City and County of San Francisco

Office of the Controller – City Services Auditor

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY:

The Central Subway Project's Cost Reporting Practices Have Improved

November 17, 2014

OFFICE OF THE CONTROLLER
CITY SERVICES AUDITOR

The City Services Auditor (CSA) was created in the Office of the Controller through an amendment to the Charter of the City and County of San Francisco (City) that was approved by voters in November 2003. Charter Appendix F grants CSA broad authority to:

- Report on the level and effectiveness of San Francisco's public services and benchmark the City to other public agencies and jurisdictions.
- Conduct financial and performance audits of city departments, contractors, and functions to assess efficiency and effectiveness of processes and services.
- Operate a whistleblower hotline and Web site and investigate reports of waste, fraud, and abuse of city resources.
- Ensure the financial integrity and improve the overall performance and efficiency of city government.

CSA may conduct financial audits, attestation engagements, and performance audits. Financial audits address the financial integrity of both city departments and contractors and provide reasonable assurance about whether financial statements are presented fairly in all material aspects in conformity with generally accepted accounting principles. Attestation engagements examine, review, or perform procedures on a broad range of subjects such as internal controls; compliance with requirements of specified laws, regulations, rules, contracts, or grants; and the reliability of performance measures. Performance audits focus primarily on assessment of city services and processes, providing recommendations to improve department operations.

CSA conducts its audits in accordance with the Government Auditing Standards published by the U.S. Government Accountability Office (GAO). These standards require:

- Independence of audit staff and the audit organization.
- Objectivity of the auditors performing the work.
- Competent staff, including continuing professional education.
- Quality control procedures to provide reasonable assurance of compliance with the auditing standards.

For questions about the report, please contact Director of City Audits Tonia Lediju at Tonia.Lediju@sfgov.org or 415-554-5393 or CSA at 415-554-7469.

CSA Audit Team: Steve Flaherty, Audit Manager

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CITY AND COUNTY OF SAN FRANCISCO
OFFICE OF THE CONTROLLER

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November 17, 2014

Board of Directors
San Francisco Municipal Transportation Agency
1 South Van Ness, Avenue, 7th Floor
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Mr. Edward D. Reiskin
Director of Transportation
San Francisco Municipal Transportation Agency
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Dear Board Chairman and Members and Mr. Reiskin:

The Office of the Controller's City Services Auditor Division (CSA) engaged Sjoberg Evashenk Consulting, Inc., to audit the San Francisco Municipal Transportation Agency's (SFMTA) Central Subway Project's (CSP) accounting systems and processes, budgeting, and fund reporting activities to obtain reasonable assurance that project cost information is properly recorded and correctly reported.

The audit found that the CSP's project costs reported to the Federal Transit Administration (FTA) are supported by reliable source data and past variances have been resolved. Specifically, the audit found that:

- 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 construction-related project expenses 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.
- The City's accounting system serves as the basis for reporting costs to the FTA.
- The Excel-based cost reporting tool that replaced the capital program control system is functional.
- The FTA has accepted SFMTA's explanations for past reporting errors.

CSA appreciates the assistance and cooperation of SFMTA staff during the audit. For questions about the report, please contact me at Tonia.Lediju@sfgov.org or 415-554-5393 or CSA at 415-554-7469.

Respectfully,

Tonia Lediju
Director of City Audits

Attachment

cc: Mayor
Board of Supervisors
Budget Analyst
Citizens Audit Review Board
City Attorney
Civil Grand Jury
Public Library

City and County of San Francisco

Office of the Controller – City Services Auditor

San Francisco Municipal Transportation Agency

The Central Subway Project Cost Reporting Practices Have Improved

October 31, 2014

SJOBERG EVASHENK CONSULTING, INC

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EXECUTIVE SUMMARY

Purpose of the Audit

The City Services Auditor (CSA) hired Sjoberg Evashenk Consulting, Inc. (SEC) to conduct a review of the San Francisco Municipal Transportation Agency's (SFMTA) Central Subway Project's (CSP) accounting systems and processes, budgeting, and fund reporting activities to obtain reasonable assurance that project cost information is properly recorded and correctly reported.

Highlights

The Central Subway Project is a $1.5783 billion capital transportation construction project, scheduled to be open for service in December 2018. The project is financed with 62.3 percent federal, 29.85 percent state, and 7.86 percent local contributions. With $942.2 million of the project's budget funded by the Federal Transit Administration's New Starts grant, the Federal Transit Administration (FTA) is the project's most significant sponsor.

For FTA reporting purposes, the CSP Office is required to submit monthly progress reports detailing costs, schedules, and other project related information such as staffing levels and safety and security issues.

However, past cost reporting errors and the failed implementation of a capital program control system raised concerns about the accuracy and adequacy of those reports and the use of federal funds.

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.

Recommendations

The report contains two recommendations to further strengthen cost reporting practices for the Central Subway Project:

1. Continue working on fine-tuning the cost workbook and associated written procedures.
2. 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.

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GLOSSARY OF TERMS

CMAQ	Congestion Mitigation and Air Quality Improvement Program—a federal funding source for projects and activities that reduce congestion and improve air quality.
CSP Project Office	SFMTA entity responsible for delivering the project and preparing the cost report.
CPI	Cost Performance Index used to measure project's efficiency in expending funds. A CPI of 1 or greater means funds are spent efficiently while a CPI below 1 means resources allocated to the project are not spent efficiently.
Cost Report	Monthly Progress Report submitted to the FTA by the CSP Office.
EPC Ecosys	Capital Program Control System integrating P6 and FAMIS.
Earned Value Analysis	A method of measuring a project's progress with respect to budgets and schedules. Used to together with the Schedule Performance Index (SPI) and Cost Performance Index (CPI) to determine project's efficiency and effectiveness in managing resources.
FAMIS	Financial Accounting and Management Information System—the City and County of San Francisco's computerized accounting system.
FAMIS Index Code	Cost centers designed to map revenues and expenses to a funding source. There are index codes for sources (revenues) and uses (expenses).
FTA	Federal Transit Administration
New Starts Grant	Funding program administered by the FTA to support locally planned, implemented, and operated major transit capital investments.
P6	Primavera Version 6—project management software.
PMOC	Project Management Oversight Consultant—FTA-hired consultant responsible for reviewing the monthly cost reports.
Prop 1B	Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006— California voter initiative passed in 2006 to fund transportation infrastructure improvements through the sale of State general obligation bonds.
Prop B/K	Sales Tax for Transportation—San Francisco voter initiative to fund transportation spending according to a 30-year expenditure plan through the continuation of a one-half cent sales tax; voters passed Proposition K in 2003, replacing Proposition B passed in 1989.

SCC	Standard Cost Category—category by which the FTA requires specified costs to be grouped for the reporting, estimating, and managing of capital costs for FTA-funded projects.
SPI	Schedule Performance Index used to measure whether a project will be delivered on time. A SPI of 1 or greater means the project is on or ahead of schedule while a SPI below 1 means the schedule is facing schedule delays.
Source Data	Data used to generate the cost report—consists of data from FAMIS and P6.
WBS	Work Breakdown Structure—a means of organizing a project by dividing it into manageable phases, deliverables, and work packages; each task is assigned a WBS number and tied to other tasks and to the end product.

INTRODUCTION

Background

The Central Subway Project (CSP) is a $1.5783 billion capital transportation construction project, planned to be open to the public by December 2018. Once completed, the subway line will span 1.7 miles between Chinatown and the 4th Street Caltrain station and allow the public access via four stops at:

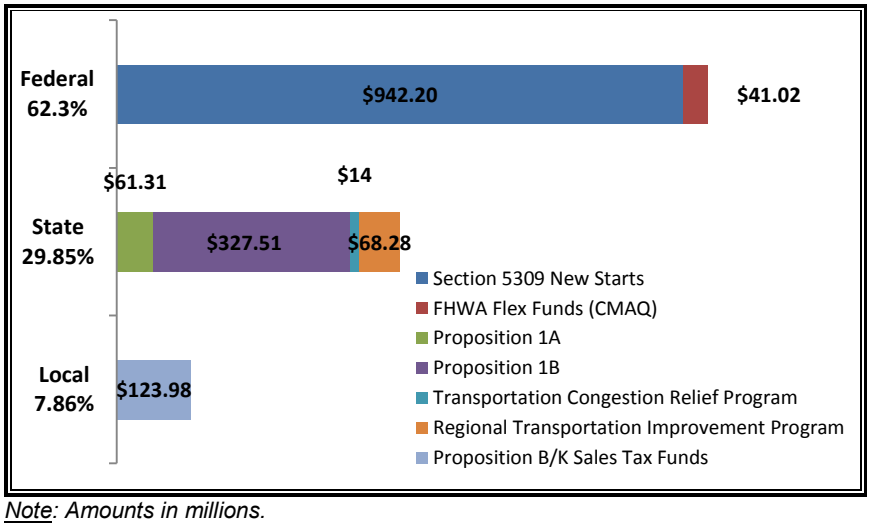
1. Chinatown (Stockton & Washington Streets);
2. Union Square/Market Street (Stockton at Union Square);
3. Yerba Buena/Moscone (4th & Folsom Streets); and
4. 4th & Brannan (4th & Brannan Streets).

As the project owner, the San Francisco Municipal Transportation Agency (SFMTA) through its Central Subway Project Office (CSP Office) is responsible for the on-time and on-budget delivery of the project, as well as adequately reporting on project costs and schedules to stakeholders and the public.

Since mid-2009, the CSP Office has been preparing a Monthly Progress Report (Cost Report) for submission to the Federal Transit Administration (FTA)—its most significant project sponsor with $942.2 million or 59.7 percent in funding committed.

In total, the project is financed using federal, state, and local funds split at 62.3 percent federal, 29.85 percent state, and 7.86 percent local sources as shown in Figure 1.

Figure 1: $1.5783 Billion Central Subway Project Funding Sources



Note: Amounts in millions.

As a project cost and schedule monitoring tool to the FTA, each cost report is reviewed by the FTA's Project Management Oversight Consultant (PMOC) and evaluated for risks to budgets

and schedules. Top issues, recommendations, and resolution status are formalized by the PMOC in a "Mini Monthly Report" and vetted with the CSP Office.

While the cost report is extensive and covers various areas beyond budgets and schedules such as project staffing levels, community outreach efforts, or statistics on construction site accidents and injuries, the focus of our review was on the areas related to project costs, and in particular, the reliability and accuracy of source data used to prepare the cost report.

Objectives and Scope

The objective of the audit was to review accounting systems and processes, budgeting, and fund reporting activities related to the Central Subway Project to obtain reasonable assurance that the financial records are properly recorded and correctly reported.

Methodology

To achieve the audit's objectives and scope, some of the audit tasks and tests we performed included:

- Interviewing SFMTA Central Subway, Accounting, and Contract Administration staff to gain an understanding of existing processes, practices, and controls surrounding cost approval, recording, and reporting.
- Observing negotiations between Central Subway Project staff and construction contractors during month-end progress payment request meetings.
- Reviewing project files and documentation such as monthly progress reports and the supplemental report, project management oversight consultant reports, consultant and contractor agreements and invoices, contractor bid schedules and schedule of values, FAMIS expenditure and revenue reports, and cost reporting policies and procedures.
- For the April 2014 cost report, performing detailed analysis and reconciliation of the cost report to the Excel workbook to underlying FAMIS and P6 source data.
- Researching and reconciling cost variances between two consecutive reporting months for a sample of four periods as follows:
    - $3.1 million variance for Preliminary Engineering from January 2010 to February 2010;
    - $2.4 million Final Design from February 2011 to March 2011;
    - $6.5 million for Other Professional Services from December 2011 to January 2012; and
    - $59.6 million for Program Management for Design and Construction from September 2013 to October 2013.
- Examining the evolution of project's cost estimates, baseline

budgets and schedules.

- Evaluating industry best practices for schedule and cost performance indices.

We were not engaged to:

- Perform contract compliance audits for any of the project's contracts.
- Review reasons, decisions, or processes related to the failure of the EPC Ecosys System as a capital program control system.

Statement of Auditing Standards

We conducted this audit in accordance with generally accepted government auditing standards. These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT RESULTS

SECTION I: BASELINE BUDGET AND SCHEDULE REMAIN UNCHANGED AND RISKS TO PROJECT BUDGET AND SCHEDULE ARE CLOSELY MONITORED

Current Forecasts Suggest that the Central Subway Project will not Exceed its Baseline Budget of $1.5783 Billion and will Open to the Public as Planned in December 2018

As with all major capital construction projects, a question that weighs heavily on all involved parties from the project owner and funding partners to the general public, is whether the project will be delivered on-time and on-budget.

While the primary focus of our review was not to assess the assumptions behind the on-time and on-budget delivery of the project, based on our limited review of current reported actual cost, schedule, and contingency data, we believe that the Central Subway Project has considered mitigating factors to address potential schedule delays and budget overruns.

In fact, as of April 2014, the project is at 34.09 percent complete, and with incurred expenses totaling $586.52 million, 37.16 percent of the $1.5783 billion budget has been consumed. Further, the CSP Office reported that the project will come under budget at a total cost of $1.5138 billion—a potential savings of $64.46 million, when the Subway opens to the public in December 2018.

Moreover, in the event of unforeseen conditions that would cause the project to exceed its current budget, the San Francisco County Transportation Authority (SFCTA) has committed up to $150 million in additional regional improvement program funds to supplement the project.

Baseline Budget and Schedule Have not Changed since 2010 when the Project Scope was Finalized at the Conclusion of Preliminary Engineering

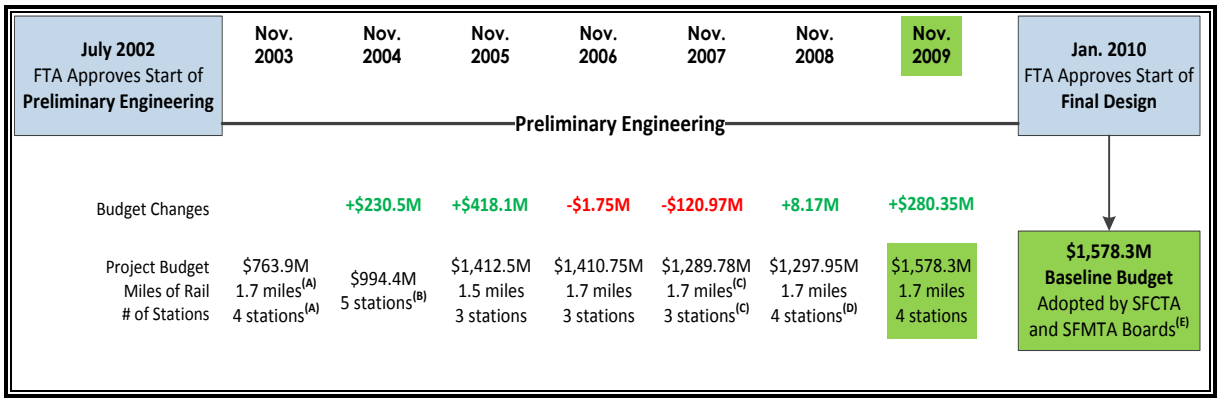
As with all major Federal Transit Administration (FTA) funded projects, initial planning starts years, if not decades, before the project finally opens to the public. It is therefore not uncommon in the industry that a project's scope and associated budget change as it progresses through the early stages of conceptual engineering and planning.

For the Central Subway Project, the FTA authorized the preparation of the draft Environmental Impact Statement (EIS) and early planning in 1996. In July 2002, the FTA approved the project to formally enter preliminary engineering. One year later, when the project was approved for funding with Proposition K sales tax revenues by City and County of San Francisco voters in November 2003, the project budget was estimated at $763.9 million, which was based on cost estimates

developed in the late 1990s as part of the EIS. The local sales tax contribution towards the project was set at $126 million.

Over the course of the preliminary engineering phase between July 2002 and November 2009, the project's budget fluctuated between $763.9 million at the lowest level to $1.5783 billion at the beginning of final design as shown in Figure 2.

Figure 2: Baseline Budget 2002 to Current



Source: FTA New Starts/Small Starts Annual Reports for 2003 to 2009

Note: For some years, the FTA New Starts/Small Starts Annual Reports contained conflicting information within the same report as follows: (A)The project map for Nov. 2003 shows 3 miles of rail and 6 proposed stations. (B) No data published for Nov. 2004; budget and station data is from the Nov. 2005 report. (C) The project map for Nov. 2007 shows 4 proposed stations. (D) The report for Nov. 2008 shows 3 proposed stations. (E) SFCTA Board Approval per Resolution 10-51, March 2010; SFMTA Board Approval per Resolution 11-053, April 2011.

Some reasons behind the project's cost revisions during preliminary engineering related to changes in the number of stations, length of the subway line, value engineering efforts, as well as economic conditions such as inflation and the recession. However, these changes are reasonable and normal given the industry and the environment at that time.

Yet, the project's baseline budget of $1.5783 billion, as approved by SFCTA and SFMTA has not changed since the project completed preliminary engineering and was approved by the FTA to enter final design in January 2010.

Similarly, at the start of final design, the Master Project Schedule (MPS) predicted a revenue service start date (open to the public) of December 26, 2018. This date is still the same as of the time of our review.

Current Central Subway Project Construction Progress Aligns with Budget Spent

Schedule and Cost Performance Expectations Compare to Industry Practices

With less than five years remaining until the Central Subway opens to the public, preliminary engineering and final design phases have concluded under budget, most real estate and right-of-way purchases have been resolved, vehicles are procured, and construction is well underway.

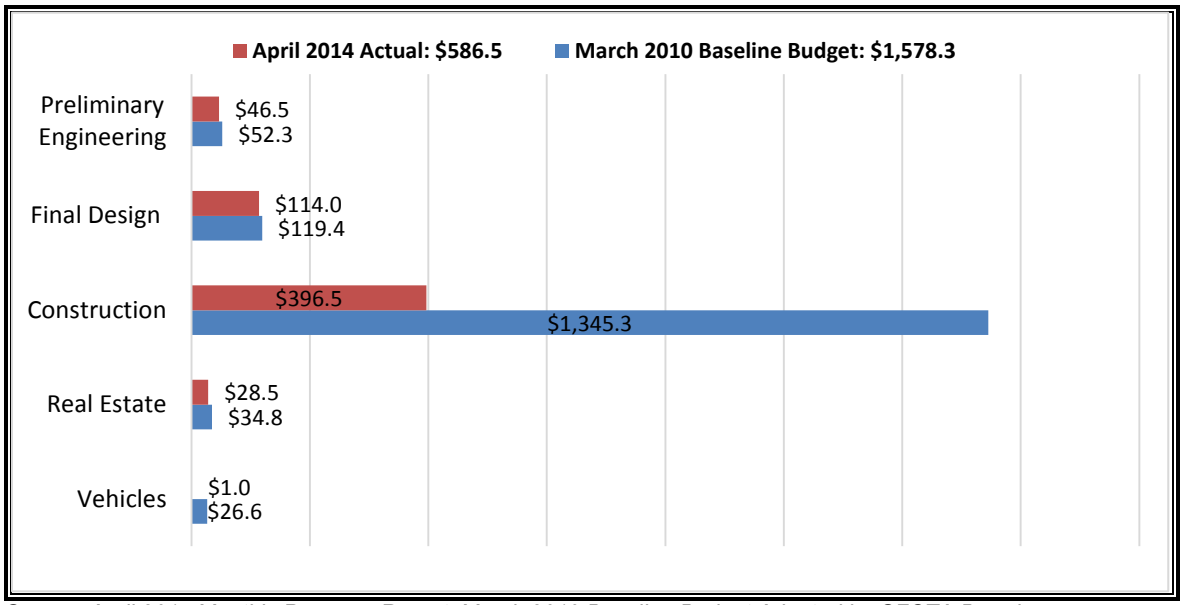
As of the April 2014 cost reporting period, the Central Subway Project's Earned Value (EV) analysis suggests that the project is at 34.09 percent complete with 37.16 percent of the project's budget spent. After combining already incurred with known anticipated expenses, the project is estimated to cost $1.5138 billion at completion, which will be approximately $64.46 million under budget.

However, calculated values for both EV indices—the Schedule Performance Index (SPI) and Cost Performance Index (CPI) suggest that the project is currently behind schedule and not using funds efficiently. Specifically, as of April 2014, the SPI was 0.93 and the CPI was 0.92 whereas "ideal" SPI and CPI metrics should be equal to or greater than 1 to indicate on-time and on-budget project performance.

Despite this data, the CSP Office states it is comfortable with the below norm figures and maintains the expectations that the project will be delivered as planned. We find that the CSP Office's position is not contrary to EV industry benchmarks; however, literature is not consistent on whether a CPI/SPI below 1 is a true red flag. What appears to be a consensus is that the limits of what is considered acceptable should be decided by each organization. This means that some organizations may consider re-baselining or re-budgeting projects based on values marginally below 1 while others may have a greater tolerance for such risks. For example, the Colorado Department of Transportation's most recent performance plan established a performance goal for one of its projects to reach an SPI of ≥0.90.

Therefore, while risks remain that the project will be delayed or cost more than anticipated, we do not find the CSP Office's position unreasonable given that the project's remaining significant expenses are already programmed, there are still several years left to make up for the current projected delay—and both the CSP Office and its Project Management Oversight Consultant PMOC are closely monitoring these factors. In addition, both the preliminary engineering and final design phases have completed under budget as shown in Figure 3.

Figure 3: Baseline Budget to Actual Costs



Source: April 2014 Monthly Progress Report; March 2010 Baseline Budget Adopted by SFCTA Board

Note: Amounts in millions through April 30, 2014. April 2014 Figures sum to $586.4M. Variance is due to rounding.

Remaining Significant Project Expenses Are Accounted for and Contingency Levels are Closely Monitored

Moreover, the Central Subway Project's $1.5783 billion baseline budget includes a $213.74 million unallocated contingency line item to offset cost overruns such as higher than expected construction bids or unforeseen conditions during construction. Contingency budgets are established to mitigate risks associated with capital construction, and to the extent predictable, compensate for potential cost overages.

Although there is no industry-wide mathematical formula for calculating ideal contingency levels, best practices suggest that contingency levels typically decrease as the project advances from preliminary engineering to design and construction—based on the notion that the further the project moves along, the fewer the unknowns, and the lower the contingency. Accordingly, the FTA has allowed its PMOC discretion in determining and recommending minimum contingency levels based on internal FTA guidelines. For the CSP, contingency levels are reported as part of the cost report and reviewed by the PMOC on a monthly basis.

As of April 2014, the $213.74 million base cost contingency has decreased to $71.11 million, which is below the PMOC recommended minimum of $140 million. The reason for the significant cost contingency decline over the past four years since establishing the baseline budget was mainly attributable to the lowest bid[1] for construction of the stations, surface, track, and systems coming in approximately $120 million over the engineer's estimate. However, a mitigating factor that appears to be an acceptable solution to the PMOC is that in April 2011, the SFCTA committed an "additional $150 million in State Regional Improvement Program funds to cover potential cost overruns beyond the $1.5783 billion baseline budget." This provides the CSP an additional buffer should the actual costs of constructing the stations, surface, track, and systems come in over the bid amount.

Of the $71.11 million remaining contingency, approximately $62.11 is allocated to existing budgets for the completion of the construction and professional services contracts, and vehicles and real estate purchases, leaving the project with an unallocated contingency amount of $9 million. In other words, the $71.11 million contingency balance has not yet been consumed but it has been earmarked for work currently budgeted. For example, the base bid for the stations, surface, track, and systems construction contract was $839.68 million, to which the CSP Office added $20 million for change orders. This $20 million is part of a $71.11 million contingency pool that has been allocated but not yet expended.

In another example, the Tunneling contract[2] was awarded at $233.58 million with $53.66 million set-aside for change orders; however, with the tunneling project nearing completion, the project has only incurred approximately $4.7 million in change orders to-date, which will free a significant portion of the tunneling contract contingency for other work.

[1] The "Stations, Surface, Track and Systems" construction contract (CN1300) was awarded to Tutor Perini Corp. in May 2013 for $839,676,395.

[2] The "Central Subway Tunneling" construction contract (CN1252) was awarded to Barnard Impregilo Healy (BIH) Joint Venture in June 2011 for $233,584,015.

Because construction represents a very volatile phase of a project where unforeseen conditions can significantly add to overall project costs, it is important for the project owner to closely and adequately monitor contractor activities. For the CSP, we noted that the CSP construction management team from resident engineers to project controls staff scrutinize contractor monthly progress payment requests and actively discuss with contractors the appropriate amount to be paid for each line item on the schedule of values. By closely overseeing contractors, the risks of contractors potentially frontloading costs is minimized and potential change orders are recognized early and efficiently managed.

Similarly, in terms of the schedule contingency, the current buffer for the CSP is at 4.8 months; this is below the 8 months minimum recommended by the PMOC. While projections for the "open to public" date still remain at December 2018, the shortened buffer float increases the risk of the project being delayed. At the time of our review, the PMOC and CSP Office have not yet reached an agreement on whether the shorter schedule contingency is acceptable. However, since both parties are actively engaged at reaching a solution, the difference of 3.2 months between the CSP Office and the PMOC does not represent an audit concern as long as the discussions are on-going and the schedule contingency is carefully monitored.

SECTION II: ACTUAL PROJECT COSTS ARE CLOSELY MONITORED AND COST REPORTING PROCESSES HAVE IMPROVED

Multi-million dollar public capital construction projects face heightened public interest and scrutiny, especially when taxpayer monies are at stake. There is an added level of complexity when federal funds are involved, as federal funds often come with more restrictions on use and require specific reporting on project progress. Therefore, providing adequate and timely reporting on costs and schedules is key to greater public transparency and accountability.

For the Central Subway Project, the CSP Office has been submitting a Monthly Progress Report (Cost Report) to the Federal Transit Administration (FTA) since mid-2009[3]. These reports also serve as the project's main public progress reporting tool. However, over the past few years, the CSP Office has encountered several challenges with ensuring the reported cost data is sound and based on reliable source data. Today, it appears that the CSP Office has overcome most of those cost reporting obstacles and is continuing to improve its cost reporting practices.

Multiple Levels of Review Occur before a Central Subway Project Cost is Paid

With professional service consultants and construction contracts representing the majority of capital construction costs, managing limited resources by controlling costs is a critical step towards minimizing project budget overruns.

Several Levels of Independent Review and Approval within Various SFMTA Entities Ensure Appropriate Segregation of Duties over Paying For CSP Expenses

At the Central Subway Project, the expenditure cycle typically begins with the contractor or consultant submitting progress payment requests to their designated project manager at the CSP Office. For example, construction progress payments are first reviewed by the resident engineer, followed by the program manager over project delivery, the contract administrator, and ultimately the program director. After each of the CSP Office level approvals have occurred, the request is forwarded to SFMTA's contract administration department for second level authorization. Once all "ok-to-pay" approvals are obtained, SFMTA Accounting processes the payment in FAMIS with the actual warrants issued by the City and County of San Francisco Office of the Controller.

[3] The first cost report was submitted to the FTA in August 2009 for the June/July 2009 period.

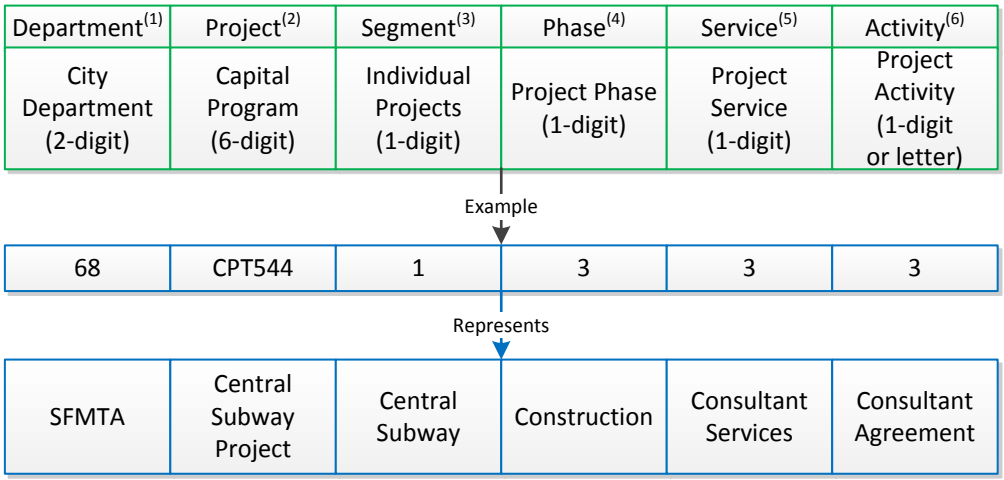
CSP staff are granted read-only access to FAMIS; thus, they cannot directly modify project budgets or expenses in the system. Moreover, expense amounts, once paid and posted in FAMIS cannot be modified. As such, at any given point in time, FAMIS reflects the most accurate budget and actual incurred cost information for the CSP.

Funding Reimbursement Requests are prepared by SFMTA Accounting

While individual budget line items can be moved in FAMIS, these so-called budget transfers—whether between contracts or phases, or to draw down from the contingency pool—must first be formally requested by the CSP Office, and then follow a similar approval process as with progress payments. Each individual reviewing and approving such changes serves as a control point in the accounts payable cycle and helps to minimize the risk of one individual affecting overall CSP finances or reporting.

Key elements of FAMIS critical to capturing CSP costs are index codes, which are cost centers designed to map revenues and expenses to a funding source. On the expenses or "uses" side, FAMIS index codes allow for the identification of costs at varying levels of detail. For example, a standard FAMIS expenditure report can show all expenses related to the CSP. That report can further be sorted to identify costs by phase, service type, or activity as illustrated in Figure 4.

Figure 4: FAMIS Index Code Structure for Central Subway Project



Note: (1) SFMTA Department number is 68 (current) and 35 (former). (2) CSP number is always CPT544. (3) Segment 1 = Central Subway Program; Segment 2 = LRV Procurement Program (4) Phase 1 = Conceptual Engineering; Phase 2 = Detailed Design; Phase 3 = Construction (5) Service 1 = Construction Division; Service 2 = Other City Services; Service 3 = Consultant Services; Services 4 = Contracts & Purchase Orders; Services 9: Contingency (6) Activities for Construction Division: 1-Project Management; 2-Engineering Design; 3-Construction Management; 4-Other Direct Costs; Activities for Other City Services: 1-DPW; 2-DPT; 3-Art Commission; 4-SFWD; 8-Muni Operations; 9-Muni Maintenance; Activities for Consultant Services: 1 to 9 Contracts; Activities for Contracts & Purchase Orders: 1 to 8 Construction Contracts & Purchase; 9-Taxes

As illustrated in Figure 4, index code 68CPT5441333 captures the cost of a consultant providing services during the construction phase. Index code 68CPT5441333 is unique to this consultant's contract with SFMTA and no other contracts or city department labor costs can be charged to this index code. As of April 2014, 164 unique index codes have been used to capture CSP-related costs.

In addition, index codes can be further defined through project codes. According to SFMTA Accounting, project codes identify a project's "segment, phase and task"; these codes can be embedded in index codes or variably coded. In the Figure 4 example, the project code is CPT5441333 and is embedded in the index code.

With "CPT544" designated as the CSP project, any project codes involving the CSP will contain "CPT544." A CPT number other than 544 would represent a different SFMTA capital project with project costs tracked separately from CSP costs. Generating an expenses report from FAMIS with the "CPT544" parameter will provide all costs incurred for the CSP.

On the funding "sources" or revenue side, actual CSP expenses are always first paid out of subfund 5MCPFUNA, which is the "Muni-Capital Projects-Unallocated" fund while waiting to offset the costs against federal, state, or local funding sources. Because most CSP funding is based on government grants that are typically reimbursement based (i.e., the grantee is reimbursed after expenses are incurred and appropriate grant reimbursement requests have been filed), SFMTA Accounting, on a quarterly basis, books a contra-entry in FAMIS against subfunds 5MCPF**FED** (federal), 5MCPF**STA** (state), or 5MCPF**LOC** (local), when it processes the grant billings. Typically, the index codes for federal funds contain an "F", for state funds an "S" while local index codes are identifiable with an "L".

To-date, SFMTA has established 14 index codes to capture the federal, state, and local funding sources committed to the CSP. In Table 1, we provide an example of the FTA New Starts grant as captured in FAMIS.

Table 1: Central Subway Funding Source Example

FAMIS	Explanation
Subfund: **5MCPFFED**	○ 5M = MTA – Municipal Railway Fund ○ CPF = Capital Projects Fund ○ FED = Federal
Index Code: **35F767**	○ 35 = MTA's former department code (changed to 68 around FY2009) ○ F = Federal ○ 767 = Last 3-digits of Grant Agreement Number
Index Code Title: **CA03-0767** **3D ST LTRL CNTRL SBWY-FED REV**	○ CA03-0767 = Grant Agreement Number ○ 3D ST LTRL CNTRL SBWY = Project (3rd St Light Rail Central Subway) ○ FED-REV = Federal Revenue

Using an expenditure report from FAMIS that lists all costs charged to the CSP for the billing period, SFMTA Accounting prepares quarterly grant reimbursement requests to replenish the monies it advanced to pay for services and goods. For example, for the 3rd quarter of FY2013/14, the CSP had $32.29 million in billable expenses. Of those, $3.57 million represented six progress payments made to its construction management consultant[4]. This $3.57 million was billed 80 percent against the federal New Starts grant and 20 percent against the State Prop 1B grant. According to SFMTA Accounting, depending on the grant requirement such as local match or restriction on fund use, SFMTA Accounting would allocate the expense across the different funding sources for billing purposes. For instance, the federal New Starts grant is restricted for use on construction phase costs (actual construction, construction management, program management). Since the construction management contract meets those requirements, its costs are eligible for billing against the New Starts grant.

SFMTA Accounting further asserts that "staff are advised of any limitations with every funding source" through periodic memos and emails by SFMTA Grants Management. Moreover, upon execution of contracts, contracts are assigned specific FAMIS index codes by SFMTA Contracts Administration and SFMTA Accounting to adequately reflect the funding source associated with the services or goods provided.

[4] The "Program and Construction Management" contract (CS149) was awarded to Central Subway Partners Joint Venture (AECOM & EPC Consultants, Inc.) in December 2008 for $147,375,171.

Current Central Subway Cost Reporting Uses Reliable Source Data

The CSP cost reports have evolved over the past few years. As the current reports are most relevant, we used the April 2014 cost report to reconcile and confirm reported costs with source documentation and to assess whether the current cost reports reflect the project recording and reporting improvements made as asserted by the CSP Office. For the month we reviewed, the changes appear to have the intended positive impact on the accuracy of the cost report as we found no discrepancies with source data.

FAMIS Actual Cost Amounts Serve as the Basis for the Cost Report

The process for preparing each monthly cost report compilation begins with a download from the City's Financial Accounting and Management Information System (FAMIS). This download includes all expenses paid through the end of the prior month. It is important to note that despite the many past reporting challenges, FAMIS has always been a constant and therefore reliable source for determining how much has been spent on the CSP.

Next, CSP Project Controls staff isolate the construction contracts costs and replace the FAMIS cost amounts with cost data from Primavera Version 6 (P6) to account for accruals and provide a more complete picture of incurred costs. For example, the April 2014 cost report consists of FAMIS expenses through 3/31/14, construction costs per P6 through 4/30/14, and professional services invoices received but not yet paid as of 4/30/14.

This resulted in the CSP Office reporting total net incurred project costs of $586.52 million in the April 2014 cost report. This is illustrated in Figure 5. Following this process, the total amount reported is always greater than the actual costs per FAMIS due to the addition of accruals for professional services invoices and construction contracts.

Figure 5: Cost Report Data Sources with Actual Figures Used in April 2014 Cost Report

As an accounting system, FAMIS is meant to capture project budgets and process expenses. As such, it supplements other project management software such as P6 but does not have the same level of detail required by project managers to actively monitor project progress nor does it have the functionality to generate reports in the format needed for the FTA cost report. For example, FAMIS restricts the captioning of project costs to three phases: preliminary engineering, final design, and construction. Yet for day-to-day project management activities as well as FTA cost reporting purposes, a more detailed break-down of costs is required to ensure consistency across FTA sponsored projects nation-wide.

Crosswalk between FAMIS, WBS, and SCC is required for Cost Reporting

Major capital construction projects rely on a Work Breakdown Structure (WBS) that affords for more detailed tracking of entire project costs and schedules. The WBS is usually established at the agency level to ensure consistency across projects for capital construction—and when loaded in P6, it allows for tracking progress and monitoring costs through resource-loaded schedules and line-item budgets. For SFMTA, the standard 12-digit WBS consists of:

For detailed project cost tracking purposes, the WBS further defines the activity by work packages, location, and finally links it to Standard Cost Reporting (SCC) tiers. Reporting costs using the SCC format is required by the FTA for projects it sponsors to ensure consistency amongst the reporting of capital costs for New Starts grant funded projects. Table 2 illustrates how coding structures are linked between FAMIS, WBS, and SCC. In general, the first 10 digits of the 12-digit FAMIS index code ties to the first 2 digits of the 12-digit WBS. The last 5-digits of the WBS correspond to the SCC.

Table 2: FAMIS - WBS - SCC Crosswalk

FAMIS	68	CPT544	1 (Segment: CSP)	3 (Phase: Construction)	3 (Service: Consultant Services)	3 (Activity: Construction Management)		
WBS			1 (Project: CSP)	3 (Phase: Construction)	072 (Work Package: Design for Stations – Contract CS155-2)	01 (Location: Project Wide)	080 (SCC Tier 1)	0.4 (SCC Tier 2)
SCC							080 (Professional Services)	0.4 (Construction Administration & Management)

In Table 2 we provide an example using index code 68CPT544**13**33 that is linked to WBS **1.3**.072.01.080.04. The "1" stands for CSP and the "3" represents the construction phase. The WBS coding further details that the work falls under the Stations Design contract CS155-2 with work performed project-wide (072.01). The last 5 digits of the WBS (080.04) are the same as the SCC, which means that the expenses incurred under this contract will be reported to the FTA under the SCC for professional services—construction administration and management.

Normally, these separate accounting and project management systems are integrated into a single capital control system, such as the EPC Ecosys Program, that then provides for a comprehensive project control and management solution. Since the EPC Ecosys consultant[5] hired by the CSP Office did not deliver the system as intended, the CSP Office reverted to a more manual process to achieve the same reporting goal.

Excel Workbook Used to Replace Capital Control System Is Functional

Specifically, with no EPC Ecosys System in place, CSP Project Controls developed an advanced Excel workbook that deployed a series of interlinked spreadsheets to crosswalk FAMIS to WBS and SCC for monthly cost reporting purposes. Each month, using an expenditure download from FAMIS and P6, CSP Project Controls staff updates the workbook with current data to populate the various cost tables presented in the cost report. For instance, one cost report table summarizes and sorts the project budget and expenditures by SCC, such as construction, real estate, vehicles, preliminary engineering, final design, project management for design and construction, other professional services, and unallocated contingency. Another table summarizes the same budget and expenditure data by SCC description such as guideway and track elements, sitework and special conditions, systems, vehicles, stations/stops/terminals/intermodal, right-of-way/land, existing improvements, form B reimbursements, professional services, and unallocated contingency. While the data is presented in different formats, the project's budget and expenses for the reporting month remain consistent.

[5] The "Agency Capital Program Controls Systems" contract was awarded to Hill International, Inc. in August 2010 for $22,269,541.

In addition, we found that even with the numerous ways project cost data is sliced and diced, in general, the costs by phases per FAMIS agree with what is reported to the FTA, as shown in Table 3. Where we noted some differences, we found that most relate to the grouping of costs for FTA reporting versus how FAMIS is capturing costs. For example, there is no separate phase in FAMIS for Real Estate; however, it is a separate reportable category in the cost report. Thus, of the $28.6 million cost for real estate per FAMIS, $105,904 is included in preliminary engineering, $2.9 million is included in final design, and $25.6 is included in the construction phase. These nuances are described by the CSP Office in notes to the cost report.

Table 3: Cost by Phases per FAMIS and Cost Report

FAMIS		Cost Report		Auditor's Comment
Phase	**Amount**	**Phase**	**Amount**	
Preliminary Engineering	$48,210,904	Preliminary Engineering	$46,542,060	One reason for $1.67 million difference is due to some of SFMTA's labor during the early stages of final design captured in preliminary engineering until final design index code was established.
Final Design	$116,648,504	Final Design	$113,961,308	$2.69 million difference is largely due to Real Estate costs included in FAMIS as part of Final Design while the cost report records Real Estate in a separate category.
Construction	$312,285,852	Construction	$396,512,343	Difference is mainly due to cost report using construction contracts costs per P6.
Vehicles	$982,822	Vehicles	$982,822	No difference.
Real Estate	Not applicable	Real Estate	$28,522,699	There is no separate phase for real estate in FAMIS. However, FAMIS real estate index and project codes show $28,628,603 in real estate costs spread across Phases 1 – 3.
FAMIS:	**$478,128,082**	**Cost Report:**	**$586,521,232**	

Source: FAMIS Expenditure Report as of 3/31/2014; April 2014 Cost Report, Appendix A, Cost Report Schedule 7.9

At a more detailed level, our analysis of selected costs that were captured in a particular phase in FAMIS but then allocated to different phases for the cost report did not reveal anything unusual. Further, the shifting of costs between phases for cost reporting purposes were disclosed in the notes section to the cost report as shown in Table 4.

Table 4: FAMIS to Cost Report Cross-Walk for Select Cost per April 2014 Cost Report

FAMIS	Cost Report		Auditor Comments
$10,222,939 [357906.CPT5441**1**12] Index Code for: **Preliminary Engineering** SFMTA Labor	$8,949,300 to 1.**1**.012.01.080.01 - **PE:**SFMTA LABOR-ENGINEERING SERVICE [357906.CPT5441112]	$1,273,639 to 1.**2**.012.01.080.02 - **FD**:SFMTA LABOR-ENGINEERING SERVICE [357906.CPT5441112]	Reported $1,273,639 in final design.
$26,268,511 [35CPT5441233.CPT5441**2**33] Index Code for: **Final Design** - Design Contract CS155.2	$26,220,609 to 1.**2**.072.01.080.02 - **FD:**FINAL DESIGN-DP2 [35CPT5441233.CPT5441233]	$47,902 to 1.**3**.072.01.080.04 - **CM**:FINAL DESIGN-DP2 [35CPT5441233.CPT5441233]	Reported $47,902 in construction phase.

Past Cost Reporting Inconsistencies Have Been Addressed

The cost report in its current format has been in use since November 2013. While it contains many topics and sections such as budgets, schedules, contingency analysis, community outreach, and construction, it stands in stark contrast to the first cost report published in mid-2009. With preliminary engineering costs being the only expense reportable at that time, the expenses were summarized in a single table. Later reports, as the project entered final design and finally construction, were more complex and comprehensive. Also, beginning with the January 2012 reporting period, costs are detailed in a separate appendix to the report in addition to summary information presented in the report's body.

Explanations for Past Reporting Errors Have Been Accepted by the PMOC

While the initial cost reporting challenges resulted from the CSP Office learning the FTA reporting format, there were several other related factors that make comparing costs between reporting periods difficult. Most noticeably, the failed EPC Ecosys system required the CSP Office to swiftly find an alternative reporting solution that is appropriate and adequate. Coupled with staff turnover during the same period, the challenges surrounding the cost report were further compounded.

The CSP used Excel spreadsheets with data from FAMIS to generate the cost reports until August 2012. During the presumed "go-live" period for the EPC Ecosys system between August 2012 and September 2013, the CSP Office relied on cost data provided by its EPC Ecosys consultant that presumably was generated out of the EPC Ecosys system. Initial problems with the EPC Ecosys reporting were first raised by FTA's PMOC in its July 2013 report noting that "*The monthly cost report prepared by the CSP was found to have numerous unexplained changes this month [July 2013]. The PMOC has*

notified CSP to make corrections and provide details for cost changes to the following items: Form B credit, Public Art, Utilities, Preliminary Engineering, Final Design, and Project Management."

Prompted by the PMOC concerns, the CSP Office further investigated the reporting problems. By September 2013, the CSP Office learned that the EPC Ecosys system failed to go-live as intended in August 2012 and that the reports provided by the consultant were non-system generated and were manually manipulated by the consultant to produce the required FTA cost reports. When CSP Management determined that the EPC Ecosys system was not working as intended, its use was terminated.

Beginning with the October 2013 cost report, the CSP Office reverted back to an Excel-based cost reporting mechanism and in the subsequent months further developed Excel into the cost reporting tool used today. Our review revealed that, with each reporting period, formulas and links within the cost workbook were improved to minimize error-prone manual data entry and ensure consistency across reporting periods. Concurrent with the CSP Project Controls staff efforts to fine-tune the cost workbook, they also began developing written procedures to detail the various tasks and steps necessary to compile the monthly cost report.

Despite the numerous reporting format changes and challenges, the CSP Office asserts that FAMIS, as key source data used to report on project costs, has remained constant the entire time. The problem was not FAMIS, rather the adjustments made to the cost report by its EPC Ecosys consultant were difficult to trace and resulted in the inconsistencies noted. However, as a result of the PMOC concerns, the CSP Office embarked on a mission to research and resolve the cost reporting discrepancies identified by the PMOC. This reconciliation effort took place between July 2013 and December 2013 and resulted in a "September 2013 Supplemental Report" issued in January 2014[6].

The September 2013 Supplemental Report reconciled budget and cost data over the periods of July 2012, February 2013, and September 2013. It was mutually agreed between the PMOC and the CSP Office that the period between July 2012 and September 2013 was subject to several reporting errors that needed correction. This period also coincides with the time when the EPC Ecosys system was in place but not operating as intended. By March 2014, the PMOC accepted the explanations from the Supplemental Report, providing the CSP Office the confidence and assurance that despite the various cost reporting challenges faced in the past, as of the latest reports, costs are supported by reliable source data and past variances have been resolved.

[6] The "Supplemental Report" was submitted to the PMOC on January 31, 2014 as Transmittal No. 2318

While these and other reporting format changes would complicate a full independent reconciliation of all costs, our attempt at identifying cost variances revealed that most cost differences we reviewed were satisfactorily explained.

Testing Revealed Most Reporting Differences Were Explained

Initially, one would expect in charting project costs over time that costs would gradually increase each month; and that once a phase is complete, the reported costs would stay the same. For example, at the onset of a project, the only costs would relate to preliminary engineering. Once the project enters final design, there should no longer be any additional preliminary engineering costs.

However, when we mapped the costs across reporting months, we identified several instances where the reported costs in subsequent months were lower and fluctuated over the years. For instance, between the January 2010 to the February 2010 reporting period preliminary engineering costs were reported at $49,642,123 in January 2010 and $46,520,987 in February 2010—an apparent reduction of $3,121,136.

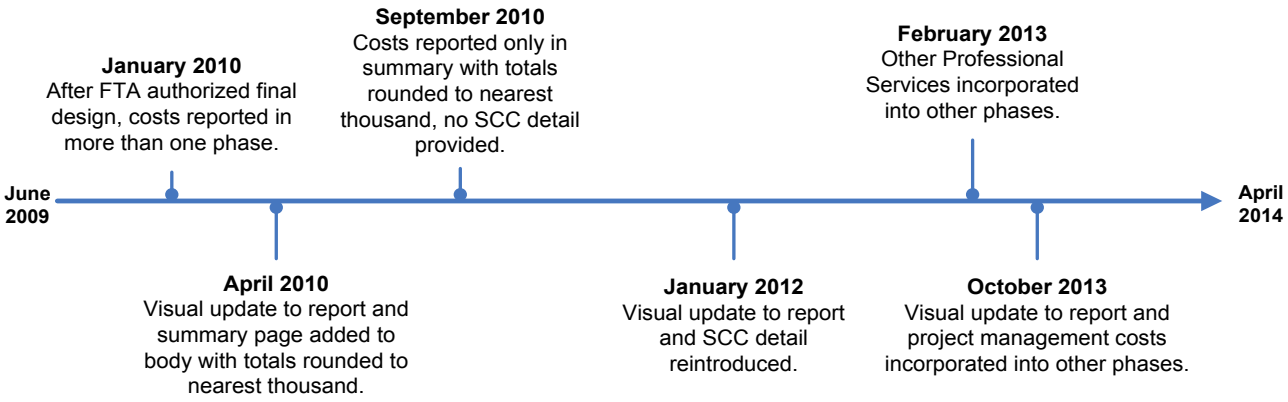
Based on discussions with CSP Project Controls staff and detailed analysis of both cost reports, we learned that between June 2009 and December 2009 all costs were reported as preliminary engineering since the project did not receive FTA approval to enter final design until January 2010. During this transition phase, some activities performed related to final design but were still captured in preliminary engineering until the February 2010 cost reporting period when WBS and SCC codes were established to separate final design from preliminary engineering activities. This resulted in $3.12 million in costs for final design that were initially reported under preliminary engineering being moved to final design in the February 2010 report, thus causing the decrease to the total preliminary engineering amount. More specifically, the $3.12 million was moved out of WBS 1.1.063.1.080.01 to 1.3.063.1.080.03 to better reflect the program management activities during final design.

In another example, $6.5 million in total costs reported under the “Other Professional Services” category in December 2011 was no longer reported in January 2012. Again, the $6.5 million did not just “disappear” but rather was now reported under the final design and construction phases beginning with the January 2012 cost report.

In total, of the four reporting periods we selected for review, the combined reporting variance from one month to the next totaled $71.65 million. We found that 96.7 percent, or $69.25 million of the $71.65 million in variations were reasonably explained and traceable. For the remaining 3.3 percent, or $2.4 million, documentation provided by the CSP Office suggests that $2.4 million in final design in February 2011 was reported as part of project/construction management in the March 2011 report. While we were unable to trace the exact line item change, the CSP Office's explanation appears reasonable.

In addition, as shown in Figure 6, several reporting format changes complicated a full reconciliation of all changes made.

Figure 6: Changes to Cost Report Format between June 2009 and April 2014



Nonetheless, whether the CSP Office moved costs within or between phases, it is important to note that for both preliminary engineering and final design, costs are below the baseline budget. For example, while reported preliminary engineering costs fluctuated between $43.2 million and $52.7 million before being finalized at $46.5 million, the amounts were always within range of the baseline preliminary engineering budget of $52.3 million. Similarly for final design, the baseline budget of $119.4 million was never exceeded as shown previously in Figure 3.

Therefore, while there are apparent reporting errors made in the past, the CSP Office has been very open about recognizing the mistakes. While there may be no explanation for all variances, the CSP Office has made what seems to be concerted effort to correct the mistakes, disclose the adjustments made, and improve its cost reporting.

SECTION III: CONCLUSION AND RECOMMENDATIONS

CSP Project Controls staff are confident that the current protocols followed to compile monthly cost reports appropriately ensure an adequate and consistent depiction of CSP costs for FTA reporting purposes. Given the challenges the CSP Office faced with adequately reporting costs since the failure of the EPC Ecosys system late last year, we find that the CSP Office has created what appears to be a good working solution that can be used as a basis for future cost reporting.

The latest versions of the cost workbooks greatly improved over the initial versions used in late 2013. Specifically, more datasheets are linked, which limits duplicative and potential erroneous data entries and facilitates a consistent application of cost reporting processes from month-to-month.

Moreover, using the monthly cost report from FAMIS, CSP Project Controls has begun flagging "old" index codes against which no costs should be billed since the phase or activity is complete (e.g., preliminary engineering). However, we learned that the index codes have not yet been "formally closed" in FAMIS. Consequently, other city department labor could still be charged to old index codes. According to SFMTA Accounting, closing an index codes will generate "error messages if an attempt is made to post any transactions to it in FAMIS."

Therefore, with no immediate plans to replace the current cost reporting tool, the CSP Office should:

1. Continue working on fine-tuning the cost workbook and associated written procedures.

2. 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.

APPENDIX A – SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY RESPONSE

SFMTA
Municipal
Transportation
Agency

October 31, 2014

Tonia Lediju, Director of City Audits
Office of the Controller, City Services Auditor Division
1 Dr. Carlton B. Goodlett Place, Room 476
San Francisco, CA 94102

Subject: SFMTA Response to the Office of the Controller's Draft Audit Report on Central Subway Project Cost Reporting Practices.

Dear Ms. Lediju:

Please find attached San Francisco Municipal Transportation Agency's (SFMTA) response to the recommendations made as part of the above-named audit. SFMTA will actively work to implement the recommendations.

- SFMTA will continue working on fine-tuning the cost workbook and associated written procedures with an expected completion date of Dec. 31, 2014.
- SFMTA will meet with SFMTA Accounting and Controllers Office to develop an action plan prior to end of the year (Dec. 31, 2014) to formally "close" FAMIS index codes no longer used. SFMTA will strive to execute the action plan over the course of first half of 2015 with goal of completion by the end of the fiscal year close out process, July/August 2015.

If you have any questions or need additional information, please do not hesitate to contact the Central Subway Program Director, John Funghi at (415) 701-4299.

Sincerely,

Edward D. Reiskin
Director of Transportation

cc: Sonali Bose, SFMTA CFO/Director of Finance & IT
John Funghi, SFMTA Program Director
Eric Stassevitch, CSP Program Manager Project Services
Patricia Parker, SFMTA Central Subway Contract Administrator

1 South Van Ness Avenue 7th Floor, San Francisco, CA 94103 415.701.4500 www.sfmta.com

For each recommendation, the responsible agency should indicate whether it concurs, does not concur, or partially concurs. If it concurs with the recommendation, it should indicate the expected implementation date and implementation plan. If the responsible agency does not concur or partially concurs, it should provide an explanation and an alternate plan of action to address the identified issue.

RECOMMENDATION AND RESPONSE

Recommendation	Responsible Agency	Response
1. Continue working on fine-tuning the cost workbook and associated written procedures.	SFMTA	Concur – Ongoing efforts to fine tune cost workbook and associated written procedures with an expected completion date of Dec 31, 2014.
2. 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.	SFMTA	Concur – Meet with SFMTA Accounting and Controllers Office and develop action plan prior to end of the year (Dec. 31, 2014). Execute action plan over the course of first half of 2015 with goal of completion by end of fiscal year close out process. July/August 2015