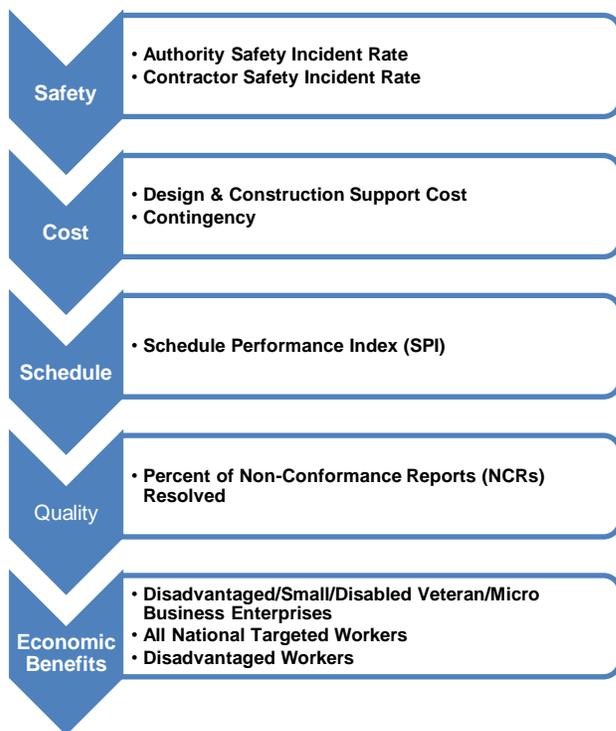


# Finance and Audit Committee Performance Metrics

## Construction Package 4 Contract No. HSR 14-32



### PERFORMANCE METRICS

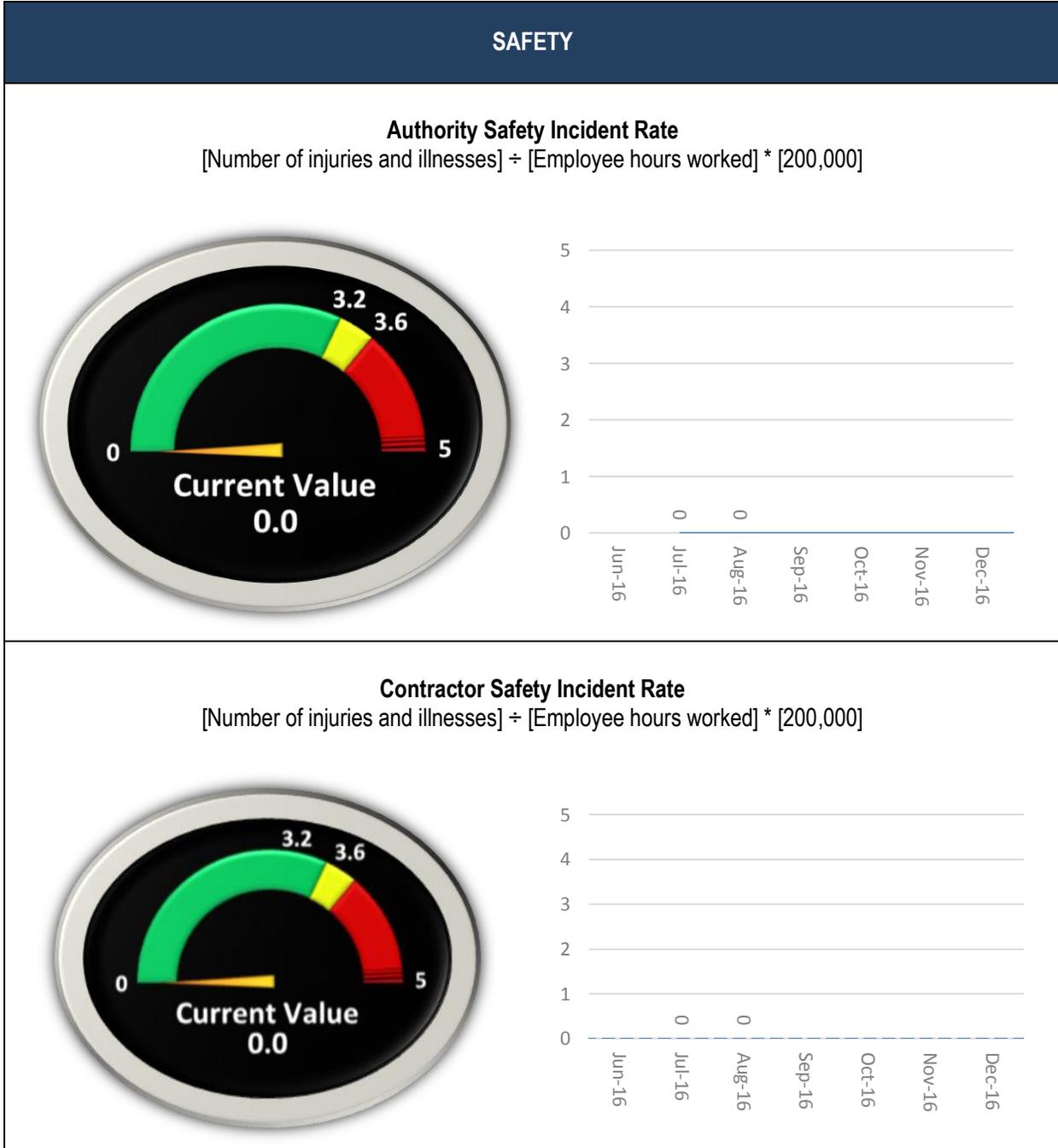
The following performance metrics for Construction Package 4, a design-build project, are intended to give the Authority's Board of Directors and other key stakeholders a high level overview of the performance of this project.

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.



Construction Package 4

Performance Metrics

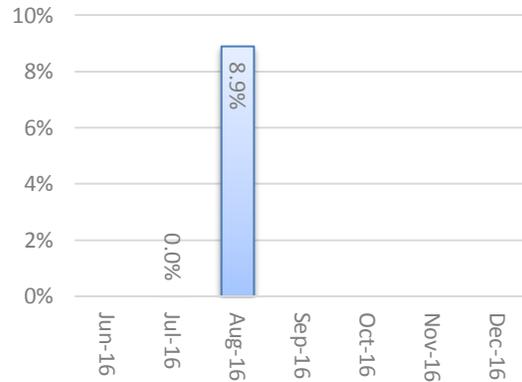


**Construction Package 4**

**COST**

**Design & Construction Support Cost**

$$[\text{Design \& Construction Support Cost}] \div [\text{DB Invoiced to Date Amount}]$$



1. Design & Construction Support Costs (PCM Invoiced to date) = \$1,887,257.56  
DB Invoiced to date = \$21,104,748.65
2. Currently at 8.9%, performance target is < 6%.

**Reason** – Due to delayed DB invoice submittal, July and August invoices were not approved as of this reporting period. This caused the basis (denominator) to be lower than expected and increase the percentage.

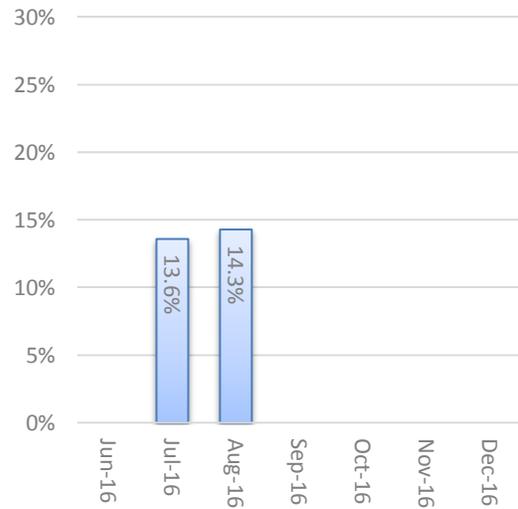
**Mitigation/Improvements** – As delayed DB invoices are submitted and approved, this value should trend back to the normal range.

Construction Package 4

**COST (Continued)**

**Contingency**

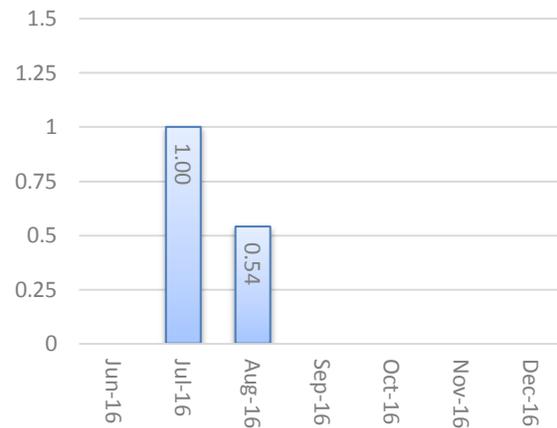
[Remaining Contingency Value] ÷ [Remaining Contract Value]



Construction Package 4

**SCHEDULE**

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



1. Earned Value = \$21,104,749.00; Planned Value = \$38,942,807.00
2. Currently at 0.54, performance target is >1.

**Reason** – SPI is 0.54 for August report due to DB being behind schedule with design submittals as compared to their Interim Baseline. The delayed design submittals limit the contractor’s ability to bill against incomplete submittals.

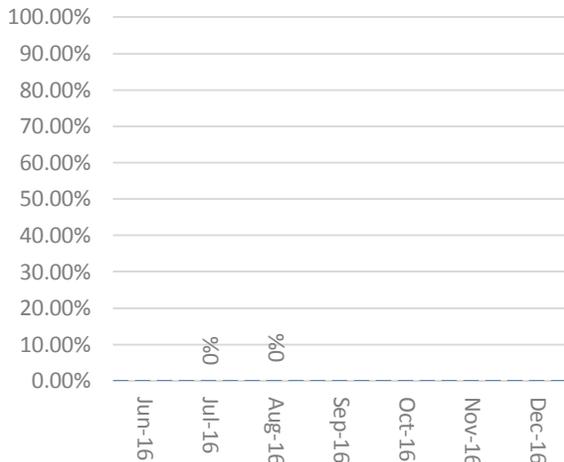
**Mitigation/Improvements** – Currently working with DB regarding their plan for recovery of design activities in the interim schedule. As this recover occurs, the SPI should trend towards 1.0.

**Construction Package 4**

**QUALITY**

**NCR Resolution Rate**

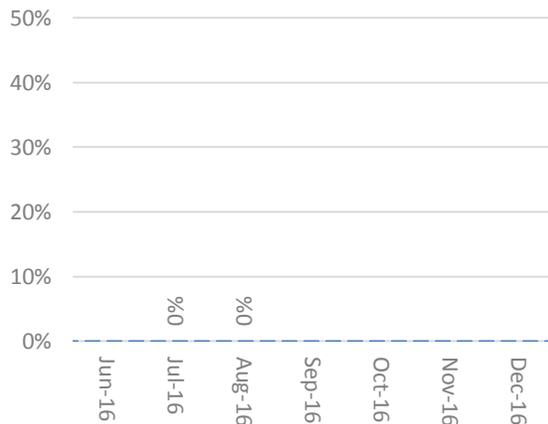
$[\text{Total NCRs Resolved to Date}] \div [\text{Total NCRs Issued to date}]$



**ECONOMIC BENEFITS**

**Disadvantaged/Small/Disabled Veteran/Micro Business Enterprises**

$[\text{Total Value of DBE/SBE/DVBE/MB Contracts Signed to Date with the DB Contractor}] \div [\text{DB Contract Value}]$

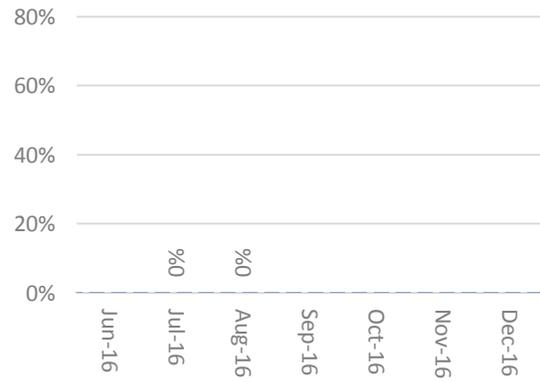


Construction Package 4

**ECONOMIC BENEFITS (Continued)**

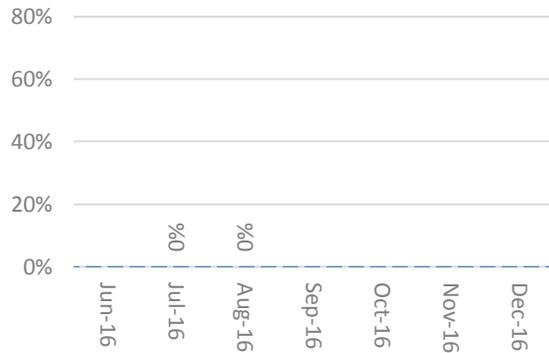
**All National Targeted Workers**

[National Targeted Worker Craft Hours to Date<sup>1</sup>] ÷ [Total Craft Hours to Date<sup>1</sup>]



**Disadvantaged Workers**

[Disadvantaged Worker Craft Hours to Date<sup>1</sup>] ÷ [National Targeted Worker Hours<sup>1</sup>]



<sup>1</sup>Estimated value

Construction Package 4

Performance Metrics – Explanatory Details

| Category       | Description   |
|----------------|---|
| <b>General</b> | <b>Data Period</b>  |
| Description    | Performance Metrics represent the period of 08/31/16  |
| <b>Safety</b>  | <b>Authority Safety Incident Rate:</b> $[\text{Number of injuries and illnesses} \times 200,000] \div [\text{Employee hours worked}]^*$   |
| Description    | <ul style="list-style-type: none"> <li>The goal is to contain the incidence rate at <math>\leq 3.2</math>.</li> <li>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.</li> <li>Authority (CP 4 Authority and Consultant on-site staff) has zero incidents of recordable injury or illness to date.</li> <li>The Consultant staff has 6,029 hours worked through June and an estimated 2200 in July totaling an approximate 8,229 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: <math>(N \times 200,000) \div \text{EH}</math>, 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).</li> </ul> |
| <b>Safety</b>  | <b>Contractor Safety Incident Rate:</b> $[\text{Number of injuries and illnesses} \times 200,000] \div [\text{Employee hours worked}]^*$  |
| Description    | <ul style="list-style-type: none"> <li>The goal is to contain the incidence rate at <math>\leq 3.2</math>.</li> <li>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.</li> <li>Design-Build Contractor (DB) has zero (0) incidents of recordable injury or illness to date.</li> <li>Design-Build Contractor (DB) has zero construction hours worked to date.</li> <li>The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: <math>(N \times 200,000) \div \text{EH}</math>, 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).</li> </ul>   |
| <b>Cost</b>    | <b>Design &amp; Construction Support Cost:</b> $[\text{Design \& Construction Support Cost}] \div [\text{DB Invoiced to Date Amount}]$  |
| Description    | <ul style="list-style-type: none"> <li>The goal is to keep the support cost at <math>\leq 6\%</math>.</li> <li>Benchmark: Transit Cooperative Research Program (TCRP) Report 138 is an industry resource for understanding soft costs and was sponsored by the FTA. Construction Administration &amp; Management should be in the range of 5% to 6% of construction costs.</li> <li>The Design &amp; Construction Support Cost encompasses the Project &amp; Construction Management Team (PCM) invoiced to date amount = \$1,887,257.56</li> <li>The DB Invoiced to Date Amount = \$21,104,748.65</li> </ul>   |

Construction Package 4

| Cost        | Contingency: $\frac{[\text{Remaining Contingency Value}]}{[\text{Remaining Contract Value}]}$   |
|-------------|---|
| Description | <ul style="list-style-type: none"> <li>The goal is contain the contingency in the range of 10-20%.</li> <li>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.</li> <li><i>(Note: The contingency percentage will be adjusted per FTA guidelines as design and construction move forward.)</i></li> <li>The Remaining Contingency = <math>[\text{Current Allocated Contingency Amount}] - [\text{Executed Change Orders Affecting Contingency}] = \\$60,565,872.40</math></li> <li>The Remaining Contract Value = <math>[\text{Revised DB Contract Amount}] - [\text{Authority Approved Invoices to Date}] = \\$424,579,379.</math></li> </ul>  |
| Schedule    | Schedule Performance Index (SPI): $\frac{\text{Earned Value (EV)}}{\text{Planned Value (PV)}}$  |
| Description | <ul style="list-style-type: none"> <li>The goal is to achieve <math>\text{SPI} \geq 1</math>, which is same as <math>\geq 100\%</math> when expressed in percent.</li> <li>Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the SPI should be <math>\geq 1</math> or 100%.</li> <li>At a value of 100% the Project is forecasted to complete on-time.</li> <li><math>\text{EV} = \text{Percent Complete} \times \text{BAC (Budget at Completion)}</math></li> <li><math>\text{PV} = \text{Planned Value}</math></li> <li>Planned Value in dollars to be spent to date as derived from the baseline schedule; is \$38,942,807.00</li> </ul>  |
| Quality     | Non-Conformance Report Resolution (NCR) Rate: $\frac{[\text{Total Non-Conformance Reports Resolved to Date}]}{[\text{Total Non-Conformance Reports Issued to Date}]}$   |
| Description | <ul style="list-style-type: none"> <li>Measures the effective resolution of NCRs based on percentage of NCR corrective actions approved.</li> <li>The goal is to identify and approve resolution of the NCR as soon as practical.</li> <li>The target rate is to stay above 85% closed.</li> <li>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.</li> <li>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 4 project and across multiple High Speed Rail construction packages to develop a performance standard for the High Speed Rail.</li> <li>Total Non-Conformance Reports Issued to Date: 0</li> <li>Total Non-Conformance Reports Resolved to Date: 0</li> </ul> |

**Construction Package 4**

|                          |  |
|--------------------------|--|
| <b>Economic Benefits</b> | <b>Disadvantaged/Small/Disabled Veteran/Micro Business Enterprises:</b> $[\text{Total Value of DBE/SBE/DVBE/MB Contracts Signed to Date with the DB}] \div [\text{DB Contract Value}]$   |
| Description              | <ul style="list-style-type: none"> <li>• The current goal is achieve <math>\geq 30\%</math></li> <li>• 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.</li> <li>• DB is continuing its process of executing subcontracts with DBE/SBE/DVBE/MB firms.</li> <li>• The PIM started on August 1, 2016. On Wednesday, August 3, 2016, the PIM and Small Business Officer attended the High Speed Rail Support Group Bakersfield Mixer. The event took place at the River Lakes Ranch Links.</li> <li>• The PIM and Authority had their first meeting to discuss the PIP and outreach events. There were no community events for the month of August.</li> <li>• Foreseen Activities:</li> <li>• CRB is planning to have an Open House at their new office in Wasco in the beginning of October. CRB will post the Open House Invitation in the newspaper 10 working days in advance. Along with posting the invitation in the newspaper, it will be posted in Wasco and Shafter libraries. There are other on-line websites and ideas that will be discussed with the Authority for approval. The Open House will be open to the public and will give time for the community to come together and meet the CP 4 team. Finger food and refreshments will be provided.</li> <li>• Given that Notice to Proceed was only issued to the Design-Builder on 4/15/16 and the project is in the design phase, it is too early to measure significant DBE progress. Interim goals are being developed.</li> </ul> |
| <b>Economic Benefits</b> | <b>All National Targeted Workers:</b> $[\text{National Targeted Worker Craft Hours to Date}] \div [\text{Total Craft Hours to Date}]$  |
| Description              | <ul style="list-style-type: none"> <li>• The goal is <math>\geq 30\%</math> as identified in the contract.</li> <li>• 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.</li> <li>• DB has zero National Targeted Worker craft hours to date.</li> <li>• DB has zero craft hours to date.</li> </ul>   |
| <b>Economic Benefits</b> | <b>Disadvantaged Workers:</b> $[\text{Disadvantaged Worker Craft Hours to Date}] \div [\text{National Targeted Worker Hours to Date}]$   |
| Description              | <ul style="list-style-type: none"> <li>• The goal is <math>\geq 10\%</math> as identified in the contract.</li> <li>• 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.</li> <li>• DB has zero Disadvantaged Worker craft hours to date.</li> <li>• DB has zero National Targeted Worker hours to date.</li> </ul>   |