Board Meeting: Oct 2016
Data Date: 08/31/2016

# Finance and Audit Committee Performance Metrics

## Construction Package 2-3
## Contract No. HSR 13-57

**Safety**
- Authority Safety Incident Rate
- Contractor Safety Incident Rate

**Cost**
- Design & Construction Support Cost
- Contingency

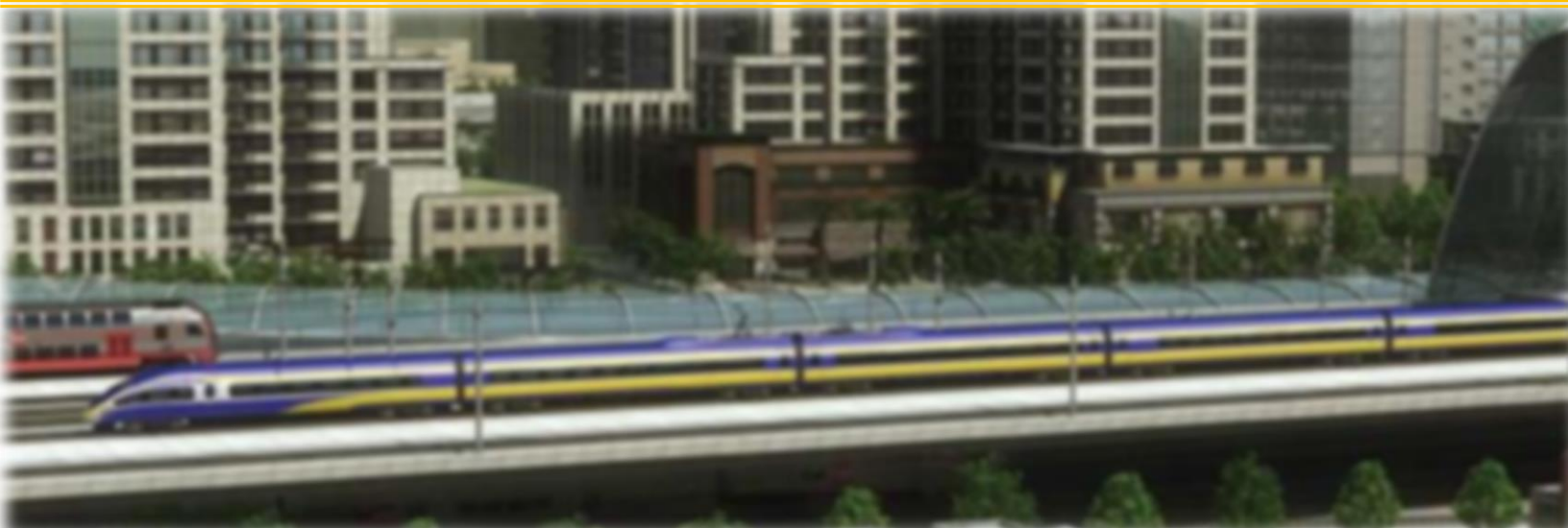
**Schedule**
- Schedule Performance Index (SPI)

**Quality**
- Percent of Non-Conformance Reports (NCRs) Resolved

**Economic Benefits**
- Disadvantaged/Small/Disabled Veteran/Micro Business Enterprises
- All National Targeted Workers
- Disadvantaged Workers

***PERFORMANCE METRICS***

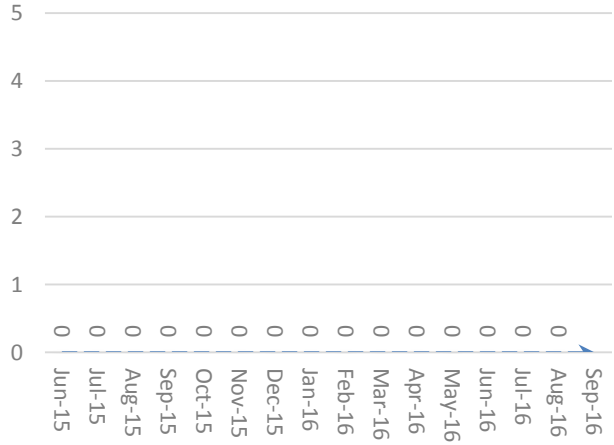
The following performance metrics for Construction Package 2-3, a design-build project, are intended to give the Authority's Board of Directors and other key stakeholders a high level overview of the performance of this project.
Safety is a top priority and listed first, followed by key metrics for cost, 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, three key metrics are 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.



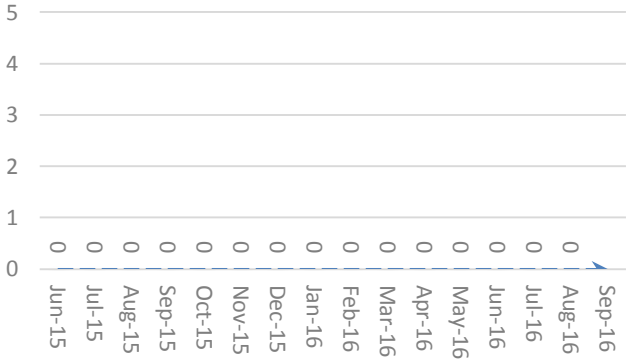
## Performance Metrics

### SAFETY

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

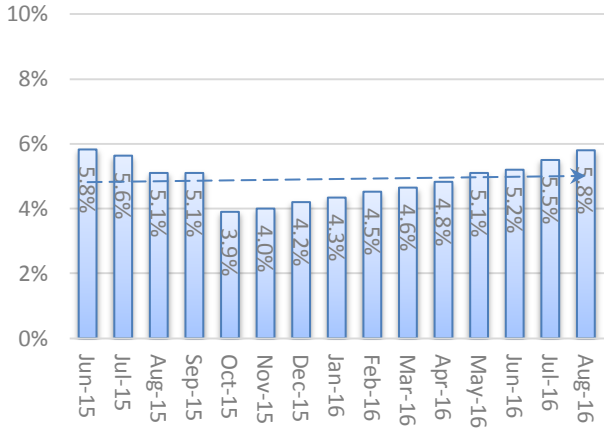



**Contractor Safety Incident Rate**
[Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]



## COST

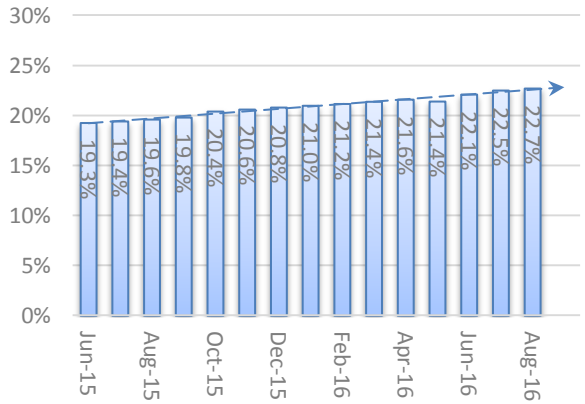
**Design & Construction Support Cost**
[Design & Construction Support Cost] ÷ [DB Invoiced to Date Amount]




1. Design & Construction Support Costs (PCM Invoiced to date) = $13,642,040.04
   DB Invoiced to date = $234,078,224.00
2. Currently at 5.8%, performance target is < 6%.

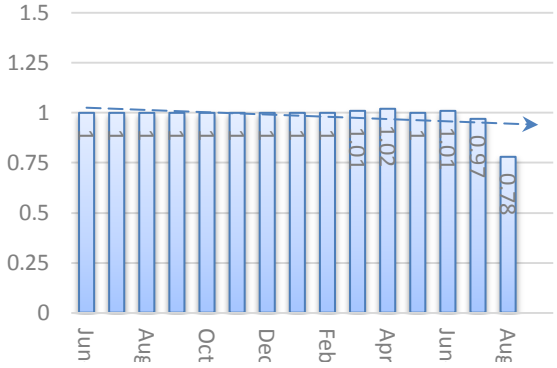
## COST (Continued)

**Contingency**
[Remaining Contingency Value] ÷ [Remaining Contract Value]




## SCHEDULE

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



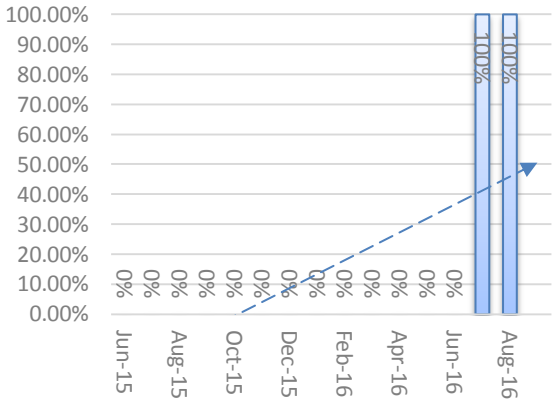

1. Earned Value = $234,078,224.00; Planned Value = $300,321,542.00.
2. Currently at .78, performance target is <1.

**Reason:** SPI is in red due to the current use of Baseline cashflow Early Start values.

**Mitigation/ Improvements:** The SPI calculation improves when using the average cashflow ($234,078,224 divided by 208,341,652 =1.12). The SPI calculation further improves using the Baseline Late Start cashflow ($234,078,224 divided by $116,361,762 = 2.01). We are evaluating which cashflow is the most reflective to use.

## QUALITY

**NCR Resolution Rate**
[Total NCRs Resolved to Date] ÷ [Total NCRs Issued to date]
NOTE: One NCR has been issued to date and resolved



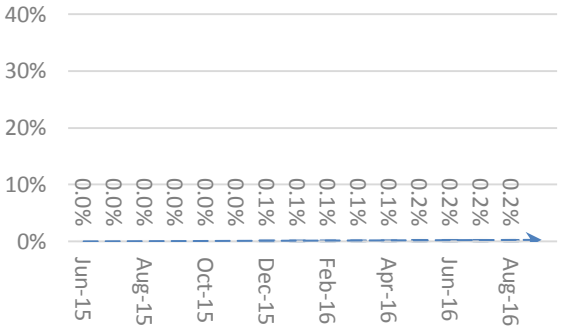
## ECONOMIC BENEFITS

**Disadvantaged/Small/Disabled Veteran/Micro Business Enterprises**
[Total Value of DBE/SBE/DVBE/MB Contracts Signed to Date with the DB Contractor] ÷ [DB Contract Value]

**Reason** –The project is in the Design phase. The majority of the work performed to date is management, mobilization and design work. These activities are performed by the Design-Build Joint Venture and its Designer of Record. 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 intermediate goals of 3% by June 2017, 10% by December 2017 and 20% by December 2018.

This metric will improve once the contractor begins to execute subcontracts for the construction phase of the project and the contractor is able to commit to a greater degree of small business utilization during construction.

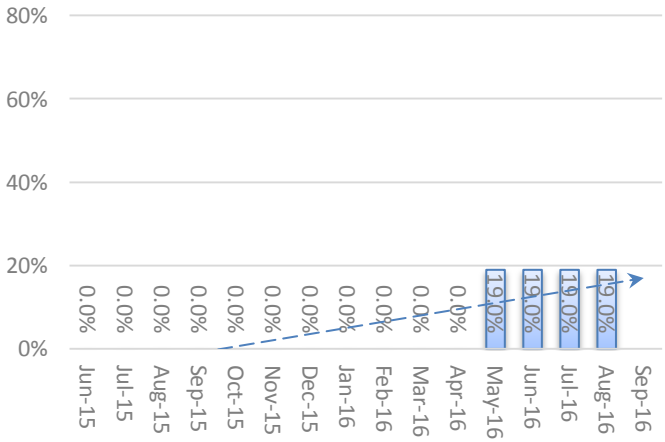


## ECONOMIC BENEFITS (Continued)

**All National Targeted Workers**
[National Targeted Worker Craft Hours to Date[1]] ÷ [Total Craft Hours to Date[1]]

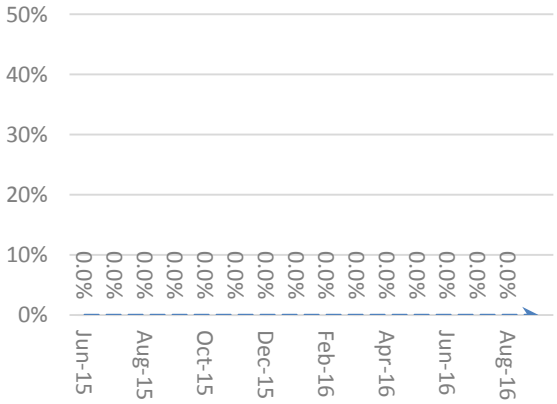
NOTE: Field construction activities have started with minor demolition of houses and other small buildings.

**Reason:** The majority of work performed to date has been in management, mobilization, and design by the Design-Build Joint Venture and its Designer of Record.
**Mitigation/ Improvements:** More opportunities to hire Disadvantaged Workers when contractor begins to execute subcontracts for the construction phase. We receive data quarterly. We are investigating data received for Crafted Hours to Date. We will update next month.



## Disadvantaged Workers
## [Disadvantaged Worker Craft Hours to Date1] ÷ [National Targeted Worker Hours1]

**Reason:** The majority of work performed to date has been in management, mobilization, and design by the Design-Build Joint Venture and its Designer of Record.
**Mitigation/ Improvements:** More opportunities to hire Disadvantaged Workers when contractor begins to execute subcontracts for the construction phase.



## Performance Metrics – Explanatory Details

| Category | Description |
|---|---|
| **General** | **Data Period** |
| Description | Performance Metrics represent the period of 06/12/15 (Limited Notice to Proceed) to 8/31/2016. |
| **Safety** | **Authority Safety Incident Rate:** [Number of injuries and illnesses x 200,000] ÷ [Employee hours worked] * |
| Description | • The goal is to contain the incidence rate at ≤ 3.2.<br>• 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.<br>• Authority (CP 2-3 Authority and Consultant on-site staff) has zero incidents of recordable injury or illness to date.<br>• The Consultant staff has 88,760 hours worked through July. Hours worked in August is estimated to be 8,103 hours. Total estimated hours through August is 96,863.<br>The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: (N x 200,000)÷EH, where<br>N = number of injuries and illnesses<br>EH = total hours worked by all employees during the calendar year<br>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 x 200,000] ÷ [Employee hours worked] * |
| Description | • The goal is to contain the incidence rate at ≤ 3.2.<br>• 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.<br>• Design-Build Contractor (DB) has zero (0) incidents of recordable injury or illness to date.<br>• Design-Build Contractor (DB) has zero construction hours worked to date as the project is still in the design phase. The start for early start construction with the Tulare roadway improvements has moved to September 2016.<br>• The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: (N x 200,000)÷EH, where<br>N = number of injuries and illnesses<br>EH = total hours worked by all employees during the calendar year<br>200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year). |
| **Cost** | **Design & Construction Support Cost:** [Design & Construction Support Cost] ÷ [DB Invoiced to Date Amount] |
| Description | • The goal is to keep the support cost at ≤ 6%.<br>• Benchmark: Transit Cooperative Research Program (TCRP) Report 138 is an industry resource for understanding soft costs and was sponsored by the FTA. Construction Administration & Management should be in the range of 5% to 6% of construction costs.<br>• The Design & Construction Support Cost encompasses the Project & Construction Management Team (PCM) invoiced to date amount = $13,642,040.04.<br>• The DB Invoiced to Date Amount = $234,078,224. |

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| | |

| Cost | **Contingency:** [Remaining Contingency Value] ÷ [Remaining Contract Value] |
|---|---|
| Description | • The goal is contain the contingency in the range of 10-20%.<br>• Benchmark: As per guidelines by Federal Transit Authority cost for contingency should be in the range of 10% to 20% of construction cost during the 15% - 30% Preliminary Design Report.<br>• *(Note: The contingency percentage will be adjusted per FTA guidelines as design and construction move forward.)*<br>• The Remaining Contingency = [Current Allocated Contingency Amount] – [Executed Change Orders Affecting Contingency] = $257,216,021.00.<br>• The Remaining Contract Value = [Revised DB Contract Amount] – [Authority Approved Invoices to Date] = $1,135,241,645.00. |
| **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.<br>• Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the SPI should be ≥ 1 or 100%.<br>• At a value of 100% the Project is forecasted to complete on-time.<br>• EV = Percent Complete x BAC (Budget at Completion)<br>• PV= Planned Value<br>• Planned Value (Baseline Early Start): $ 300,321,542.00<br>• SPI: .78<br>• Currently evaluating the most representative cashflow between early start and late start activity dates.<br>• SPI calculation using the average cashflow is $234,078,224 divided by 208,341,652 =1.12. SPI calculation using the Baseline Late Start cashflow is $234,078,224 divided by $116,361,762 = 2.01. |
| **Quality** | **Non-Conformance Report Resolution (NCR) Rate:** [Total Non-Conformance Reports Resolved to Date] ÷ [Total Non-Conformance Reports Issued to Date] |
| Description | • Measures the effective resolution of NCRs based on percentage of NCR corrective actions approved.<br>• The goal is to identify and approve resolution of the NCR as soon as practical.<br>• The target rate is to stay above 85% closed.<br>• This metric is a measure of the resolution rate of non-conforming work issues identified on the project, based on the KPI Standard organization's Heavy and Civil Engineering Construction definition.<br>• The target rate identified is preliminary and is derived from the professional judgment of multiple construction professionals and NCR data to date. This metric will be measured and trended for refinement throughout the life of the CP 2-3 project and across multiple High Speed Rail construction packages to develop a performance standard for the High Speed Rail.<br>• Total Non-Conformance Reports Issued to Date: 1<br>• Total Non-Conformance Reports Resolved to Date: 1 |

| Economic Benefits | **Disadvantaged/Small/Disabled Veteran/Micro Business Enterprises:** [Total Value of DBE/SBE/DVBE/MB Contracts Signed to Date with the DB] ÷ [DB Contract Value] |
|---|---|
| Description | • The current goal is achieve ≥30% |

| | |
|---|---|
| | • Benchmark: As the project design is refined, the DB executes DBE/SBE/DVBE/MB subcontracts for specific portions of work. To date, the DB has not provided a schedule of when all of the DBE/SBE/DVBE/MB subcontracts will be signed. The Project and Construction Management Team set goals of 30% over the course of the project.<br>• DB is continuing its process of executing subcontracts with DBE/SBE/DVBE/MB firms.<br>• DBE/SBE/DVBE/MB Contract Amount Signed to date: $2,449,061.26. Given that Notice to Proceed was only issued to the Design-Builder on 7/25/15 and the project is in the design phase, it is too early to measure significant DBE progress. Interim goals have been developed as follows: 3% utilization by June 2017, 10% by December 2017 and 20% by December 2018.<br>NOTE: Data is reported quarterly. |
| **Economic Benefits** | **All National Targeted Workers:** [National Targeted Worker Craft Hours to Date] ÷ [Total Craft Hours to Date] |
| Description | • The goal is ≥ 30% as identified in the contract.<br>• Benchmark: The Community Benefits Agreement requires a minimum of 30% of all hours of Project Work shall be performed by National Targeted Workers. The data is officially reported quarterly and estimated monthly by the DB.<br>• DB has 527 National Targeted Worker craft hours to date.<br>• DB has 2,778 craft hours to date.<br>NOTE: We are investigating data received for Crafted Hours to Date, and will update next month. Also note the data is received quarterly. |
| **Economic Benefits** | **Disadvantaged Workers:** [Disadvantaged Worker Craft Hours to Date] ÷ [National Targeted Worker Hours to Date] |
| Description | • The goal is ≥ 10% as identified in the contract.<br>• Benchmark: The Community Benefits Agreement requires a minimum of 10% of all National Targeted Worker hours shall be performed by Disadvantaged Workers. The data is officially reported quarterly and estimated monthly by the DB.<br>• DB has zero Disadvantaged Worker craft hours to date.<br>• DB has 527 National Targeted Worker hours to date.<br>NOTE: Data is reported quarterly. Further review is being made of the National Targeted Worker hours. Revisions, if needed, will be made in the next report. |