Project Cost ($YOE) at Approval Entry to PE
$1,578 million	Total Project Cost ($YOE) at Approval Entry to FD
$1,578 million	Total Project Cost ($YOE) at FFGA signed
$TBD million	Total Project Cost ($YOE) at Revenue Operations

$1,578 million	Total Project Cost ($YOE) at date of this report including $0.00 in Finance Charges
$729.8 million	Amount of Expenditures at date of this report from Total Project Budget of $1,578 million
46.2 %	Percent Complete based on Expenditures at date of this report
$10.02 million	Unallocated Contingency remaining
$81.22 million	Total Project Contingency (allocated and unallocated contingency as reported by CSP)
$140 million	Minimum Total Project Contingency revised on September 5, 2012 PMOC review of Contingency Management Plan

	AT HOLD POINTS	QTR	Minimum Contingency Levels	Revised Levels
1A	Hold Point 1a – Tunnels 100% designed February 2011 (Actual)	1Q11	280	280
1B	Hold Point 1b – CTS 100% designed June 2012 (Actual)	4Q11	250	240
1C	Hold Point 1c – 40% Bid (Tunnel and CTS)	2Q12	225	200
1D	Hold Point 1d – FFGA Award. October 2012 (Actual)	3Q12	-	180
2	Hold Point 2 – Commence CTS / UMS construction. (Actual June 17, 2013)	2Q13	160	160
3	Hold Point 3 – Demobilize Tunnels Expected October 2014	4Q14	140	140
4	Hold Point 4 – Stations to platform levels (CTS/MOS) November 2016	4Q16	60	60
5	Hold Point 5 – Complete CTS / Tunnels systems inst. April 2018	2Q18	25	25
RSD	PMOC / FTA RSD	4Q18		
CURRENT TOTAL CONTINGENCY *$81.22 Million*				


central T subway
Lombard St.
COIT TOWER
Columbus Ave.
Washington Square Park
Union St.
TUNNEL ONLY - NO SERVICE
Broadway
Broadway Tunnel
The Embarcadero
Washington St.
Ferry Building
CHINATOWN
California St.
Stockton St.
Kearny St.
Montgomery St.
Battery St.
EMBARCADERO
FOLSOM
Leavenworth St.
Bush St.
Post St.
FUTURE TRANSBAY TERMINAL
MONTGOMERY
UNION SQUARE/ MARKET STREET
J K L M N T
Market St.
Mission St.
1st St.
N
POWELL
Howard St.
2nd St.
Folsom St.
Harrison St.
BRANNAN
Golden Gate St.
4th St.
I-80
YERBA BUENA/ MOSCONE
5th St.
3rd St.
2ND ST. AND KING
CIVIC CENTER
7th St.
6th St.
4TH ST. AND BRANNAN
AT&T BALLPARK
King St.
4TH AND KING/BERRY N T
Bryant St.
Brannan St.
Townsend St.
Caltrain
MISSION ROCK
UCSF
UCSF MISSION BAY
LEGEND
T Third Phase 2
T Third Phase 1
Muni Metro
Caltrain
BART

APPENDIX D. TOP PROJECT RISKS

The project risk register has not been updated in the past two months. The following risks were identified at the July Risk Management Meeting.

Top Risks discussed in the previous month:

- Risk that contractor cannot complete the 4th and King track and systems installation in the time periods prescribed in the contract – Probability is high, schedule impact is high and cost impact is high, for an overall score of 9 (3+3+3)
- Risk that train control system cannot handle interim operating conditions during system cutover: Probability is high, schedule impact is high and cost impact is high, for an overall score of 9 (3+3+3)
- A risk of inadequate time for testing was not ranked and will be further defined at subsequent meetings. A start-up and testing plan needs to be completed in order to quantify the various risks associated with its implementation

New Risks:

- Start-up activities – risk of insufficient time for the required sequence of activities.
    a. LRV Training
    b. Muni operator sign up
    c. Pre-revenue testing
    d. Post-revenue testing

APPENDIX E. ROADMAP TO REVENUE OPERATIONS

Awaiting rail activation plan from SFMTA

APPENDIX F. 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 Standard Cost Category 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.
15	1-30-14	Const.	Management	Independent Review Panel (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 deferred decisions to lower level staff.
16	6-30-14	Const.	Bid documents	Pre-Classification for soil and groundwater disposal	Soils and groundwater generated from construction activities should be pre-classified with appropriate sampling and testing required by potential disposal facilities. Coordinate with the disposal facilities to get materials accepted.

APPENDIX G. CONTRACT STATUS

The following sections provide the status of ongoing contracts associated with the CSP. Note that the DBE participation percentages are updated by SFMTA on a quarterly basis.

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:	NTP issued January 2010. Substantial completion in June 2011	
Issues or Concerns:	Final total cost claim by contractor 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:	NTP issued January 2011. Substantial completion in August 2012	
Issues or Concerns:	Final total cost claim by contractor has not been resolved.	

Contract No.	**1252**	
Contract Description:	**Tunnels**	
Status:	*Final cross passage is being excavated. Tunnel liner repair is underway. Tunnel portal construction has started.*	
Cost:	Original Contract Value	$233.58 million
	Approved Change Orders	$7.50 million
	Current Contract Value	$241.08 million
	Expended to Date	$ 227.06 million; $6.2 is paid from non-project funds
	% Expended	*96.7 %*
	SBE Participation	*5.9%*

Schedule:	Substantial completion expected June 2015. Total contract days are 1,150.
Issues or Concerns:	Cross passage 5 completion will be delayed.

Contract No.	**1300**	
Contract Description:	**Three subway stations (YBM, UMS, and CTS) and STS.**	
Status:	Support of excavation work at three underground stations is well advanced. STS utility work is well underway.	
Cost:	Original Contract Value	$839.68 million
	Approved Change Orders	-$1.59 million
	Current Contract Value	$838.09 million
	Expended to Date	*$ 210.17 million*
	% Expended	*25.1%*
	SBE Participation	*7.7%*
Schedule:	NTP issued June 17, 2013. Substantial Completion: Feb 10, 2018	
Issues or Concerns:	The work on this contract is behind schedule.	

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	*$7,649,628*
	% Expended	*102.1%*
	SBE Participation	30.4%
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
	Approved Change Orders	$1,460,360
	Current Contract Value	$36,519,612
	Expended to Date	*$28,399,550*
	% Expended	*77.8%*
	SBE Participation	*43.6%*
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	*$12,039,032*
	% Expended	*69.9%*
	SBE Participation	*29.1%*
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	*$46,300,000*
	% Expended	*54.4%*
	SBE Participation	*36.0%*
Schedule:		
Issues or Concerns:		

Contract No.	**CS 156**	
Contract Description:	**Project Controls Consultant.**	
Status:	On-going.	
Cost:	Base Contract Value	$17,112,873
	Approved Change Orders	0
	Current Contract Value	$17,112,873
	Expended to Date	*$9,116,766*
	% Expended	*53.3%*
	SBE Participation	*21.8%*
Schedule:		
Issues or Concerns:		