Board Meeting: August 2016
Data Date: 6/30/2016

# Finance and Audit Committee Performance Metrics

## Construction Package 1
## Contract No. HSR 13-06

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

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

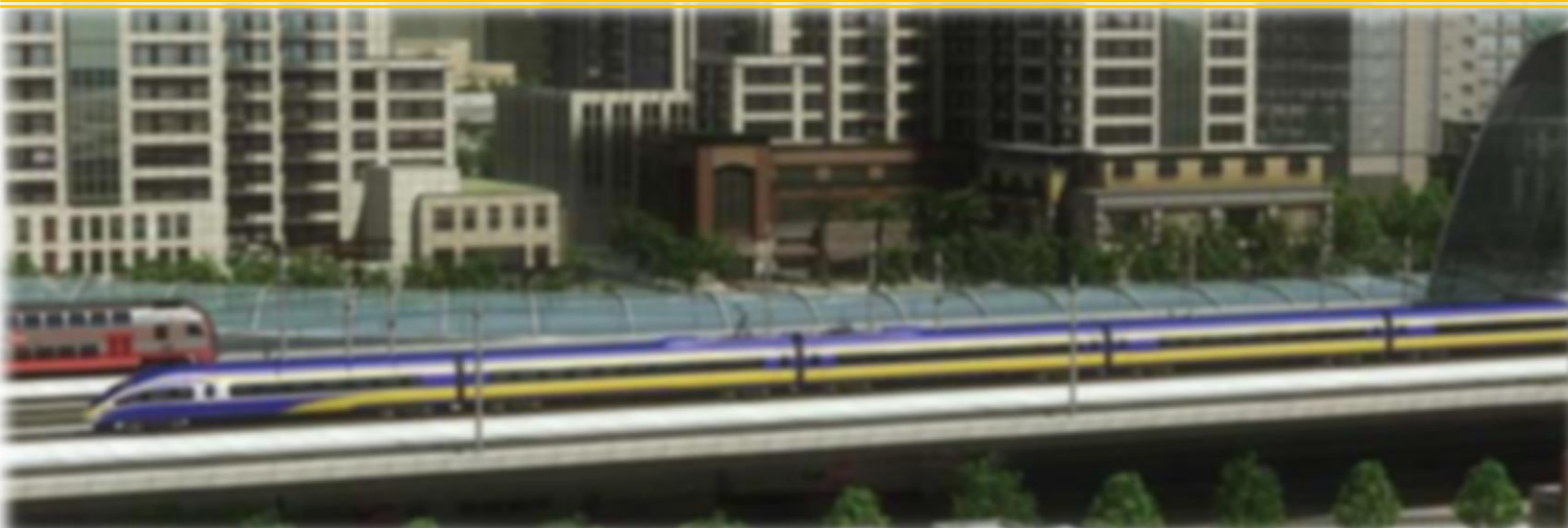
**Schedule**
- Schedule Performance Index (SPI)

**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***

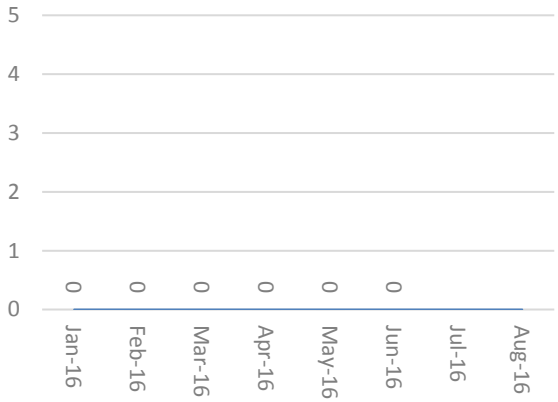
The following performance metrics for Construction Package 1, a design-build project, are intended to give the Authority's Board of Directors and other key stakeholders a high level overview of the performance of this project.
Safety is a top priority and listed first, followed by key metrics for cost, 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.



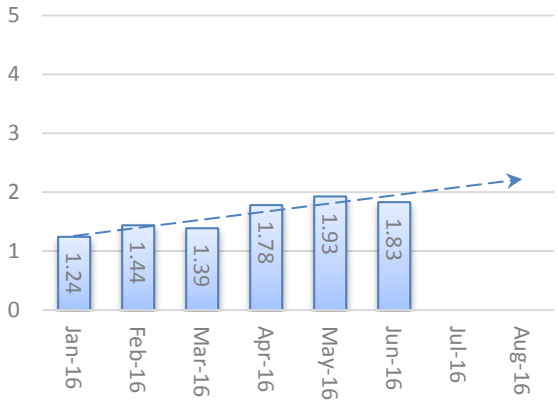
# Performance Metrics

## SAFETY

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

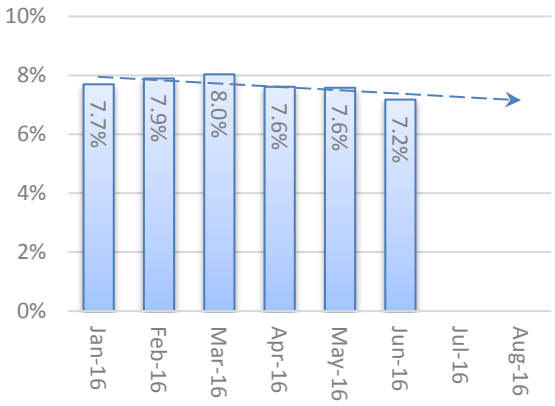



**Contractor Safety Incident Rate**
[Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]



## COST

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



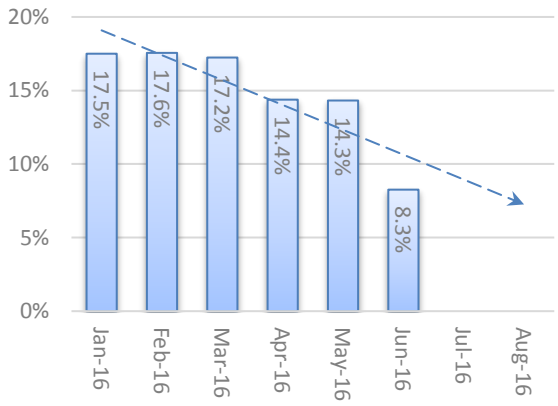

1. Design & Construction Support Costs (PCM Invoiced to date) = $20,079,761; DB Invoiced to date = $279,771,585.
2. Currently at 7.2%, performance target is < 6%.

**Reason –** Due to the delay in starting substantial construction activities, the DB invoiced amount to date is lagging behind what was planned, while the design and construction support cost remains generally consistent.

**Mitigation/Improvements –** Delays in construction activity are being driven by several factors. This metric will improve as the Contractor continues to increase construction and the value of their monthly invoices increases. Continued advancement of the deliverables necessary to commence substantial construction will increase the value of the Contractor's work and subsequently this metric will improve.

## COST (Continued)

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



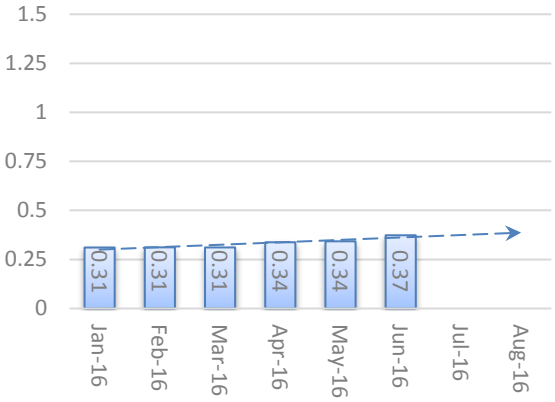

1. Remaining Contingency = $80,657,585; Remaining Contract Value = $976,448,826
2. Currently at 8.3%, performance target is > 10%.

**Reason –** Right-of-way delay impacts through 12/31/2015 have been resolved with the Contractor in Change Order 00099, with the delay costs coming out of project contingency. The Remaining Contract Value is also increased due to added scope for the Norther Extension and previously excluded Third Party Utility relocations that are now delegated to the Contractor. CP1 budget and contingency have not been adjusted to reflect this added scope.

**Mitigation/Improvements –** The Authority is preparing to transfer funds for the added scope into the CP1 budget and to reevaluate the appropriate level of contingency in light of the added scope and other factors. The Authority is also taking steps to improve right-of-way delivery to mitigate future delay impacts.

## SCHEDULE

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



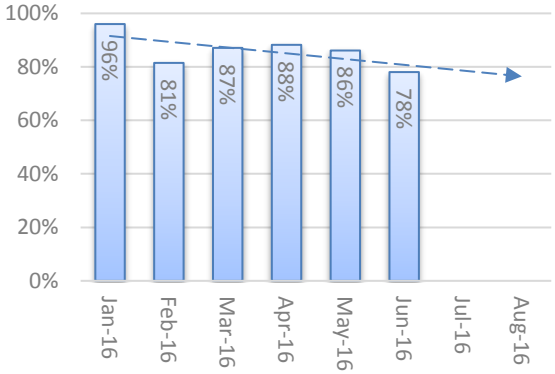

1. Earned Value = $279,771,585; Planned Value = $749,508,700.
2. Currently at 0.37, performance target is >1.0.

**Reason –** Due to the delay in starting substantial construction activities, the Contractor's earned value is lagging behind the planned value.

**Mitigation/Improvements –** Delays in construction activity are being driven by several factors. This metric will improve as the Contractor continues to increase construction and the value of their monthly invoices increases. Continued advancement of the deliverables necessary to commence substantial construction will increase the value of the Contractor's work and subsequently this metric will improve.

## QUALITY

**Percent of Non-Conformance Reports (NCRs) Resolved**
[Resolved Non-Conformance Reports] ÷ [Total Number of Non-Conformance Reports]




1. Contractor Issued NCRs to Date = 33
2. Contractor Issued NCRs Resolved to Date = 28
3. Owner Issued NCRs to Date = 5
4. Owner Issued NCRs resolved to Date = 4
5. ISE Issued NCRs to Date = 3
6. ISE Issued NCRs Resolved to Date = 0
7. Currently at 78%, performance target is >85%.

**Reason –** Five (5) NCRs were issued in June, primarily for anomalies within CIDH pile foundations.

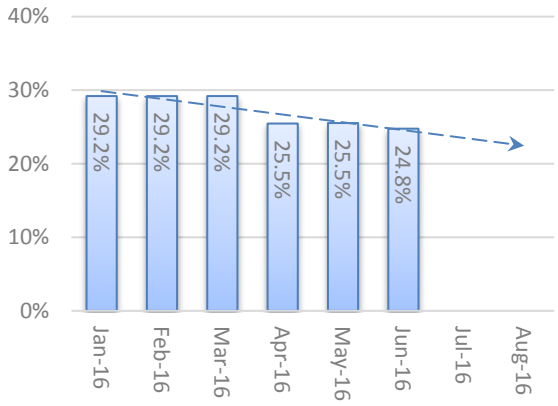
**Mitigation/Improvements –** This metric will improve as the Contractor determines the necessary mitigation (if any) and resolves the open NCRs.

## 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]

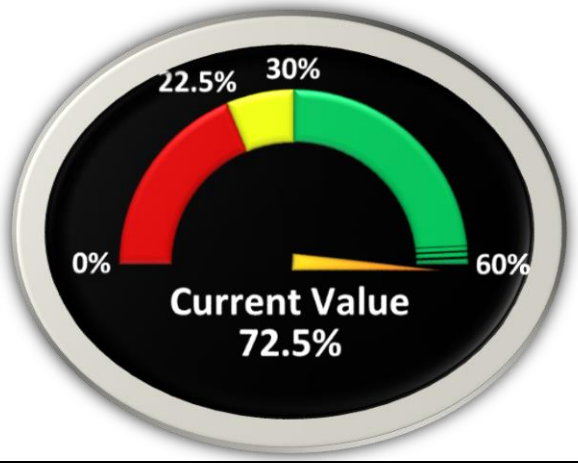
*Goals: 10% by 1/2014, 20% by 7/2014, and 30% by 12/2016*

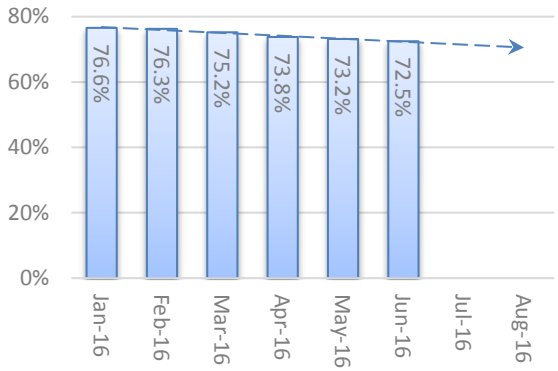


## ECONOMIC BENEFITS (Continued)

**All National Targeted Workers**

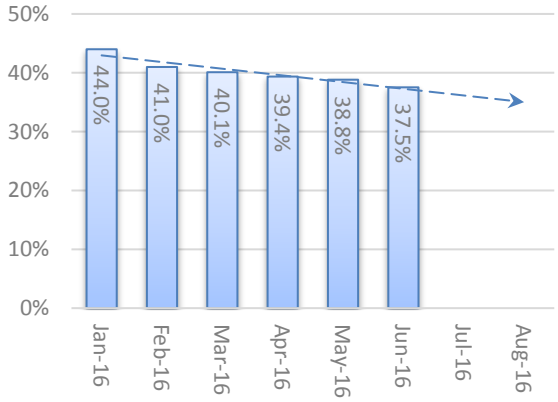
[National Targeted Worker Craft Hours to Date[1]] ÷ [Total Craft Hours to Date[1]]




**Disadvantaged Workers**

[Disadvantaged Worker Craft Hours to Date[1]] ÷ [National Targeted Worker Hours[1]]




[1]Estimated value

# Performance Metrics – Explanatory Details

| Category | Description |
|---|---|
| **General** | **Data Period** |
| Description | The Performance Metrics represent the period of 10/15/2013 (Notice to Proceed) to 6/30/2016. |
| **Safety** | **Authority 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.<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 (CP01 Authority and Consultant on-site staff) has zero incidents of recordable injury or illness to date.<br>• The Consultant staff has 124,203 hours worked to date<br>• 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<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] ÷ [Employee hours worked] * [200,000] |
| 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 nine (9) incidents of recordable injury or illness to date.<br>• Design-Build Contractor (DB) has 982,938 hours worked to date.<br>• 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<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 = $20,079,761<br>• The DB Invoiced to Date Amount = $279,771,585 |

**Construction Package 1**

| **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] = $80,657,585<br>• The Remaining Contract Value = [Revised DB Contract Amount] – [Authority Approved Invoices to Date] = $976,448,826 |
| **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 in dollars to be spent to data date is derived from the approved baseline schedule, which stands at $749,508,700 through the most recent billing period.<br>*Note: The approved baseline schedule is being revised to reflect changes in planned right-of-way and 3rd party agreement dates since bid time.* |
| **Quality** | **Percent of Non-Conformance Reports (NCR) Resolved:** [Resolved Non-Conformance Reports] ÷ [Total Number of Non-Conformance Reports] |
| Description | • The goal is to maintain a NCR resolution rate of ≥ 85%.<br>• This metric is a measure of the quantity 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 quality managers and construction professionals. This metric will be measured and trended for refinement throughout the life of the CP1 project and across multiple High Speed Rail construction packages to develop a performance standard for the High Speed Rail.<br>• To Date:<br>  ○ 33 Contractor Issued NCRs, 28 resolved<br>  ○ 5 Owner Issued NCRs, 4 resolved<br>  ○ 3 ISE Issued NCRs, 0 resolved |

**Construction Package 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%<br>• 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 10% by 1/14, 20% by 7/2014 and 30% by 12/2016.<br>• DB has executed subcontracts with DBE/SBE/DVBE/MB firms totaling 24.8% of the current DB Contract Amount. |
| **Economic Benefits** | **All National Targeted Workers:** [National Targeted Worker Craft Hours to Date[1]] ÷ [Total Craft Hours to Date[1]] |
| 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 109,748 National Targeted Worker craft hours[1] to date.<br>• DB has 151,432 craft hours[1] to date. |
| **Economic Benefits** | **Disadvantaged Workers:** [Disadvantaged Worker Craft Hours to Date[1]] ÷ [National Targeted Worker Hours to Date[1]] |
| 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 41,185 Disadvantaged Worker craft hours[1] to date.<br>• DB has 1109,748 National Targeted Worker hours[1] to date. |

[1] Estimated value