Board Meeting: February 2016
Issue Date: 01/15/2016

Finance and Audit Committee Performance Metrics

State Route 99 Realignment Project
Contract No. HSR 12-06

Safety
- Authority Safety Incident Rate
- Contractor Safety Incident Rate

Cost
- Construction Support Cost
- Contingency
- Cost Performance Index (CPI)

Schedule
- Schedule Performance Index (SPI)

Quality
- Construction Contract Change Orders

Economic Benefits
- Disadvantaged/Small Business Enterprise

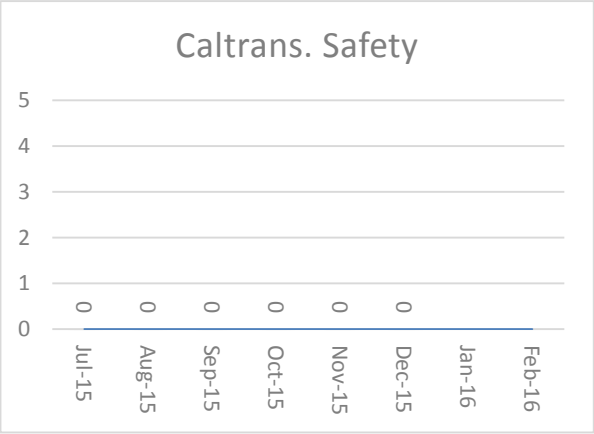
PERFORMANCE METRICS

The following performance metrics for SR99, a Caltrans Construction Manager / General Contractor (CM/GC) project within the limits of CP1, are intended to give the Authority's Board of Directors and other key stakeholders a high level overview of the performance of this project.
Safety is a top priority and listed first, followed by key metrics for cost, schedule, and quality, as all are fundamental metrics for the management of the project. In addition and in support of the business aspects of the project, a key metric is included for economic benefits. The Authority's management team, both on the project site and at the headquarters in Sacramento, will also review other aspects of the project's performance. The Authority will track and monitor the trends of these performance metrics to proactively manage the project.

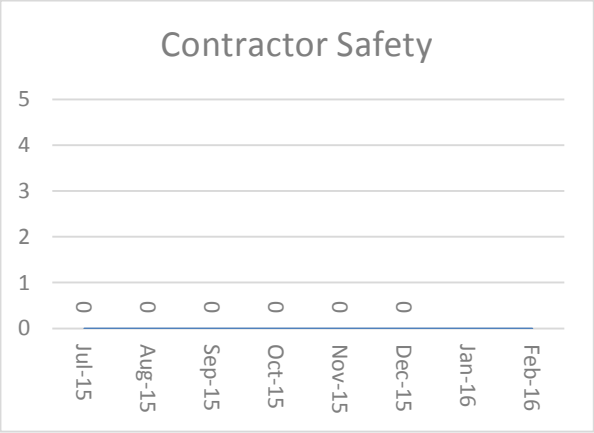
Performance Metrics

SAFETY

Caltrans Safety Incident Rate
[Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]

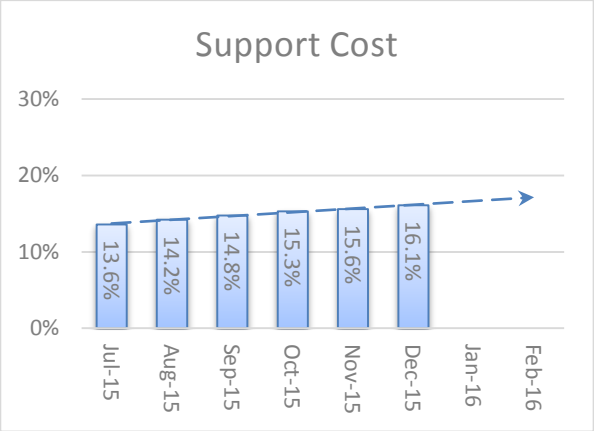


Contractor Safety Incident Rate
[Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]

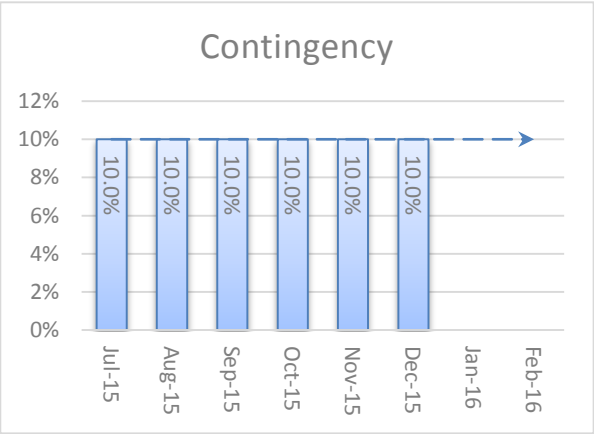


COST

Total Support Cost
[Invoiced to Date Amount] ÷ [Total Capital Cost]

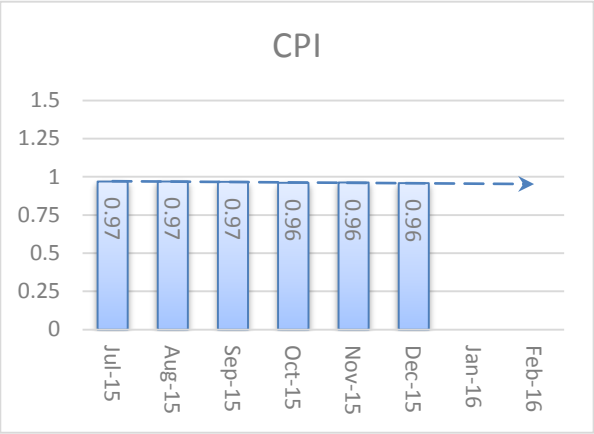


Construction Contingency
[Remaining Contingency Value] ÷ [Construction Contract Value]



COST (Continued)

Cost Performance Index
[Earned Value] ÷ [Actual Cost]



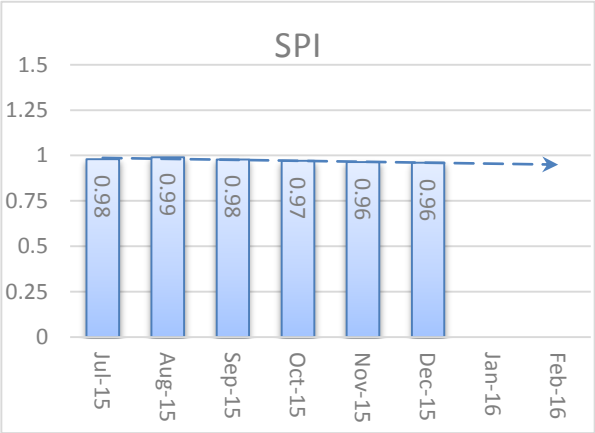
Earned Value (EV) = $46,615,236;
Actual Cost (AC) = $48,638,329
Currently at 0.96, performance target is >1.0.

Reason – The project has been broken up into two separate phases. An Early Work Package (EWP) has been created to account for construction of some critical items of work to avoid significant delays to maintain the current project schedule. Work associated in development of this package has resulted in expending additional resources. There has been ongoing clarifications in the design and scope of work for the project. There has also been continuous Value Engineering through the design phase that has resulted in a large effort in support during the PS&E phase of the project. Additionally, the EWP is being held up due to Right of Way constraints in acquiring Order of Possession.

Mitigation/Improvements – The project is implementing CMGC procurement methodology that has a significant upfront effort to resolve issues and add value to the project in the design phase. The goal is to reduce risks and eliminate changes and change orders in construction thereby potentially reducing capital cost in the construction phase. The EWP has been awarded and construction has begun.

SCHEDULE

Schedule Performance Index (SPI)
[Earned Value] ÷ [Planned Value]



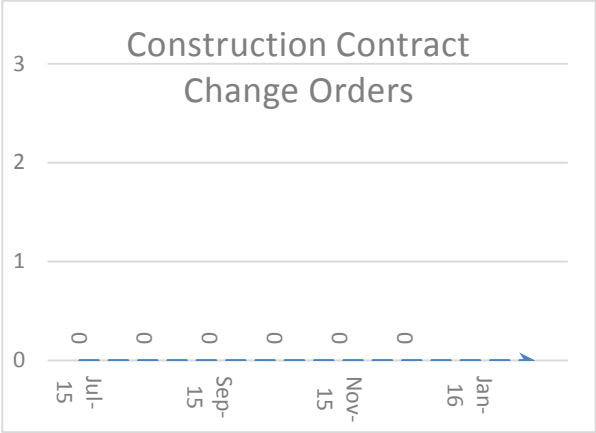
Earned Value (EV) = $46,615,236;
Planned value (PV) = $48,564,717
Currently at 0.96, performance target is >1.0.

Reason – The project has been broken up into two separate phases. An Early Work Package has been created to account for construction of some critical items of work to avoid significant delays to maintain the current project schedule. Work associated in development of this package has resulted in expending additional resources. There has been ongoing clarifications in the design and scope of work for the project. There has also been continuous Value Engineering through the design phase that has resulted in a large effort in support during the PS&E phase of the project. Additionally, the EWP is being held up due to Right of Way constraints in acquiring Order of Possession. UPRR has not being reviewing the submittals for the project and has now requested to resubmit 60 and 90% submittals before they will approve final plans.

Mitigation/Improvements – The project is implementing CMGC procurement methodology that has a significant upfront effort to resolve issues and add value to the project in the design phase. Due to the various challenges associated in getting to agreement with UPRR on the design of the project and Right of Way acquisition, the schedule has been slipping. The phasing of the project by creating smaller packages while expending additional resources helps in managing the schedule and avoiding additional delays to the project. The EWP has been awarded and construction has begun. The target date for the MP is April 2016.

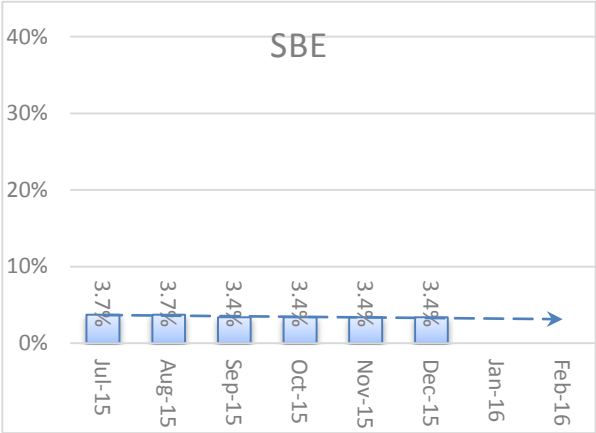
QUALITY

Construction Contract Change Orders (CCO's)
[Number of unplanned CCO's] ÷ [Construction Dollars Earned] * [5,000,000]



ECONOMIC BENEFITS

Disadvantaged/Small/Disabled Veteran/Micro Business Enterprise
[Total SB/DVBE/DBE/MB payments to Date] ÷ [Total Subcontract payments to Date]



Total SB/DVBE/DBE/MB payments made to date = $67,952
Total Subcontract Contract Payments made to Date = $ 2,016,626
Currently at 3.4%, performance target is 10% for the pre-construction phase.

Reason – As the project is in the Pre-Construction phase a majority of the work performed by the CMGC contractor is self-performed and the opportunity to hire Small Business sub consultants are very limited.

Mitigation/Improvements – The project target is to achieve the 30% goal by project completion. The Project Team set an intermediate goal of 10% for all sub contracts in the Pre-construction phase.
The contractor has maximized the Small Business participation by hiring SB/DVBE/DBE/MB for all work that is not self-performed. This metric will improve once the contractor begins to execute subcontracts for the construction phase of the project and the contractor has committed to a greater degree of small business utilization during construction to make up the current shortfall. The EWP has been awarded and construction has begun.
The projected SBE participation for the EWP is estimated at 36%. This metric will improve significantly as we progress through construction.

Performance Metrics – Explanatory Details

Category	Description
General	**Data Period**
Description	The Performance Metrics represent the period of 2/19/2013 to 12/31/2015.
Safety	**Caltrans Safety Incident Rate:** [Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]
Description	• The goal is to contain the incidence rate at ≤ 3.2. • Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2. • Caltrans has 0 incidents of recordable injury or illness to date. • Caltrans has 1530 construction hours worked to date. • The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: (N/EH) x 200,000, where N = number of injuries and illnesses EH = total hours worked by all employees during the calendar year 200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)
Safety	**Contractor Safety Incident Rate:** [Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]
Description	• The goal is to contain the incidence rate at ≤ 3.2. • Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2. • The Contractor has 0 incidents of recordable injury or illness to date. • The Contractor has 4972 hours worked to date. • The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: (N/EH) x 200,000, where N = number of injuries and illnesses EH = total hours worked by all employees during the calendar year 200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)
Cost	**Total Support Cost:** [Construction Support Cost] ÷ [Total Capital Cost]
Description	• The goal is to keep the support cost at ≤ 20% of the Capital cost. • Benchmark: The statewide average Support to Capital ratio for project development cost on the State Highway System is approx. 32% of the Capital costs for major projects. • For this project the Total Support Cost encompasses the effort required to provide Project Management, Contract Administration, Inspection and Quality Control for the Design, Right of Way and Construction phases. • Expended to date amount = $ 28,973,612 • Total Capital Cost = $ 180,000,000 • Project Total Support to Capital ratio = 16.1 %

Cost	**Construction Contingency:** [Remaining Contingency Value] ÷ [Construction Contract Value]
Description	• The goal is contain the contingency to 10% of the total Construction Capital Cost. • Benchmark: Caltrans is using an alternative procurement method called CMGC. Once the project is awarded, a 10% construction contingency will be established. • The project is being delivered in two phases. The EWP contract amount is $27,616,924 which includes Contract items, supplemental work and State furnished material. The total contingency for the EWP is $ 2,783,076. No payments made in last period. • The Remaining Contingency = [Current Allocated Contingency Amount] – [Executed unplanned Change Orders] = ($2,783,076 - $0) = $2,783,076 • The Construction Contract Value = [Construction Contract Amount] – [Monthly Progress Payment Estimates] = ($27,616,924 - $0) = $27,616,924
Cost	**Cost Performance Index (CPI):** Earned Value (EV) ÷ Actual Cost (AC)
Description	• The goal is to achieve CPI ≥ 1, which is same as ≥ 100% when expressed in percent. • Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the CPI should be ≥ 1 or 100%. At a value of 100% the value earned is same as planned, and the project is right on cost. • EV = Percent Complete x BAC (Budget at Completion) - $ 46,615,236 • AC = Actual Costs to Date - $ 48,638,329 • Project Cost Performance Index = 0.96 • Support Cost, Construction Capital for EWP and Right of Way Capital cost included in reporting.
Schedule	**Schedule Performance Index (SPI):** Earned Value (EV) ÷ Planned Value (PV)
Description	• The goal is to achieve SPI ≥ 1, which is same as ≥ 100% when expressed in percent. • Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the SPI should be ≥ 1 or 100%. • At a value of 100% the Project is forecasted to complete on-time. • EV= Percent Complete x BAC (Budget at Completion) - $ 46,615,236 • PV= Planned Value - $ 48,564,717 • Planned Value in dollars to be spent to date is derived from the approved baseline established for the project using a linear burn rate for support. • Project Schedule Performance Index = 0.96 • Support Cost, Construction Capital for EWP and Right of Way Capital cost included in reporting.
Quality	**Construction Contract Change Orders (CCO's):** [Number of unplanned CCO's] ÷ [Construction Dollars Earned] * [5,000,000]
Description	• The goal is to maintain Number of unplanned CCO's to ≤ 1.0. This represents 1 construction unplanned CCO per $5M of construction work performed. • The approved EWP contract allocates $30,400,000 for construction capital activities. This equates to an estimated 6 unplanned CCO's for the EWP to stay within the target. • The target rate identified is preliminary and is derived from the professional judgment of multiple Caltrans' managers and experience on other Caltrans' projects. This metric will be measured and trended for refinement throughout the life of this project

Economic Benefits	**Disadvantaged/Small/Disabled Veteran/Micro Business Enterprise:** [Total SB/DVBE/DBE/MB payments to Date] ÷ [Total Subcontract payments to Date]
Description	The Authority has established a Small and Disadvantaged Business Enterprise Program, inclusive of Small Businesses (SB), Disabled Veteran Business Enterprises (DVBE), Disadvantaged Business Enterprises (DBE) and Microbusinesses (MB) and has set an overall Small Business participation goal of ≥30%. Benchmark: This project will use an alternative procurement method called CMGC. As the project design is refined, the contractor will execute SB subcontracts for specific portions of work. At 90 % design, the contractor will provide a schedule of when all of the SB subcontracts will be signed. • The project will achieve the 30% goal by project completion. • The Project Team set an intermediate goal of 10% for all sub contracts in the Pre-construction phase. Total SB work performed amount = $ 67,952 Total Sub Contract payments = $ 2,016,626 The project has achieved a 3.4 % participation currently in the pre-construction phase. The EWP has been awarded and construction has begun. The projected SBE participation for the EWP is estimated at 36%. This metric will improve significantly as we progress through construction.